

## Annex 2 - Scholarships fact sheets

### BIOMEDICAL AREA

- DRUG RESEARCH AND INNOVATIVE TREATMENTS p. 2
- TUSCANY PH.D IN NEUROSCIENCES p. 5
- BIOMEDICAL SCIENCES p. 7
- CLINICAL SCIENCES p. 11

### SCIENTIFIC AREA

- EVOLUTIONARY BIOLOGY AND ECOLOGY p. 14
- EARTH SCIENCES p. 16
- PHYSICS AND ASTRONOMY p. 18
- INTERNATIONAL DOCTORATE IN ATOMIC AND MOLECULAR PHOTONICS p. 20
- INTERNATIONAL DOCTORATE IN STRUCTURAL BIOLOGY p. 22
- CHEMICAL SCIENCES p. 23

### SOCIAL SCIENCES AREA

- DEVELOPMENT ECONOMICS AND LOCAL SYSTEM p. 28
- POLITICAL AND SOCIAL CHANGE p. 30
- LEGAL SCIENCES p. 31
- SOCIAL SCIENCES FOR SUSTAINABILITY AND WELLBEING p. 38

### TECHNOLOGICAL AREA

- ARCHITECTURE AND DESIGN CULTURES, KNOWLEDGE AND SAFEGUARDING OF CULTURAL HERITAGE p. 46
- SUSTAINABLE MANAGEMENT OF AGRICULTURAL RESOURCES, FORESTRY AND FOOD p. 48
- INFORMATION ENGINEERING p. 49
- INDUSTRIAL ENGINEERING p. 52
- INTERNATIONAL DOCTORATE IN CIVIL AND ENVIRONMENTAL ENGINEERING p. 58
- AGRICULTURAL AND ENVIRONMENTAL SCIENCES p. 64
- ADVANCED AND SUSTAINABLE AGRICULTURAL-FORESTRY SYSTEMS p. 66
- SUSTAINABILITY AND INNOVATION FOR THE DESIGN OF BUILT ENVIRONMENT AND SYSTEM PRODUCT p. 67
- URBAN FUTURE STUDIES p. 72

### HUMANITIES AREA

- PHILOLOGY, ITALIAN LITERATURE, LINGUISTICS p. 75
- COMPARATIVE LANGUAGES, LITERATURES AND CULTURES p. 76
- EDUCATION SCIENCES AND PSYCHOLOGY p. 77
- HISTORICAL STUDIES p. 81

## DRUG RESEARCH AND INNOVATIVE TREATMENTS

*Director prof. Lorenzo Di Cesare Mannelli*

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 117/2023 | B12B23000520006 |
|            | M.D. 118/2023 | B12B23000240006 |

|   |                        |  |                                 |             |             |  |
|---|------------------------|--|---------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>HEADSPACE ANALYSIS OF VOLATILE COMPOUNDS (VOCs) OF VIRGIN OLIVE OILS (VOOS) AIMED AT DEFINING ONE OR MORE METHODS SUITABLE TO SUPPORT THE PANEL TEST DURING THE COMMERCIAL CLASSIFICATION OF OILS</b>   |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Nadia MULINACCI  |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Comparison of the analytical performance of methods described in the literature which applied analysis by HS-SPME-GC-MS to determine the VOCs of VOOs. Setting up of a HS-SPME-GC-MS method and its optimization/validation aimed at determining a selected group of VOCs of VOOs to be proposed for a ring test. Definition and design of a ring test aimed at testing the reproducibility of the selected HS-SPME-GC-MS method with the aim of arriving at the publication of an analytical standard. Collection of quantitative data on VOCs and application of statistical methods for their processing. Simultaneous collection of qualitative data relating to the mass spectra of all identified analytes. Definition of critical issues for the transferability and applicability of the VOCs analysis method in public and/or private laboratories certified according to ISO 17025. HS-SPME-GC-MS analysis of VOCs of VOOs of various origins already evaluated by panel test. Evaluation of new sampling methods and headspace analysis of VOCs of VOOs in collaboration with at least one foreign university/research centre.</p> |                                 |             |             |  |
| <b>COMPANY</b>  |                        | Innovhub Stazioni Sperimentali per l'industria S.r.l.  |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 18  | 6                      | italian/english  | September 12 <sup>th</sup> 2023 | 10:30 a.m.  | In-person*  | Polo Scientifico di Sesto Fiorentino - Dipartimento ex-Scienze Farmaceutiche - Aula 43 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research   |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>STUDY OF INNOVATIVE PHOTOSWITCHABLE COMPOUNDS WITH RETINO-PROTECTIVE ACTIVITY FOR THE TREATMENT OF OCULAR PATHOLOGIES</b>  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Maria Beatrice PASSANI  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Current pharmacological therapies are ineffective for many patients suffering from eye diseases, such as glaucoma and progressive optic neuropathy, the main cause of irreversible blindness. The aim of the project is to investigate innovative drugs with hypotensive and retino-protective actions for the treatment of ocular pathologies. The proposal is in line with the new sector of photomedicine and photopharmacology based on the design of ligands active on histaminergic and beta-adrenergic receptors that affinity of which can be modified with light. The innovative idea is to exploit new compounds equipped with a photosensitive molecular switch, to modulate the activation of drugs; the control of molecular targets with light (photoswitching) will allow to modulate cellular responses, increase the affinity with the substrate, hence improving the efficacy and reducing side effects associated with conventional treatments.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | italian/english   | September 12 <sup>th</sup> 2023 | 10:30 a.m.  | In-person*  | Polo Scientifico di Sesto –<br>Via delle Idee, 23<br>50019 Sesto F.no<br>Firenze -<br>Aula 43 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>DEVELOPMENT OF BIOACTIVE PEPTIDES OF COSMETIC INTEREST THROUGH ECO-SUSTAINABLE PROCESSES</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Paolo ROVERO  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>Several bioactive peptides have shown an interesting activity in counteracting the signs of skin aging through different mechanisms of action, such as the modulation of collagen turnover and the activation of growth factors. Therefore, the cosmetic industry has shown a particular interest in the use of these active ingredients for the formulation of new cosmetics. On the other hand, this industrial sector is also sensitive to the issues of sustainability and the circular economy. In this scenario, the aim of the present project is the development, synthesis and biological evaluation of new bioactive peptides of cosmeceutical interest, prepared through the implementation of environmentally sustainable processes. In particular, environmentally friendly solvents and reagents will be studied and used for solid-</p> |  |  |  |  |



|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | phase synthesis, starting from an in-depth analysis of the literature, which has recently reported interesting preliminary results worthy of further study. |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | italian/english   | September 12 <sup>th</sup> 2023 | 10:30 a.m.  | In-person*  | Polo Scientifico di Sesto –<br>Via delle Idee, 23<br>50019 Sesto F.no<br>Firenze -<br>Aula 43 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## TUSCAN PH.D IN NEUROSCIENCES

Director prof. Maria Pia Amato

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000250006 |
|------------|---------------|-----------------|

|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>CLINICAL AND IMMUNOLOGICAL BIOMARKERS IN THE STUDY OF NEUROLOGICAL AUTOIMMUNE DISEASES: A MULTIDIMENSIONAL APPROACH</b>   |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Luca MASSACESI - Valentina DAMATO  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | To outline a highly integrated cellular and molecular multiomics platform to explore immune mechanisms and neuroinflammation in autoimmune diseases of the nervous system and to understand the interactions between the nervous and immunological systems. The activities carried out during the PhD will allow to understand multiple molecular and cellular pathways at the interface between inflammation, immune response and neural function, to develop new biomarkers to diagnose and follow up patients with inflammation-driven neurological conditions over time and to identify new targets to reduce the burden of disability associated with neuroinflammatory diseases. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 9                      | italian/english  | September 11 <sup>th</sup> 2023 | 10:00 a..m. | Remotely (videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>STUDY OF RECEPTORS/ION CHANNELS IN PERIPHERAL GLIAL CELLS IN PAINFUL DISEASES</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Francesco DE LOGU   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The project aims to study by in vitro and in vivo techniques the molecular and cellular mechanisms underlying the exacerbation of pain in different painful diseases, with particular reference to the contribution of receptors/ion channels expressed in peripheral glial cells. In particular, the PhD student will learn and use behavioral study techniques on small rodents for the study of chronic pain. At the same time, he/she will learn and apply cell and molecular biology techniques to evaluate the role of peripheral glial cells in pain. Noteworthy, it will be the design and production of viral vectors capable of silencing specific targets at the level of the peripheral nervous system as well as to the study of transcriptome |  |  |  |



|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
|   |                        | modulation in different pain models. Among different peripheral pain models, the doctoral project will address the familial episodic pain syndrome, a genetic disease involving the TRPA1 channel, that will be studied with a particular focus on the role of Schwann cells to sustain acute and chronic pain. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 12                     | italian/english   | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

## BIOMEDICAL SCIENCES

Director prof. Fabrizio Chiti

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 117/2023 | B12B23000530006 |
|     | M.D. 118/2023 | B12B23000260006 |

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies   |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>COVID-19-ASSOCIATED THROMBOSIS: THE ROLE OF FIBRINOGEN</b>   |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Matteo BECATTI  |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Coronavirus disease-2019 (COVID-19) is a viral illness caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), and now has been deemed a pandemic by the World Health Organization.</p> <p>While contributing factors to poor outcomes in patients with COVID-19 are likely multifactorial, thrombotic complications play a major role in the prognosis of these patients. Despite these clinical evidences on the ability of COVID-19 to predispose patients to thrombotic disease, the underlying pathogenetic mechanisms are unknown. It seems that thrombosis, be it macro or micro-vascular, is the result of the severe inflammatory response induced by SARS-CoV-2 with its subsequent endothelial dysfunction and procoagulant environment.</p> <p>In order to investigate the mechanisms of inflammation-induced thrombosis in COVID-19 patients and for the development of specific novel therapeutic approaches, this project will study the role of oxidative stress-induced thrombus formation in COVID-19 patients.</p> <p>The plasma of 100 COVID-19 patients and 100 age- and sex-matched controls has already been recruited. Oxidative stress in plasma from COVID-19 patients and controls will be estimated. On purified fibrinogen fractions, carbonyl content and fibrinogen function (assessed by thrombin-catalyzed fibrin polymerization and fibrin susceptibility to plasmin-induced lysis) will be determined. The possible correlation between fibrinogen secondary structure/function and fibrinogen oxidation will be also explored.</p> |                                 |             |             |  |
| <b>COMPANY</b>  |                        | Sclavo Diagnostics International S.p.A.   |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | Italian/english   | September 11 <sup>th</sup> 2023 | 09:00 a.m.  | In-person*  | Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio, Viale Morgagni 50, 50134 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>IDENTIFICATION OF STRATEGIES AIMED TO INHIBIT ERK5 NUCLEAR TRANSLOCATION FOR TARGETED THERAPY IN CANCER</b>   |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Elisabetta ROVIDA  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The mitogen-activated protein kinase ERK5 has a key role in numerous solid and liquid tumors, as well as in resistance to targeted therapies, and its nuclear localization is crucial to sustain cell proliferation. Targeted inhibition of ERK5, alone or in combination with established targeted therapies, is therefore being intensively studied in order to identify new therapeutic options in cancer.</p> <p>The project foresees: 1. The characterization of the molecular mechanisms involved in the translocation of ERK5 in the nucleus, also through the use of super-resolution microscopy. 2. The development of inhibitors (small molecules and/or peptides) of ERK5 nuclear translocation, the efficacy of which will be tested at the preclinical level in vitro, using 2D and 3D cultures prepared with tumor cell lines and/or cells derived from patients, as well as in vivo with xenografts in mice.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | italian/english  | September 11 <sup>th</sup> 2023 | 09:00 a..m. | In-person*  | Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio, viale GB Morgagni 50, 50134 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research - Funded by European Union – NextGenerationEU MD 737/2021 - Project MD737_BANDO_SENIOR_ADVANCE_FELICEPETRAGLIA - “ADverse reactions to drugs and vaccines, perinatal heAlth and womeN's soCial wEllbeing - (ADVANCE)” CUP B55F21007810001  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>GENDER MEDICINE-STUDY OF THE PRESENCE OF BIOMARKERS AND INNOVATIVE PATHOGENETIC TARGETS FOR NON-HORMONAL DRUGS FOR ENDOMETRIOSIS.</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Felice PETRAGLIA   |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>Endometriosis is a chronic benign disease with a complex pathogenetic nature, symptomatic and multisystem afflicting 10% of the female population of childbearing age.</p> <p>Pain is one of the most common symptoms together infertility, with an important impact on quality of life that causes disability and affects on mental health. Surgical or pharmacological treatments are the common treatment options, but often the hormonal therapies available are unsatisfactory for long-term therapy due to numerous side effects, while surgical excision of lesions is associated high rates of recurrence and post surgical- pain. The present PhD project has the objective to</p> |  |  |  |  |





|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | improve the indications for the therapeutic strategies for endometriosis, studying the pathological basis of pain and endometriosis-related inflammation and to identify innovative non-hormonal drugs for treatment of endometriosis, which does not interfere with the health of the foetus in case of pregnancy. |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | italian/english   | September 11 <sup>th</sup> 2023 | 09:00 a..m. | In-person*  | Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio, viale GB Morgagni 50, 50134 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## CLINICAL SCIENCES

Director prof. *Gianmaria Rossolini*

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000270006 |
|------------|---------------|-----------------|

|   |   |                 |                                |             |             |  |
|---|---|-----------------|--------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      | NRRP Research   |                 |                                |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | DEFINITION OF THE NEURO-IMMUNO-BIOME PROFILE IN NEURODEGENERATIVE PATHOLOGIES AND NUTRITIONAL INTERVENTIONS FOR THE MODULATION OF THE RELATED COGNITIVE-EMOTIONAL DEFICITS  |                 |                                |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Amedeo AMEDEI   |                 |                                |             |             |  |
| <b>RESEARCH TOPIC</b>                                     | Recent studies demonstrate a correlation between inflammatory states and intestinal dysbiosis in the development of Multiple Sclerosis (MS) and Amyotrophic Lateral Sclerosis (ALS), both characterized by the presence of cognitive-emotional deficits. The objectives of the research are a) to characterize for the first time a "neuro-immuno-biome" profile (defined by the set of an i. biological profile: cytokines, serum fatty acids and faecal microbiome; ii. neurological/cognitive/emotional profile: neurological biomarkers, Fatigue and Quality of Life test and Emotion Recognition Task), and b) evaluate the effect of specific dietary interventions with innovative probiotic/symbiotic blends, on the symptoms of MS and ALS and on the correlated cognitive-emotional deficits. The research results will be valorised by dissemination according to the principles "Open science" and "FAIR Data". |                 |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              | <b>INTERVIEW</b>  |                 |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b> | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6   | italian/english | September 7 <sup>th</sup> 2023 | 09:00 a.m.  | In-person*  | Largo Brambilla, 3<br>Firenze<br>room 34 ex presidenza di Medicina |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            | NRRP Research  |  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> | GENE SCREENING AND FUNCTIONAL VALIDATION OF UNCERTAIN VARIANTS IN PRIMARY ADULT-ONSET IMMUNODEFICIENCIES   |  |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   | Paola PARRONCHI  |  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           | Inborn errors of immunity (IEIs) are a heterogenous group of rare disease also affecting adult individuals. Clinical manifestations are ordinarily infectious, but |  |  |  |  |  |

|   |                        |  |                                |             |             |   |
|---|------------------------|--|--------------------------------|-------------|-------------|---|
|   |                        | <p>commonly allergies, autoimmune or autoinflammatory disorders, and neoplasias may be present. Genetic studies allow to understand the pathogenesis of some defects of the immune system, but it is not clear the functional role of the several genetic variants found when a genetic screening of these patients is performed, and thus still defined as variants of unknown significance (VUS). This project envisages a multidisciplinary approach with the involvement of immunologists and allergologists, genetists, oncologists, bio-engineers and infectious diseases specialists.</p> <p>To functionally characterize VUS, in vitro systems will be used in order to study: 1. Single cell cytokine production profile 2. Expression of surface receptors associated with cell activation/regulation and pathways of intracellular signaling 4. Cell surface makers as associated with functional phenotypes in the immune cells of the peripheral blood of the patients.</p> <p>This project is aimed to give conclusive diagnosis, individual treatment, possible prevention in the progeny, prediction of possible severe complications in single patients in the field of personalized medicine."</p> |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | italian/english  | September 7 <sup>th</sup> 2023 | 09:00 a.m.  | In-person*  | Largo Brambilla, 3<br>Firenze<br>auletta 34 ex presidenza di Medicina |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |   |
|---------------------------------|---|
| <b>M.D. 118/2023</b>            | NRRP Research   |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>SURGERY FOR GASTRIC AND COLORECTAL CANCER IN ELDERLY PATIENTS: ASSESSMENT OF THE IMPACT OF THE ROBOTIC APPROACH IN ASSOCIATION WITH A PREHABILITATION PROGRAM</b>  |
| <b>PRINCIPAL INVESTIGATOR</b>   | Fabio CIANCHI   |
| <b>RESEARCH TOPIC</b>           | <p>Gastric and colorectal tumors represent two of the leading causes of cancer-related death worldwide. Aging plays a major role in the development of these two tumors and their incidence has gradually increased in patients aged 65 and older. Although surgery remains the mainstay of radical treatment, it is a major stressor and subsequently is associated with significant postoperative morbidity.</p> <p>The preoperative period can be optimally used to introduce prehabilitation that includes various professional figures (anesthesiologists, surgeons, dieticians, physiotherapists, geriatricians, sports doctors and psychologists) who can prepare the patient by optimizing and increasing his functional capabilities before the surgery. The ultimate goal is to reduce the incidence of surgical complications, the</p> |

|   |                        |  |                                |             |             |   |
|---|------------------------|--|--------------------------------|-------------|-------------|---|
|   |                        | <p>time of hospitalization and post-operative rehabilitation in older patients who need major surgery.</p> <p>Frail older people are less able to tolerate the surgical stress, hospitalization, and immobility. Minimally invasive surgery (MIS) has been shown to be better tolerated than open surgery, in selected elderly populations. Recently, robot-assisted surgery has been introduced to overcome many laparoscopic limitations, thus allowing more patients to benefit MIS.</p> <p>This project aims at evaluating the potential benefits and limits of the robotic approach in a group of elderly patients undergoing robotic surgery for gastric or colorectal neoplasia after a 4-week prehabilitation program.</p> |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | italian/english  | September 7 <sup>th</sup> 2023 | 09:00 a.m.  | In-person*  | Largo Brambilla, 3<br>Firenze<br>auletta 34 ex presidenza di Medicina |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |   |
|---------------------------------|---|
| <b>M.D. 118/2023</b>            | NRRP Research   |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>HYPERSENSITIVITY REACTIONS TO CHEMOTHERAPY: DEFINITION OF NOVEL ENDOPHENOTYPES FOR A PRECISION-MEDICINE APPROACH IN DRUG ALLERGY</b>   |
| <b>PRINCIPAL INVESTIGATOR</b>   | Lorenzo COSMI   |
| <b>RESEARCH TOPIC</b>           | <p>Immediate hypersensitivity reactions (HSRs) can complicate the infusion of chemotherapy. This may lead to discontinuation of the needed fist-line therapy in critically ill patients, with a negative impact on their life expectancy. Current understanding of the immunological mechanisms underlying HSRs is limited and insufficient for the optimal management of these patients. This study aims to define the pathophysiological mechanisms of HSRs and to implement specific drug desensitisation (DD) strategies accordingly. The study of the mediators and effector cells involved will help to identify different endotypes of reactions, that will be correlated to the to their clinical phenotype. The comparison between the endophenotype of HSRs with the outcome of DD protocols will allow the identification of biomarkers able to predict the success of DDs. This data will enable the use of tailored DD protocols to increase the safety, feasibility and success rate of DD procedures. Overall, this will expand on the knowledge required for a novel precision-medicine approach in drug allergy.</p> |

| MANDATORY EXPERIENCES                              |                 | INTERVIEW       |                                |            |            |   |
|--|-----------------|-----------------|--------------------------------|------------|------------|---|
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE        | DATE                           | TIME       | MODE       | PLACE   |
| -  | 6               | italian/english | September 7 <sup>th</sup> 2023 | 09:00 a.m. | In-person* | Largo Brambilla, 3<br>Firenze<br>auletta 34 ex<br>presidenza di<br>Medicina |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

| <b>M.D. 118/2023</b>                               | NRRP Research  |                 |                                |            |            |   |
|--|--|-----------------|--------------------------------|------------|------------|---|
| <b>TITLE OF THE SCHOLARSHIP</b>                    | <b>A RESEARCH PROJECT ON THE SOCIO-DEMOGRAPHY, CLINICAL ASPECTS AND NOVEL TREATMENTS OF CHRONIC COUGH AND ITS TRIGGERS IN AN ADULT ITALIAN POPULATION</b>  |                 |                                |            |            |   |
| <b>PRINCIPAL INVESTIGATOR</b>                      | Federico LAVORINI  |                 |                                |            |            |   |
| <b>RESEARCH TOPIC</b>                              | <p>The epidemiology of chronic cough and the prevalence of the underlying causes have been extensively reported. However, no data is available in Italy regarding the association of chronic cough with triggering causes, the prevalence of refractory phenotype and the impact of the disease on patients' everyday life. The research will aim at the characterisation of demographic, anthropometric and clinical features of the population studied, as well as the estimation of cough severity. Secondary aims will include the longitudinal trend of the cough severity according to sex, age classes, causes of cough, adherence to therapies, and estimation of all cough-related costs. As an exploratory aim, we will investigate the effectiveness and safety of a novel powder inhaled formulation of an anaesthetic developed and patented for the treatment of refractory chronic cough.</p> |                 |                                |            |            |   |
| MANDATORY EXPERIENCES                              |  | INTERVIEW       |                                |            |            |   |
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months)  | LANGUAGE        | DATE                           | TIME       | MODE       | PLACE   |
| -  | 6  | italian/english | September 7 <sup>th</sup> 2023 | 09:00 a.m. | In-person* | Largo Brambilla, 3<br>Firenze<br>auletta 34 ex<br>presidenza di<br>Medicina |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## EVOLUTIONARY BIOLOGY AND ECOLOGY

Director prof. Duccio Cavalieri

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 118/2023 - Digital and green transitions | B12B23000190006 |
|     | M.D. 118/2023 - Cultural heritage             | B12B23000470006 |

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | Digital and green transitions   |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | SAFEGUARDING ECOSYSTEM SERVICES: SUSTAINABLE BIOPESTICIDE USE FOR BIODIVERSITY CONSERVATION   |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | David BARACCHI  |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Synthetic pesticides are threatening biodiversity worldwide. New strategies are being developed that rely on biopesticides (BIOPE). Current risk assessment protocols only evaluate the acute effects of BIOPE on non-target insects. Thus, the sublethal alterations caused by BIOPE on beneficial insects are totally overlooked. Furthermore, little is known about the synergistic interactions between BIOPE, and other environmental stressors. To address this knowledge gap, it is critical that the sublethal effects of BIOPE in combination with environmental stressors (rising temperatures, suboptimal diet and microplastics) on essential insect species are evaluated. The project aims to analyse the sublethal effects of BIOPE on the physiology and behaviour of wild pollinators (bumblebees, syrphid flies and butterflies). The research will be conducted in lab and in the field and will develop standardized tests that will be repeatable to companies operating in the field of ecotoxicology.</p> |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian/english   | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | In-person*  | Dipartimento di Biologia via del Proconsolo 12 50122 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Cultural heritage  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | PALEOGENOMICS ANALYSIS ON HUMAN INDIVIDUALS RECOVERED IN POMPEII |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | David CAMELLI  |  |  |  |  |

|   |                        |  |                                 |             |             |  |
|---|------------------------|--|---------------------------------|-------------|-------------|--|
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Advances in genomics and bioarcheology have expanded our ability to reconstruct history. Thanks to Paleogenomics, along with metagenomic analyses of dental calculus, many features of individuals and populations can be inferred, as well as their genetic ancestry and legacy, integrating them into larger biological, social, and cultural frameworks. Pompeii, the Roman city preserved under volcanic ash since the eruption of Mount Vesuvius in 79 CE, is a time capsule of the Roman antiquity and is part of UNESCO World Heritage List. The aim of this project is to reconstruct the living conditions, (early) life history and the social settings of this emblematic city of the Roman World. All this information will be interpreted in the light of the available archaeological, anthropological, historical, textual, and cultural information, to extract new knowledge about the lifestyle and the biological and sociocultural aspects of the Roman civilization.</p> |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian/english  | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | In-person*  | Dipartimento di Biologia via del Proconsolo 12 50122 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## EARTH AND PLANETARY SCIENCES

Director prof. Sandro Moretti

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 117/2023 | B12B23000540006 |
|     | M.D. 118/2023 | B12B23000280006 |

|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>DESIGN OF A METAVERSE SOLUTION APPLIED TO EARTH SCIENCES, WITH OBJECTIVES OF TEACHING, DISSEMINATION, VISUALIZATION AND IMMERSIVE MANIPULATION OF THE SCIENTIFIC DATA COLLECTED BY THE DEPARTMENT</b>   |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Sandro MORETTI   |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The project consists in the development of a Metaverse solution applied to Earth Sciences, with the objectives of teaching, dissemination, visualization and immersive manipulation of the scientific data collected. Integrated visualization of datasets acquired from drones, aircraft and satellites is the key to progress in the field of Earth Sciences. The project will include the development of a software platform capable of managing topographic, informative and monitoring data, even in real time, and which allows them to be viewed using virtual reality devices. The display can be used by a single user but must also allow simultaneous display by multiple users. The multi-user view will focus on the possibility of creating a virtual classroom for educational purposes. The students, equipped with virtual reality viewers, will be guided by a teacher who will be able to illustrate the issues connected to natural risks in an immersive reality in an even more effective way than the live experience, being able to integrate the visualization with auxiliary explanatory information. Each user of the virtual classroom will be represented by an avatar, which can be viewed by all participants, in order to increase the immersion of the training. Furthermore, tools capable of scrolling in the timeline will be developed to illustrate the progression of phenomena over time.</p> |                                 |             |                      |
| <b>COMPANY</b>  |                        | ETTb s.p.a.  |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 18  | 6                      | italian/english  | September 11 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |





|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research<br>co-funded by European Union - NextGenerationEU - Heritage -Ground Penetrating Radar - ( H-GPR) project - CUP B55F21007810001  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>GEOPHYSICAL INVESTIGATION FOR STRUCTURAL CHARACTERIZATION OF HISTORICAL BUILDINGS</b>   |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Emanuele MARCHETTI   |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research project aims improving and consolidating geophysical investigation for the dynamical and structural characterization of historical buildings, for which original project is generally unknown and invasive investigation is not allowed. During the doctoral course, the student will develop procedures and technical skills for Ground Penetrating Radar (GPR) surveys to define masonry characteristics of historical buildings and eventually develop an abacus to relate radar-grams features to masonry typically observed in historical buildings. The student will also consolidate passive seismic investigation to derive the main vibrational modes that, once combined with structural information derived from GPR analysis, might provide a robust benchmark for seismic response models of the buildings. The research will therefore combine dedicated GPR and seismic surveys with extensive data processing and analysis and aims defining guidelines for geophysical investigation of historical buildings.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 2   | 6                      | italian/english  | September 11 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

## PHYSICS AND ASTRONOMY

Director prof. Giovanni Modugno

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 117/2023 | B12B23000550006 |
|     | M.D. 118/2023 | B12B23000290006 |

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>HYBRID CLASSICAL-QUANTUM MACHINE LEARNING ALGORITHMS FOR ANOMALY DETECTION TOWARDS ENERGY TRANSITION APPLICATIONS</b>   |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Filippo CARUSO   |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | The research project will focus on the analysis of machine learning models for the anomaly detection applications, mainly based on so-called "auto-encoders" that are made of artificial neural networks learning to efficiently encode data without supervision. Therefore, several hybrid classical-quantum machine learning architectures will be investigated where parametrized quantum circuits are added and optimized. Finally, numerical tests of the designed models will be performed on real datasets in relation with energy transition applications. Access to the ENI HPC facilities will be eventually provided in order to perform benchmarks of the developed machine learning algorithms. |                                |             |                      |
| <b>COMPANY</b>  |                        | ENI S.p.a.   |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

|                                 |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>PHYSICS OF THE MICROSCOPIC MECHANISMS UNDERLYING NEURONAL COMMUNICATION</b>   |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Duccio FANELLI   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The project will focus on the development of stochastic and deterministic models for the analysis of fundamental neuronal processes. The models in question will move from a rigorous microscopic description, consistent with the foundational principles of non-equilibrium statistical physics, to eventually yield a solid macroscopic representation of the dynamics under inspection. The examined processes will form the basis for a biomimetic approach to artificial intelligence. |  |  |  |

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
|   |                        | The analysis will aim in particular aimed to assessing the importance of finite size noise in the implementation of the objective functions, also in terms of efficiency and robustness. Among the processes under study we mention the neuronal communication based on the exocytosis of the neurotransmitters contained in the synaptic vesicles, a mechanism which, according to recent researches, would seem to exploit the liquid-liquid phase separation and that we intend to study through multi-scale non-equilibrium models . |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | italian/english  | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

|   |   |                  |                                |             |                      |
|---|---|------------------|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | NRRP Research   |                  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>DEVELOPMENT OF HIGH-PERFORMANCE COMPUTATIONAL CODES FOR THE SIMULATION AND ANALYSIS OF DATA COLLECTED FROM HIGH-ENERGY PHYSICS EXPERIMENTS AT CERN ACCELERATORS</b>  |                  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Vitaliano CIULLI  |                  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     | The research project must concern the simulation and data analysis at CERN accelerators and exploit the infrastructure and expertise of the HPC National Center and, in particular, the possibility of using heterogeneous computing resources, with traditional cores and GPUs, and the capacity of the center in terms of distribution and access to the collected data. A non-exhaustive list of possible objectives that can be addressed through innovative algorithmic strategies are: i) fast simulation of the detector response using antagonistic generative networks trained on real data; ii) discrimination of signal against background in a signal-model agnostic way; iii) detection of data anomalies through the analysis of time series. |                  |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6   | italian/english  | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

## INTERNATIONAL DOCTORATE IN ATOMIC AND MOLECULAR PHOTONICS

Director prof. Diederik S. Wiersma

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 118/2023 | B12B23000630006 |
|-----|---------------|-----------------|

|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research   |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | ADVANCED BIO IMAGING AND SENSING IN STRUCTURAL OR FUNCTIONAL ANALYSIS   |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Francesco Saverio PAVONE  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | In this research it is expected an activity based on microscopy imaging aiming to obtain data related to the study of biological mechanisms. Both molecular sensing, activity sensing, or even structural or physiological information will be obtained by means of photons detection. Particular attention will be devoted to the management of the biological sample, the apparatus and the data. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | english   | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

|                                 |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | STUDY OF NON-CLONABLE AND NON-LINEAR OPTICAL PHYSICAL FUNCTIONS FOR APPLICATIONS IN CLASSICAL AND QUANTUM CRYPTOGRAPHY   |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Diederik S. WIERSMA  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The aim of the research is the characterization of non-clonable optical physical functions using complex photonic materials. This research finds application in the field of Cyber Physical Security for remote authentication processes of entities and objects or anti-counterfeiting of consumer goods.</p> <p>The cryptographic primitives will be realized using polymer-based photonic materials and liquid crystals. Through external stimuli it is possible to induce a phase transition of the material giving a non-linearity of the interrogation light as a function of the scattering potential. This structural non-linearity does not require high intensities and can be studied both in a classical interrogation regime and in a few-photon quantum regime.</p> |  |  |  |



|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
|   |                        | The non-linear cryptographic primitive will show a huge improvement in security, generating cryptographic keys that are more complex than the linear case and more secure in the case of machine-learning attacks. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | english  | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | Remotely (videocall) |

|   |  |                  |                                 |             |                      |
|---|--|------------------|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | NRRP Research  |                  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | DEVELOPMENT OF NEW EXPERIMENTAL PLATFORMS FOR INTERACTION BETWEEN LASERS AND ATOMS/MOLECULES   |                  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Paolo DE NATALE  |                  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     | The candidate will carry out a research activity in the field of physical sciences, aimed at the creation of new experimental platforms based on the interaction between lasers and atoms/molecules. The research will focus on the development of innovative optical systems and advanced laser control techniques that can allow the achievement of new interaction regimes at the quantum level. The applications of the experimental platforms developed to the various fields of interest of quantum technologies will also be studied. |                  |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |  | <b>INTERVIEW</b> |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>   | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 6  | english          | September 11 <sup>th</sup> 2023 | 10:30 a.m.  | Remotely (videocall) |

## INTERNATIONAL DOCTORATE IN STRUCTURAL BIOLOGY

Director prof. Roberta Pierattelli

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 117/2023 | B12B23000560006 |
|------------|---------------|-----------------|

|   |                        |   |                                   |             |             |   |
|---|------------------------|---|-----------------------------------|-------------|-------------|---|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies   |                                   |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>CHARACTERIZATION OF ANTIBODY-ANTIGEN BINDING INTERACTIONS AIMED TO DEVELOP AN IN VITRO POTENCY ASSAY FOR STREP A VACCINE</b>   |                                   |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Antonio ROSATO  |                                   |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | To evaluate the potency and the long-term stability of novel vaccine candidates, suitable in vitro assays need to be developed. Antibody-based immunoassays offer the possibility of correlating in vitro potency of an antigen with in vivo immunogenicity. However, in order to develop an in vitro potency assay, it is critical to acquire more information on the epitopes and antigen-binding sites involved in the recognition of the selected mAbs. In particular, in-depth characterization and investigation of the antibodies binding sites and of their interaction with vaccine antigens at reference conditions or with subpotent batches are required. This project will focus on the structural and epitope characterization of antibodies antigen-binding interactions, and on the exploitation of such information for the development and validation of an in-vitro assay. |                                   |             |             |   |
| <b>COMPANY</b>  |                        | CIRMMP Consorzio Interuniversitario Risonanze Magnetiche di Metallo Proteine  |                                   |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                   |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                       | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 12  | 6                      | english   | September11 <sup>th</sup><br>2023 | 10030 a.m.  | In-person*  | Centro di Risonanze Magnetiche - Via Luigi Sacconi, 6 - 50019 Sesto Fiorentino FI |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## CHEMICAL SCIENCES

Director prof. Anna Maria Papini

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 117/2023 | B12B23000570006 |
|     | M.D. 118/2023 | B12B23000300006 |

|   |                        |  |                                 |             |             |  |
|---|------------------------|--|---------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>LARGE SCALE FACILITIES BASED ULTRA-LOW TEMPERATURE MAGNETIC INVESTIGATION OF MOLECULAR SYSTEMS ASSEMBLED ON SURFACES</b>  |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Matteo MANNINI   |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research project is focused on the development of an innovative strategy for the controlled deposition of intact and ordered novel molecular systems on solid surfaces. The PhD student profiting of the most recent advances on the synthesis and deposition of molecular materials with technologically relevant magnetic properties will study an original strategy to improve the regular arrangements of these coordination complexes profiting of the nature and the nanostructuring of the substrates. Initial in house morphological and chemical characterization of the deposited species will be carried out using in house characterization tools including scanning probe microscopies and X-ray photoelectron spectroscopy. Crucial will be the investigation of the magnetic properties of the deposited systems. This characterization will be performed profiting of state-of-the-art setup available at the DEIMOS beamline at the SOLEIL synchrotron for the ultra-low temperature investigation of the X-ray magnetic circular dichroism at the absorption edge of the lanthanide and transition metal ion edges. The PhD student will also participate to the further development of the XMCD setup available at the DEIMOS beamline (SOLEIL Synchrotron) and will explore the use of other large-scale facilities for studying the optimization of the regular arrangement of these systems on surface.</p> |                                 |             |             |  |
| <b>COMPANY</b>  |                        | Synchrotron SOLEIL   |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian/english  | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-person*  | Dip. di Chimica "Ugo Schiff" - Chimica Organica, Via della Lastruccia n. 13 Sesto F.no (FI) Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies   |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>STUDY OF THE PHYSICO-CHEMICAL PROPERTIES OF GROUND GRANULATED BLAST SLAG -BASED FORMULATIONS AND OF THEIR HYDRATION REACTIONS</b>  |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Francesca RIDI  |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research project aims at studying the physico-chemical properties and the hydration processes of low carbon binders based on Supplementary Cementitious Materials (SCM) such as Ground Granulated Blast Slag (GGBS). GGBS is a by-product of the production processes of iron and steel, occurring in blast furnaces. It has well-known pozzolanic properties. The high potential of GGBS as a low carbon alternative to Portland cement is already well established for many applications. However, to fully exploit this potential a deeper knowledge of the hydration mechanisms is crucial. Ecocem is a leading company in this field and it has considerable technology and know-how in the development, production, marketing and application of GGBS and other low carbon special binders. The consolidated experience of Ecocem in the use of these binders highlighted the critical issues to be solved to optimize the hydration process of GGBS, in the presence of different activators and fillers. The PhD project will investigate this theme, with the aim of studying the effect of the composition of the binder, different activators and superplasticizers on the kinetics of hydration, the chemical nature and morphology of hydrated phases, the porosity, the fractal structure and the mechanical properties of the final material. This investigation aims at fully exploiting the pozzolanic potential of GGBS and of other SCM formulations to limit the global Portland cement production and its high "carbon footprint", in compliance with the principles of the circular economy and therefore it fully fits into Mission 2 of the PNRR "Green Revolution and Ecological Transition".</p> |                                 |             |             |  |
| <b>COMPANY</b>  |                        | Ecocem Materials Ltd  |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian/english   | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-person*  | Dip. di Chimica "Ugo Schiff" - Chimica Organica, Via della Lastruccia n. 13 Sesto F.no (FI) Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 117/2023</b>            |  | Scholarships co-funded by Companies                                   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>DEVELOPMENT AND EVALUATION OF ADVANCED WOUND DRESSINGS QUALITY</b> |  |  |  |  |



|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Natascia MENNINI   |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | A wound that does not complete the healing process within eight weeks is considered as a chronic, or skin ulcer. The chronicity of skin lesions is a problem with a strong social and economic impact. The treatment of skin ulcers takes place through the use of traditional dressings and advanced dressings. Compared to traditional dressings, which only have the functions of covering, haemostasis, and protection, advanced dressings have an active role in wound healing. As part of this project, the candidate will carry out research mainly focused on three aspects: 1. Development of innovative advanced wound dressings 2. Assessment of the wound dressings quality through standard tests (EN 13726) 3. Design and development of suitable devices and experimental procedures for the measurement of clinically significant quality parameters, for which there are no reference standard tests. |                                 |             |             |   |
| <b>COMPANY</b>  |                        | B. Braun Avitum Italy S.p.A.   |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 12  | 6                      | italian/english  | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-person*  | Dip. di Chimica "Ugo Schiff"- Chimica Organica, Via della Lastruccia n. 13 Sesto F.no (FI) Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotel

|                                 |   |
|---------------------------------|---|
| <b>M.D. 118/2023</b>            | NRRP Research   |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>EXPLORING THE DRUGGABILITY OF INTRINSICALLY DISORDERED PROTEINS INVOLVED IN METABOLIC AND NEURODEGENERATIVE DISORDERS THROUGH HIGH FIELD NMR SPECTROSCOPY.</b>   |
| <b>PRINCIPAL INVESTIGATOR</b>   | Isabella Caterina FELLI   |
| <b>RESEARCH TOPIC</b>           | Neurodegenerative diseases often originate by malfunction of proteins lacking a stable tertiary structure. Shifting the focus on intrinsically disordered proteins (or protein regions) as targets for drug discovery is stunning. To fully realize this aim, a thorough understanding of their structural and dynamic properties in the highly disordered state is required. NMR spectroscopy constitutes a unique tool to investigate with atomic resolution intrinsically disordered proteins and their interactions with cellular components and potential chemical chaperones (CC). The project scope is the investigation of intrinsically disordered proteins that are linked to neurodegenerative diseases through NMR spectroscopy, starting from $\alpha$ -synuclein, the hallmark of Parkinson. Moreover, the enzyme GCase mutations, associated with Gaucher disease, are the |

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
|   |                        | most common genetic risk factor to develop Parkinson. The interplay between $\alpha$ -synuclein, GCase and new potential CCs will be also investigated. |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| -   | 6                      | Italian/english   | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-Person*  | Dip. di Chimica "Ugo Schiff", edificio Chimica Organica, Via della Lastruccia n. 13 in Sesto Fiorentino (FI), Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |   |                  |                                 |             |             |   |
|---|---|------------------|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      | NRRP Research   |                  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>DESIGN, SYNTHESIS, AND STUDY OF SPIN SELECTIVE CHIRAL SYSTEMS IN ELECTRON TRANSFER FOR THE CONTROL OF MOLECULAR SPIN QUBIT</b>   |                  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Caterina VIGLIANISI   |                  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     | The successful candidate is expected to develop a research project focused on the synthesis and characterization of helical chiral systems acting as electron donors in acceptor/donor (A/D) devices for photo induced electron transfer. The electron transfer properties of these structures under the influence of an electric field will be investigated. The candidate will carry out syntheses as well as physicochemical characterizations, acquiring the transversal skills necessary to operate in the field of quantum technologies. Geometrically stable heterohelicenes with high energy barriers of racemization will be studied, since to operate, after resolution, with structurally pretty stable single enantiomers. The structural and electronic characteristics that give to these systems interesting red-ox and paramagnetic properties will be also studied. Eventually, these helical chiral systems will be coupled to suitable molecular acceptors for the assembling of the A/D dyad devices. |                  |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6   | Italian/english  | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-Person*  | Dip.di Chimica "Ugo Schiff", edificio Chimica Organica, Via della Lastruccia n. 13 in Sesto Fiorentino (FI), Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research   |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>TOWARDS THE DEVELOPMENT OF NEW METAL COMPLEXES EFFECTIVE AGAINST ANTIBIOTIC RESISTANCE</b>   |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Claudia GIORGI  |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Antibiotic resistance represents a primary cause of failure in the management of patients with infectious diseases. Over the past twenty years, the widespread use of antibiotics has greatly increased drug resistance. It is therefore extremely urgent to identify and characterize new substances capable of overcoming antibiotic resistance. The present research project aims to synthesize and characterize new molecular systems that could be effective as drug candidates against multidrug-resistant pathogens, as well as to get insights on the mechanisms of action by which they pursue their biological activity.</p> <p>The molecular systems examined could be both metal complexes of gold, iridium and silver and ruthenium complexes, the latter applicable in photodynamic therapy. The antimicrobial properties of these compounds will be evaluated against bacterial strains representative of different Gram-positive and Gram-negative pathogenic species. Furthermore, the mechanisms of action showed by the most promising systems will be investigated through the identification of their biological targets and the interactions of these targets with the selected drug candidates.</p> |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| -   | 6                      | Italian/english   | September 12 <sup>th</sup> 2023 | 08:30 a.m.  | In-Person*  | Dip. di Chimica "Ugo Schiff", edificio Chimica Organica, Via della Lastruccia n. 13 in Sesto Fiorentino (FI), Biblioteca "Valerio Parrini" |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## DEVELOPMENT ECONOMICS AND LOCAL SYSTEMS (DELOS)

Director prof. Donato Romano

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000370006 |
|------------|---------------|-----------------|

|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>EFFECTS ON INDIVIDUAL WELLBEING OF HEALTH REFORMS AND EXOGENOUS (E.G. ENVIRONMENTAL, ECONOMIC AND CONFLICT) SHOCKS</b>   |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Luca TIBERTI  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | Climate shocks, health and economic crises and conflicts have become increasingly frequent, negatively impacting individual well-being, especially in contexts where insurance and credit markets are absent or where social protection programmes are weak. The absence of formal institutions often pushes individuals to resort to informal institutions that, in some cases (e.g., child labor, polygamous unions, marriage and early pregnancy), have further negative effects on human capital in the medium to long term. The implementation of socio-economic or health reforms can limit these effects. Through quasi-experimental or non-experimental econometric tools, this project aims to study the effects of health reforms, exogenous environmental, economic or conflict-related shocks on socio-demographic, nutritional and health indicators, identifying any heterogeneities within a given population. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english   | September 11 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>HYDRO-ECONOMIC SYSTEM MODELLING AND ANALYSIS</b>   |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Donato ROMANO   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The PhD project focuses on the construction of multisector macroeconomic models extended to natural resources for structural analysis and for the evaluation of economic policies. The PhD project aims at representing and evaluating the impacts of economic activities on water resources, in a context of macroeconomic and climate change. The project addresses the following innovative aspects: structural analysis of hydro-economic equilibrium conditions at different |  |  |  |



|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
|   |                        | geographical scales and critical paths in the transmission of impacts on water resources; distributional impacts of the pressures exerted by economic activities on water resources; integration of value flows of services produced by the hydrological ecosystem in the accounting representation and modelling of the economy. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english   | September 11 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |

## POLITICAL AND SOCIAL CHANGE

Director prof. Angela Perulli

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000380006 |
|------------|---------------|-----------------|

|   |                        |   |                                |             |                      |
|---|------------------------|---|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>THE CHANGING FACES OF WORK. ANALYTICAL TOOLS FOR INCLUSION AND SUSTAINABILITY</b>  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Angela PERULLI  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | The transformations that have been affecting work for decades now pose increasingly critical challenges both in terms of the labour market (availability of jobs and kinds of jobs on offer; profiles required; availability of workers, their aspirations and their characteristics) and in terms of the effects that the varied forms of work have on the daily lives of men and women, young and old, and the challenges posed to policy makers in terms of social inclusion models and the combination of these with the quality of domestic life and access to resources such as health services or support networks other than family ones. |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | italian   | September 6 <sup>th</sup> 2023 | 02:30 p.m.  | Remotely (videocall) |

## LEGAL SCIENCES

Director prof. Maria Luisa Vallauri

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 118/2023 - Digital and green transitions | B12B23000200006 |
|     | M.D. 118/2023 - Public Administration         | B12B23000390006 |

|   |                        |  |                                 |             |             |  |
|---|------------------------|--|---------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | Digital and green transitions  |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>DIGITALISATION AND CYBERSECURITY: A COMPARATIVE APPROACH</b>  |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Silvia SASSI   |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | Due to the increasing number of cyber attacks on democratic institutions, the research aims to verify how the stabilized democracies are reacting to this phenomenon. The issue will be addressed from the perspective of comparative public law: on the one hand, because cybersecurity is transnational in nature; on the other, because the impact of this phenomenon is measured on issues of traditional domestic government, such as national security, defense and privacy. |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian  | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 -Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>FORMS AND METHODS OF REGIONAL GUIDANCE AND COORDINATION IN THE FIELD OF CYBER SECURITY</b>  |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Erik LONGO   |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | Regions are part of national and European cybersecurity governance. Alongside practical action to ensure the cybersecurity of their own administration, each region plays an essential role both in the digitisation of the regional productive fabric and in other territorial authorities through multiple functions, first and foremost the construction of regional CERTs. The objective of the research is to support the regional activity in the field of cybersecurity and to carry out a preliminary legal study to support the strengthening of the cybersecurity measures |  |  |  |  |

|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
|   |                        | implemented in the regional system. The researcher will have to carry out part of the research in support of the Region of Tuscany's cybersecurity policies. |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 12  | 6                      | italian  | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |   |
|---------------------------------|---|
| <b>M.D. 118/2023</b>            | Public Administration   |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>THE ROLE OF THE UEPE IN RESTORATIVE JUSTICE</b>  |
| <b>PRINCIPAL INVESTIGATOR</b>   | Alessandra SANNA  |
| <b>RESEARCH TOPIC</b>           | <p>"The External Criminal Enforcement Office (ECEO) that oversees the welfare of persons subjected to external measures within penitentiary institutions. As this office is commissioned by the supervisory judiciary to define individual treatment programs tailored to each recipient, it also engages in sociological research, especially regarding family and social relationships. He traditional functions have recently been expanded by the Cartabia reform with the introduction of restorative justice as a response to criminal offense, is based on rehabilitation for the offense through reconciliation of the relationship between offenders and victims of crime. Now, is very important a strong cooperation.</p> <p>To achieve this objective, the ECEO breaks this process down into three main phases:</p> <ol style="list-style-type: none"> <li>1. the Office begins to devise models of programmatic and organisational actions in collaboration with the Restorative Justice Centres, so as to ensure effective and uniform standards in the services;</li> <li>2. it will provide the results of the social inquiry to allow mediators to orientate themselves on the measures to be taken</li> <li>3. intervenes to concretely implement the reparative programme, and in collaboration with the judicial authority</li> </ol> <p>The new tasks requires essential training of social workers regarding the goals and facets of restorative justice and the drafting of protocols to implement these models according to uniform procedures."</p> |
| <b>MANDATORY EXPERIENCES</b>    | <b>INTERVIEW</b>  |



| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE | DATE                            | TIME       | MODE       | PLACE   |
|--|-----------------|----------|---------------------------------|------------|------------|---|
| 6  | 6               | italian  | September 12 <sup>th</sup> 2023 | 10:00 a.m. | In-Person* | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |   |                 |                                 |             |             |   |
|---|---|-----------------|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                 |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>THE INTERTWINING OF INTERNATIONAL PROTECTIONS AND THE PROTECTIONS OF VICTIMS OF LABOUR EXPLOITATION - THE POINT OF VIEW OF THE SPECIALISED IMMIGRATION SECTION OF THE COURT</b>  |                 |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Emilio SANTORO  |                 |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     | <p>The research aims to study the connection between the international protection application process and protection against labour exploitation. In light of the guidelines of the National Asylum Commission on trafficking and labour exploitation, the research aims to study how in practice the emergence of a condition of labour exploitation affects the procedure and how the immediate protection against exploitation is activated, distinguishing the cases of trafficking for the purpose of labour exploitation (art. 601 penal code) or labour exploitation (art. 603 bis penal code) of the applicant for international protection and how the two protections are intertwined.</p> <p>It is envisaged during the research at the Specialised Section of the Court of Florence to examine whether the condition of labour exploitation already emerges in the applications for international protection, how it emerges during the hearings, what feedback it finds in the hearing record and, when it emerges, how it is dealt with. Particular attention will be paid to what forms of protection are adopted and when and how, in the case of exploitation under Article 603 bis of the criminal code, it affects the decision on international protection.</p> |                 |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              | <b>INTERVIEW</b>  |                 |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b> | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6   | italian         | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>THE INTERTWINING OF INTERNATIONAL PROTECTIONS AND THE PROTECTIONS OF VICTIMS OF LABOUR EXPLOITATION: THE POINT OF VIEW OF THE TERRITORIAL ASYLUM COMMISSION</b>  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Emilio SANTORO  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research aims to study the connection between the international protection application process and protection against labour exploitation. In light of the guidelines of the National Asylum Commission on trafficking and labour exploitation, the research aims to study how in practice the emergence of a condition of labour exploitation affects the procedure and how immediate protection against exploitation is activated, distinguishing the cases of trafficking for the purpose of labour exploitation (art. 601 penal code) or labour exploitation (art. 603 bis penal code) of the applicant for international protection and how the two protections are intertwined. It is envisaged during the research at the Territorial Commission of Florence to examine whether the condition of labour exploitation already emerges in the applications for international protection, how it emerges during the hearings, what feedback it finds in the hearing record and, when it emerges, how it is treated. Particular attention will be paid to what forms of protection are adopted and when and how, in the case of exploitation under Article 603 bis of the criminal code, it affects the decision on international protection.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | italian   | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>THE PROMOTION OF CONSTITUTIONAL VALUES AND OF THE MEMORY OF RESISTANCE THROUGH MUSEUMS: PROTECTION MODELS AND REGULATION PATTERNS IN EUROPA</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Alessandro SIMONI  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The research aims at studying the regulation of the museums that are specifically aimed at the preservation and transmission of the values connected with the memory of the resistance movements and of their connection with the advancement in the protection of fundamental rights within the constitution of the post WW II years. The research will have a historical and comparative nature and</p> |  |  |  |  |

|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | will consider primarily Italy and France, with the possible extension to other legal systems that could appear as relevant along the development of the research. |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | italian   | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |  |                  |                                 |             |             |   |
|---|--|------------------|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      | Public Administration  |                  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>THE QUALITY OF REGULATION IN TERRITORIAL AUTONOMIES: THE CASE OF REGIONAL EXPERIENCES</b>   |                  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Giovanni TARLI BARBIERI  |                  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     | The purpose of the research is to analyse the latest practices on the quality of regulation in force, with specific attention to the regional level. The research should focus on the state of the art of policies and instruments on the quality of regulation at the European and national levels, and then concentrate on the experiments underway at the regional level, with particular regard to the issues of the motivation of legislative acts, the techniques of ex ante analysis and ex post evaluation of legislative acts, the planning of legislative interventions, forms of coordination and maintenance practices of existing regulation. The aim of the research is to reflect on the impact of the quality of regulation on the form of State and the form of government, on the relationship between territorial levels of government, on the protection of fundamental rights and on the competitiveness of enterprises. Specific attention will have to be paid to the case of the Tuscany Region. |                  |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |  | <b>INTERVIEW</b> |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>   | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6  | italian          | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>THE PROTECTION OF WORKING CONDITIONS IN THE CONTEXT OF THE PROCESSES OF OUTSOURCING AND PRIVATIZATION OF SERVICES</b>   |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Maria Luisa VALLAURI   |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The process of decentralization and dematerialization of the of production cycle that began in the 1970s has now advanced. In the public sector, this process takes the form of privatization of services and follows the decision to reduce spending to support the welfare state. The research concerns the forms of decomposition of the production cycle and rearticulation of the enterprise in the private sector and the consequences on working conditions, in the light of EU law and from a transnational and comparative perspective. The research aims at studying the phenomenon in the public sector as well, analyzing privatization processes, which are increasingly frequent due to contraction of the public spending, and the impact on the quality of work. A focus on the health sector and the condition of workers with low to medium skills is required in order to identify forms of exploitation and discrimination of women and migrants.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | italian  | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>ALTERNATIVE MEASURES TO PRISON IN THE SENTENCING AND EXECUTION PHASES</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Gianfranco MARTIELLO   |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The research project aims to reconstruct in a historical and systematic perspective the problems that pertain to measures alternative to detention, favoring the role that the recent "Cartabia reform" has assumed on the subject.</p> <p>In particular, the research will develop around the following points, each susceptible to further articulations:</p> <p>A) A historical reconstruction of the so-called "fight against detention", examining the main institutions that, over time, the legal system has put in place to implement it, starting from the fundamental law n. 689/1981, as well as the political-criminal, criminological but also practical reasons that have supported and developed it over time.</p> |  |  |  |  |

|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
|   |                        | <p>B) The need for a complete review of the many institutes of substantive, procedural and penitentiary criminal law will be highlighted which, to date, are aimed at satisfying the need to consider detention as extrema ratio, taking into account the seriousness of the crime and the personality of the perpetrator.</p> <p>C) A focus on those parts of criminal law that have been affected by the so-called "Cartabia reform" and which are aimed at achieving the objective of deflation of the system, in both a direct and ""downstream"" way (e.g.: substitute sentences), and in an indirect and preventive way, carrying out an ""upstream"" deflationary function (e.g.: prosecution by lawsuit, criminal irrelevance of the fact, restorative justice, etc.).</p> <p>D) An overall balance, open to political-criminal proposals aimed at improving the penal regulatory framework.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | italian  | September 12 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Di Scienze Giuridiche (DSG)<br>Via delle Pandette, 35<br>50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## SOCIAL SCIENCES FOR SUSTAINABILITY AND WELLBEING (S3W)

Director prof. Leonardo Boncinelli

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 118/2023 - Digital and green transitions | B12B22001380006 |
|     | M.D. 118/2023 - NRRP Research                 | B12B23000310006 |
|     | M.D. 118/2023 - Public Administration         | B12B23000400006 |

|  |                 |  |                                 |            |                      |
|--|-----------------|--|---------------------------------|------------|----------------------|
| M.D. 118/2023                                      |                 | Digital and green transitions<br>IMT Lucca   |                                 |            |                      |
| TITLE OF THE SCHOLARSHIP                           |                 | THE IMPACT OF THE ENERGY TRANSITION ON HOUSEHOLDS AND FIRMS  |                                 |            |                      |
| PRINCIPAL INVESTIGATOR                             |                 | Angelo FACCHINI  |                                 |            |                      |
| RESEARCH TOPIC                                     |                 | <p>There is an emergent need to understand the comprehensive impact of these green transitions on various productive sectors. The purpose of this PhD research project is to devise scenarios and indicators that would help quantify the effects of the energy/green transitions, primarily focusing on three significant aspects:</p> <p>1)The Consequences of Energy Decarbonization Policies: The project will explore the impact of transitioning towards a low-carbon economy, specifically within the energy sector. It will pay close attention to traditionally energy-intensive industries such as paper and brick manufacturing. The research will scrutinize how these sectors cope with the vulnerabilities associated with such transitions, like increasing energy poverty.</p> <p>2)The Effects of Circular Economy Policies: The research will delve into the ramifications of circular economy policies on the manufacturing sectors, particularly those dependent on plastics. The exploration will extend to understand how these sectors can effectively adapt to these policies while maintaining economic viability.</p> <p>3)The Impact on Socioeconomic Disparities: Acknowledging the potential social implications of the green transition, the research will study its impact on the working poor and inhabitants of peripheral regions, confronting issues like mobility poverty. The PhD candidate will formulate detailed scenarios and develop robust indicators to analyze the effects of the green transition. This research will contribute significantly to our understanding of the complex interplay between green transition, productive sectors, and socio-economic disparities, thereby informing future policy-making for sustainable and inclusive development.</p> |                                 |            |                      |
| MANDATORY EXPERIENCES                              |                 | INTERVIEW  |                                 |            |                      |
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE   | DATE                            | TIME       | MODE                 |
| 6  | 6               | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m. | Remotely (videocall) |



|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research<br>IMT Lucca   |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>MANAGERIAL MODELS AND PRACTICES FOR THE DIGITAL TRANSFORMATION AND ENVIRONMENTAL TRANSITION OF FIRMS</b>  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Giacomo MARZI  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | The project aims to delve into innovative managerial models and practices that can guide firms through digital transformation and environmental transition. Concerning digital transformation, it will explore how businesses can incorporate advanced technologies into their activities, practices, and decision-making processes. The central focus is on examining how business models can accommodate the complexities of these changes. Concurrently, the environmental transition will address the shift towards sustainable and environmentally respectful practices. Therefore, the study will explore how digital transformation and environmental transition intertwine to develop a model that optimizes both business challenges. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>CLIMATE CHANGE ADAPTATION: NEW ROLES FOR LAND RECLAMATION CONSORTIA</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Gianluca STEFANI  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | Climate change and the recent pandemic require the adaptation of socio-economic systems. The institutions and beliefs established in the Western world to confront the complexity of the human environment have allowed the development of impersonal exchange integrating the specialized knowledge essential to effectively utilizing it in complex economic structures. Environmental challenges involve solving new complex coordination problems with generalized interdependencies while dealing with new uncertainty associated with the physical environment. Institution must adapt to the new challenges. As part of this process of economic change, old institutions and organisations already oriented to solving complex coordination problems, also within a multi-level perspective, can take on new roles. |  |  |  |
| <b>MANDATORY EXPERIENCES</b>    |  | <b>INTERVIEW</b>  |  |  |  |

| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE | DATE                            | TIME       | MODE                 |
|--|-----------------|----------|---------------------------------|------------|----------------------|
| 6  | 6               | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m. | Remotely (videocall) |

|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>RISK COVERAGE IN HEALTHCARE ACTIVITY: INSURANCE OR ALTERNATIVE MODELS?</b>  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Maria Elvira MANCINO   |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research activity envisaged within the scope of the PhD will develop an analysis of the different risk profiles arising from the new responsibility of healthcare facilities in light of the contents of Italian Law No. 24 of March 8, 2017 (the so-called Gelli-Bianco Law). The various risk profiles of public and/or private healthcare companies require a deep study in the actuarial field for the determination of a new sustainable model between mandatory insurance and/or alternative risk coverage measures provided for by the legislation. In particular, the research program of the PhD in question will concern the creation of a database and the calibration of a suitable model for risk coverage, aimed at including aspects related to the functioning and management of the healthcare company in relation to its doctors, encouraging their organization and promoting the reduction of moral hazard.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>NATURAL DISASTERS: SOCIO-ECONOMIC IMPACTS AND MANAGEMENT</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Stefano CLÒ  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The project will develop an analysis of the multidimensional impact of hydrogeological natural events on the economic, productive, and social fabric both</p> |  |  |  |





|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
|   |                        | on a local and national scale, identifying the main factors and policies that determine a greater or lesser intensity of such impact. This project will contribute to providing new knowledge and diagnostic support for policies aimed at increasing the resilience of territories to adverse natural events induced by climate change. The project aims to increase administrative capacity in relation to the formulation and design of public policies for land management. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english   | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |   |                  |                                 |             |                      |
|---|---|------------------|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>ECOLOGICAL ECONOMICS AND HUMAN DEVELOPMENT</b>   |                  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Tiziano DISTEFANO   |                  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     | <p>The research concerns sustainable human development with the aim of developing society and the economy in order to satisfy the needs of present generations without compromising the capacity of future generations.</p> <p>This paradigm combines Amartya Sen's capability approach with the principles of ecological economics which promotes the balance between economic dynamics, social needs and environmental limits. The doctoral program should allow to develop the ability to identify the main connections between socio-economic and ecological systems and to identify, through scenario analysis, which public policies are more suitable for promoting sustainable human development. The PhD student will integrate the quantitative analysis with qualitative assessments, such as the identification and involvement of the main stakeholders, the identification of the most relevant challenges and the formulation of intervention policies to address them. The doctoral student will be able to provide an exhaustive picture of the socio-economic-environmental systems and the measures to intervene through multidimensional measures that take into account the complexity concerning sustainable human development.</p> |                  |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6   | english          | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>ACCESS TO CREDIT AND FINANCIAL MARKETS BY INNOVATIVE COMPANIES WITH HIGH SOCIAL AND ENVIRONMENTAL IMPACT</b>  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Federica IELASI  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Innovative companies with high social and environmental impact are key players in the transition to a greener and more inclusive Europe. However, such enterprises often do not qualify for easy access to capital. Starting from the analysis of the current conditions of access to credit, including non-traditional intermediaries, and from a critical and organic analysis of the current regulatory framework, both national and international, the research aims to build models capable of integrating financial risk measurements with impact assessments, as well as with ESG and climate risk management. In this context, the research aims to verify the current and prospective role of ethical and value-based banks in Europe. A further in-depth study will be devoted to the financial and economic additionality of the Central Guarantee Fund for SMEs, a public instrument managed by MedioCredito Centrale, characterized by a section dedicated to innovative SMEs and start-ups. By comparing the efficiency and effectiveness of different credit risk mitigation instruments, the research aims to provide the public administration with evidence useful for the formulation and design of public policies aimed at supporting access to credit and capital by the most strategic sectors for the national economy.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>REAL ESTATE AND THE "GREEN TRANSITION": THE "ENERGY PERFORMANCE" OF BUILDINGS</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Andrea BUCELLI  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>Faced with the challenges of the so-called green transition this study is part of an overall reflection on the the ecological issue in the principles of contemporary private law, especially with regard to real estate.</p> <p>The survey begins with an overview on the Italian-European system of regulatory sources on the subject of energy upgrading of buildings. The analysis concerns above all legal and economic implications on the construction sector which has always been considered an engine in economy, and is today strategic for the purpose of declining a new model of production and consumption in a circular sense. This considered, the approval by the European Parliament of the directive</p> |  |  |  |

|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
|   |                        | "case green" (revision of the EPBD directive on the energy performance of buildings) seems worth to be adequately analysed. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english   | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |   |                  |                                 |             |                      |
|---|---|------------------|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>DIGITAL TECHNOLOGIES AND ORGANIZATIONAL INNOVATIONS FOR HEALTH RETAIL AND PATIENT-CENTEREDNESS IN HEALTH CARE</b>  |                  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Laura GRAZZINI  |                  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     | The objective of this research project is to evaluate in an integrated manner the managerial and organizational implications within a teaching hospital setting of the introduction of digital technologies, including immersive technologies designed to support the delivery of health care services. This is with particular reference to how organizations in the healthcare ecosystem exchange information, coordinate patient care, and identify and develop functional skills and tools to improve patient and caregiver well-being. |                  |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6   | english          | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |   |  |  |  |  |
|---------------------------------|---|--|--|--|--|
| <b>M.D. 118/2023</b>            | Public Administration   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>DIGITAL TRANSFORMATION IN THE THIRD SECTOR AND SUSTAINABILITY</b>  |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   | Sara LOMBARDI   |  |  |  |  |
| <b>RESEARCH TOPIC</b>           | Nonprofit organizations (NPOs) are critical to the survival and high quality of life of many communities, not only because of the social impact they produce, but |  |  |  |  |

|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
|   |                        | <p>also due to the significant economic impact they have within such communities. While seeking to create and maintain a competitive advantage, NPOs struggle to fuel their digitalization, in an attempt to increase their efficiency, foster collaboration through higher transparency and trust, and facilitate communication. Ultimately, this would allow them to accelerate their social impact and realize their mission. However, in doing so, NPOs encounter a number of challenges, such as those related to the decision making process and the division of labour, a new way of interacting with customers as well as the need to establish new partnerships with a renovated set of stakeholders. Further, new digital skills and competences need to be developed, thus requiring clear human resources' training and development programs.</p> <p>In this regard, scholars show that the NPOs that are able to effectively address the digital transformation are also more likely to embrace a successful approach toward sustainability. Hence, the potential of digitalization towards the development of sustainable NPOs is highly recognized. Consistently with this, it is important to investigate the organization-related consequences, benefits, obstacles that influence the link between digital transformation and sustainability in NPOs.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english   | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |   |
|---------------------------------|---|
| <b>M.D. 118/2023</b>            | Public Administration   |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>IMPACT EVALUATION OF THE NATIONAL WATER TARIFF METHOD (MTI) ON THE ECONOMIC AND ENVIRONMENTAL PERFORMANCE OF THE REGIONAL WATER SECTOR AND IDENTIFICATION OF TARIFF ELEMENTS NEEDED FOR ENHANCING ECONOMIC AND ENVIRONMENTAL EFFICIENCY OF WATER UTILITIES (SII).</b>  |
| <b>PRINCIPAL INVESTIGATOR</b>   | Ginevra Virginia LOMBARDI   |
| <b>RESEARCH TOPIC</b>           | Water sector is affected by several hazards; these include drought, water scarcity and quality, obsolescence of infrastructures, inefficient management, reducer controls on consumption levels and a inadequate propensity for innovation. To face this challenging problems, water management should be addressed to increase sustainability, not only in terms of technical and economic efficiency, but also in terms of implementing good practices aimed at pursuing a restorative circular economy. The Tariff Method (MTI), prepared by ARERA, is implemented at national level among different areas. The tariff system must also harmonize the economic-financial and environmental efficiency of the water service allowing the pursuit of social and environmental objectives. The PhD research project has the objectives of carrying out an analysis of the tariff method impact on the economic and environmental performances of Italian and regional water utilities. The research activities will include the analysis of the financial statements of the water |



|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
|   |                        | companies for the relevant years of the MTI, identifying the weakness and the needed action to overcome the inefficiencies in accordance with the recent European Green Deals. The research will address also tariff issues in the pursuit of circular economy implementation. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | english  | September 14 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

## ARCHITECTURE AND DESIGN CULTURES, KNOWLEDGE AND SAFEGUARDING OF CULTURAL HERITAGE

Director prof. Francesco Collotti

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 118/2023 | B12B23000490006 |
|-----|---------------|-----------------|

|  |                 |  |                                |            |            |  |
|--|-----------------|--|--------------------------------|------------|------------|--|
| M.D. 118/2023                                      |                 | Cultural Heritage  |                                |            |            |  |
| TITLE OF THE SCHOLARSHIP                           |                 | BIG CONTROL DATA. DATA FOR EFFECTIVE MANAGEMENT OF OVER TOURISM IN ART CITIES  |                                |            |            |  |
| PRINCIPAL INVESTIGATOR                             |                 | Gianluca BELLI   |                                |            |            |  |
| RESEARCH TOPIC                                     |                 | <p>In the context of strategic planning, cities tend to equip themselves with control rooms for the management of big data through the support of a management platform which, through the use of various thematic dashboards, supports the definition of strategies and guidelines to create human-friendly urban environments: sustainable and efficient not only in reference to its services, but also in relation to the management of cultural heritage and tourist flows. The research aims to define a Smart City Control Room model capable of integrating the usual data related to the general functioning of the city with those relating to the use of cultural heritage. The ultimate aim is to create new opportunities for less visited places inside and outside the territories that suffer an outsized anthropic pressure, so as to provide decision-making tools for the decongestion of the big attractions, enhancing the lesser known heritage places..</p> |                                |            |            |  |
| MANDATORY EXPERIENCES                              |                 | INTERVIEW  |                                |            |            |  |
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE   | DATE                           | TIME       | MODE       | PLACE  |
| 6  | 6               | italian/english  | September 7 <sup>th</sup> 2023 | 10:00 a.m. | In-Person* | Dipartimento di Architettura (DiDA), via della Mattonaia 8, 50121 Firenze room 208 |

\*In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                |             |             |  |
|---|------------------------|---|--------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | Cultural Heritage   |                                |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>IMPACT HERITAGE: AN INTEGRATED METHOD FOR THE ASSESSMENT OF HERITAGE IMPACTS.</b>  |                                |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Susanna CACCIA GHEARARDINI  |                                |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | The research aims to understand what is HIA (Heritage Impact Assessment) today, what tools and concrete examples of its application, in order to outline strengths and weaknesses also from a historiographical perspective. Through examination of experiences already gained in the international context, the research intends to develop a process of evaluation, especially with reference to cultural heritage, which is not only more innovative, but which can also be in line with the most recent instances of protection and preservation. |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 6                      | italian/english   | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | In-Person*  | Dipartimento di Architettura (DiDA), via della Mattonaia 8, 50121 Firenze room 208 |

\*In the application form candidates residing abroad may ask to conduct the interview remotely

## SUSTAINABLE MANAGEMENT OF AGRICULTURAL RESOURCES, FORESTRY AND FOOD

Director prof. Erminio Monteleone

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 118/2023 | B12B23000500006 |
|-----|---------------|-----------------|

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Cultural Heritage  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>MODELLING OF THE PHYSICAL-MECHANICAL BEHAVIOUR OF PANEL PAINTINGS FOR THE DEFINITION OF PREVENTIVE CONSERVATION MODELS.</b>   |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Marco FIORAVANTI   |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The project aims to define the main physical-mechanical factors influencing the conservation of panel paintings. Starting from results already obtained by the research group, it envisages their integration by means of experimental tests to be conducted on original specimens representative of construction and painting materials and techniques that have not yet been examined. The objective is to define the significant parameters of the hygromechanical behaviour of painted panels, with particular attention to paintings on oak wood, in order to complete the corpus of those studied on poplar wood. The typological classes determined and characterised may be the basis for the definition of preventive conservation policies in museum spaces, also through the introduction of IoT technologies. The project envisages an interdisciplinary development, combining the approaches of restorers and conservators with those of material science and information technology researchers.</p> |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 7 <sup>th</sup> 2023 | 02:30 p.m.  | Remotely (videocall) |



## INFORMATION ENGINEERING

Director prof. Fabio Schoen

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 117/2023                                 | B12B23000580006 |
|     | M.D. 118/2023 - Digital and green transitions | B12B23000210006 |
|     | M.D. 118/2023 - Public Administration         | B12B23000410006 |

|  |                 |  |                                 |            |                      |
|--|-----------------|--|---------------------------------|------------|----------------------|
| M.D. 117/2023                                      |                 | Scholarships co-funded by Companies  |                                 |            |                      |
| TITLE OF THE SCHOLARSHIP                           |                 | SMART POWER CONVERTERS FOR POWER FLOWS CONTROL IN RENEWABLE SOURCES  |                                 |            |                      |
| PRINCIPAL INVESTIGATOR                             |                 | Alberto REATTI   |                                 |            |                      |
| RESEARCH TOPIC                                     |                 | <p>The activity is aimed at studying the creation of a modular and intelligent power interface, to be included in a generation and storage system based on green hydrogen (produced by PV/micro wind). The interface interconnects the renewable source, the fuel cell and the loads identified as: a) supercaps used for the transitory management of fuel cell load taking; b) electric vehicles to be recharged; c) users inside the plant; d) users of other systems connected within the smart grid/energy community; e) national network.</p> <p>The technologies to be used are on the one hand power converters for the management of energy and power flows, the related control techniques based on machine-learning, aimed at optimizing the energy yield of the hydrogen system. The development activity involves the study and application of broadband switching devices (SiC), the use of embedded-devices with high computational capabilities, such as, for example, FPGAs and DSPs.</p> <p>The power interface will be multi-port and managed by a control system based on hierarchical decision-making algorithms and artificial intelligence techniques with the possibility of introducing the system within a multi-agent panorama to simultaneously optimize both the energy efficiency of the single prosumer is the response of the entire energy community.</p> |                                 |            |                      |
| COMPANY  |                 | OPIFICIO TECNOLOGICO SRL   |                                 |            |                      |
| MANDATORY EXPERIENCES                              |                 | INTERVIEW  |                                 |            |                      |
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE   | DATE                            | TIME       | MODE                 |
| 18   | 6               | italian/english  | September 11 <sup>th</sup> 2023 | 10:30 a.m. | Remotely (videocall) |



|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Digital and green transitions   |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>NET ZERO RADIO RESOURCE MANAGEMENT STRATEGIES FOR MOBILE RADIO NETWORKS WITH HETEROGENEOUS POWER SUPPLY</b>  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Simone MOROSI   |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The study will focus on the modeling of the characteristics of cellular networks with particular attention to those of the fifth and sixth generation, on green radio strategies and Net-zero approaches, as well as on the energy sources that can be used in this context. Original algorithms for management of radio and energy resources will be designed and tested. In particular, innovative methodologies based on artificial intelligence for dynamic, energy-efficient and QoS/QoE-aware management and optimization of communication and computational resources of the future communication architecture will also be considered. Particular attention will be given to strategies that optimize access to different energy sources and the use of lithium batteries and the techniques that enhance the radio resource through renting to third-party operators will also be considered.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english   | September 11 <sup>th</sup> 2023 | 10:30 a.m.  | Remotely (videocall) |

|                                 |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Digital and green transitions  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>OPTIMIZATION FOR A BETTER WORLD</b>   |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Fabio SCHOEN   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The research is part of a recent collaboration with ABW (Analytics for a Better world), a research group founded by the Universities of Amsterdam, Tilburg, and MIT in Boston. The aim of the research is the development of models and algorithms for various aspects of humanitarian logistics, with particular reference to localization problems on graphs. The applications are in the humanitarian field (location of emergency centers), sustainable mobility (location of electric charging stations), optimized waste collection (collection points). The models are generally well known, but in humanitarian or mobility applications the scale of the problems, the uncertainty in the data, the presence of complicating constraints, make modeling and solving very complex. There is also a further difficulty linked to the need to generate maps of reliable mobility networks. This is a significant problem both in the case of developing countries whose road network is not digitized, and in contexts in which, following catastrophic events, the mobility network undergoes a radical change. The provision of an internship period at Verizon</p> |  |  |  |



|   |                        |  |                                 |             |                      |
|---|------------------------|--|---------------------------------|-------------|----------------------|
|   |                        | Connect is designed for this part of the research. This proposal is coherent with the PNRR M2C2 theme: Renewable Energy, Hydrogen, Network and Sustainable Mobility, 4.3, and M1C2: Digitization, Innovation and Competitiveness in the Production System. |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 11 <sup>th</sup> 2023 | 10:30 a.m.  | Remotely (videocall) |

|   |   |                  |                                 |             |                      |
|---|---|------------------|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                  |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>STUDY OF ARTIFICIAL INTELLIGENCE TECHNIQUES INTEGRATED WITH VISUAL ANALYTICS AND BUSINESS INTELLIGENCE TOOLS TO SUPPORT ANY PA DECISION-MAKING PROCESS.</b>  |                  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Paolo NESI  |                  |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     | <p>Visual analytics and business intelligence tools allow PA to create data visualizations such as charts and interactive maps that help identify trends and relationships between data. The areas are environmental, mobility and transportation, energy, social consensus, strategic planning, and digital twin of the city. These tools also enable more detailed data analysis, including time series data, geospatial data, and any other relevant data sources. They allow public administrations to analyze historical and current data, monitor performance of activities, and predict future trends. Such tools are essential when integrated with AI/XAI what-if analysis systems as they help to extract value from data and make data-driven decisions, anticipating future trends and reacting effectively. Integrations with AI/XAI models are in predictive models, neuro-symbolic reasoning models, and decision support models. The work will be carried out at the DISIT Lab, one of the most active labs in these areas (<a href="https://www.disit.org">https://www.disit.org</a>, <a href="https://www.snap4city.org">https://www.snap4city.org</a>) under the coordination of Prof. Paolo Nesi.</p> |                  |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6   | italian/english  | September 11 <sup>th</sup> 2023 | 10:30 a.m.  | Remotely (videocall) |

## INDUSTRIAL ENGINEERING

Director prof. Giovanni Ferrara

**Gross Annual amount of the scholarship € 21,000.00 (gross value)**

The increase of the scholarship is funded by Department of Industrial Engineering

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 117/2023 | B12B23000590006 |
|     | M.D. 118/2023 | B12B23000320006 |

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>DATA DRIVEN PROCESS COOLING SYSTEM AND TEMPERATURE CONTROL. DIGITAL TWIN FOR ENERGY SAVING AND PROCESS IMPROVEMENTS</b>   |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Romeo BANDINELLI   |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>A primary goal for industrial systems is to optimize the energy consumption. As global leader in industrial process cooling systems, Frigel develops customized solutions tailored to the specific needs of each process, where efficiency is one of the main force driving the design. Engineered solutions consist of multiple machines (i.e. chillers, free-coolers, pump groups) hydraulically interconnected and controlled by a central controller. As part of the digitalization process aimed at optimizing operating conditions (reducing consumption, increasing efficiency), predictive maintenance, and process prediction, we propose to develop a numerical model based on machine learning algorithms and data collected from real plants. By using this validated model, we will be able to monitor and identify the machine optimal parameters based on the same data as the real system. With the help of a simulation framework, a set of several models will enable a system approach for activities such as:</p> <ul style="list-style-type: none"> <li>• operation optimization</li> <li>• efficiency increase</li> <li>• consumption reduction</li> <li>• environmental impact reduction (water and CO2)</li> <li>• predictive maintenance</li> <li>• prediction of process thermal loads</li> </ul> |                                |             |                      |
| <b>COMPANY</b>  |                        | Frigel Firenze S.p.A   |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | italian/english  | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |                        |   |                                |             |                      |
|---|------------------------|---|--------------------------------|-------------|----------------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies   |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>EFFICIENCY IMPROVEMENT OF COMPRESSION PROCESSES FOR APPLICATIONS WITH RECIPROCATING COMPRESSORS</b>  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Giovanni FERRARA  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>New applications related to the energy transition will increasingly require the use of high-efficiency, low-emission reciprocating compressors for a variety of applications and gas mixtures (e.g. mixtures containing hydrogen and ethylene). In the design of such compressors, the aspect of packing seals is particularly critical, as these are either lubricated or dry seals that can significantly influence compressor effectiveness and efficiency. The aim of the PhD program will therefore be to develop numerical models to support the compressor design phases by analysing the pressure drop and flow rate trends as a function of component geometry and operating conditions. The PhD student will therefore have to work in close synergy with the company, integrating the development of new calculation models with the analysis methodologies already present in the company.</p> |                                |             |                      |
| <b>COMPANY</b>  |                        | Nuovo Pignone Tecnologie s.r  |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english   | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 117/2023</b>            |  | Scholarships co-funded by Companies   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>SEALING EFFECTIVENESS IMPROVEMENTS IN THE ROTOR/STATOR CAVITY OF GAS TURBINES</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Antonio ANDREINI  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>Recent trends in power generation share the goal to limit the irreversible consequences of global warming. To reduce CO2 emissions, the renewable energies have widely introduced, especially for electricity generation, where their share is expected to further increase in next years.</p> <p>In the medium-term gas turbine engines is a key partner of renewables to absorb their energy fluctuations in the grid, as well as provide immediate emission reductions using carbon-neutral fuels like ammonia, hydrogen, or bio-jet fuel.</p> <p>In gas turbines, air extracted from the compressor passes through a Secondary Air System (SAS) to cool the turbine disc and reduce the ingestion of high-temperature gases through rim seals. The correct prediction of the ingested flow and its effects</p> |  |  |  |

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
|   |                        | <p>on the high thermal and mechanical stresses represents a crucial point for the engines reliability. This aspect is even more important for new generation turbines with fast start-up and shutdown and frequent load adjustments due to the introduction of renewables.</p> <p>The project aims to provide an in-depth understanding of the SAS system focussing on a detailed investigation on the wheel-spaces. The analysis will be based mainly on high fidelity CFD simulations to exploit many and significant experimental results, already available or planned in the future, to support advanced design of more efficient sealing systems and to allow definition of Digital Twin counterpart models of the engines.</p> <p>The outcomes of the project will perfectly match the growing demand for cleaner energy with a strong contribution to social, economic, and technological impacts.</p> |                                |             |                      |
| <b>COMPANY</b>  |                        | Nuovo Pignone Tecnologie s.r   |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |                        |   |             |             |             |
|---|------------------------|---|-------------|-------------|-------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies   |             |             |             |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>MODELING AND THERMO-ELASTIC OPTIMIZATION OF TURBOMACHINERY COMPONENTS</b>  |             |             |             |
| <b>PRINCIPAL INVESTIGATORS</b>                            |                        | Andrea RINDi - Enrico MELI  |             |             |             |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The objective of the research activity is to develop innovative strategies for modeling and thermo-elastic structural optimization of turbomachinery components. Such optimizations will be able to increase the performance of numerous components such as blades, impellers, shafts, combustion chambers, and bearings, contributing substantially to increase machine performance and efficiency and to reduce environmental impact.</p> <p>Innovative modeling and structural optimization strategies will also make use of artificial intelligence.</p> |             |             |             |
| <b>COMPANY</b>  |                        | Nuovo Pignone Tecnologie s.r  |             |             |             |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |             |             |             |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b> | <b>TIME</b> | <b>MODE</b> |
|   |                        |   |             |             |             |

|   |                        |  |                                   |             |                         |
|---|------------------------|--|-----------------------------------|-------------|-------------------------|
| 6   | 6                      | italian/english  | September 8 <sup>th</sup><br>2023 | 09:00 a.m.  | Remotely<br>(videocall) |
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                   |             |                         |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>CO2 REFRIGERATION IN THE FOOD RETAIL SECTOR</b>   |                                   |             |                         |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Adriano MILAZZO  |                                   |             |                         |
| <b>RESEARCH TOPIC</b>                                     |                        | Carbon dioxide is now widespread as refrigerant in the food retail sector. This fluid has peculiar characteristics and requires important modifications to the technology and thermodynamic design of refrigeration plants. Experiences gathered up to now are difficult to utilize, as they refer to different operating conditions, plant layouts and result analysis. INRES has installed and manages a number of CO2 plants in Italy. They have a real time monitoring system that collects all significant data. Obviously the overwhelming availability of data requires innovative analysis tools. Furthermore, the plant layouts used by INRES up to now are relatively simple, so that it would be interesting to propose some improvements. Just to make an example, DIFE has a long experience in the field of two-phase ejectors for expansion work recovery, that could be useful in the case of CO2. |                                   |             |                         |
| <b>COMPANY</b>  |                        | INRES S.c.r.l.   |                                   |             |                         |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                   |             |                         |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                       | <b>TIME</b> | <b>MODE</b>             |
| 6   | 6                      | italian/english  | September 8 <sup>th</sup><br>2023 | 09:00 a.m.  | Remotely<br>(videocall) |

|                                 |  |   |  |  |  |
|---------------------------------|--|---|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research   |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>ANALYSIS AND SIMULATION OF PRE-CRASH SCENARIOS FOR ASSESSING THE EFFECTIVENESS OF VEHICLE DYNAMICS SYSTEMS AND PASSIVE SAFETY TECHNOLOGIES .</b>   |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Dario VANGI   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The planned activity focuses on analysis of vehicle behavior in pre-accident situations. Of particular interest are Vehicle Dynamics Systems such as BSM and EPS, active suspension and 4WS, and also interaction with any activation of ADAS systems. In the event of an unavoidable accident, it also becomes important to assess, through the impact configurations and vehicle characteristics, the injury consequences for the occupants in order to optimize the passive protection offered by the vehicle, to make vehicle safety more effective. The main objectives of the activity are: |  |  |  |

|   |                        |   |                                |             |                      |
|---|------------------------|---|--------------------------------|-------------|----------------------|
|   |                        | <p>Analysis of the intervention of Vehicle Dynamics Systems in real-world pre-crash situations, also accounting for driver behaviour. This analysis, performed with SiL and HiL simulations, enables the optimization of Vehicle Dynamics Systems intervention and effectiveness. Performance evaluations of of such systems will be analysed focusing on electric vehicles.</p> <p>In the case of impacts, crash configurations will be identified and Impact severity will be assessed and the vehicle responses will be evaluated either in terms of crashworthiness or injury reduction. The different structural characteristics of electric vehicles and the new impact modes and configurations due to different dynamic characteristics and systems require to analyse the effectiveness and performance of these vehicles in terms of passive safety and vehicle dynamics.</p> |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | italian/english   | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

|   |  |                  |                                |             |                      |
|---|--|------------------|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | NRRP Research  |                  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>MANUFACTURING PROCESSES MONITORING AND DIGITAL TWIN</b>   |                  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Niccolò GROSSI   |                  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     | <p>The research activity has the aim the study and development of advanced modeling strategies of manufacturing processes and innovative solutions for their monitoring. The goal is to develop a digital twin of the process in order to predict and compensate manufacturing errors and defects on the part being produced. These tools will be developed with the objective to obtain a "right first time" manufacturing approach, able to minimize waste and maximize productivity. The research activity includes the development of models of the process, the machine and the component being processed, the analysis of data through dedicated algorithms, the experimental validation of the models and the development of dedicated monitoring solutions. The final goal is to produce components within quality requirements on the first try, without the need for iterations that will require longer processing time and material consumption.</p> |                  |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |  | <b>INTERVIEW</b> |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>   | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6  | italian/english  | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |





|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>COMBUSTION CONTROL SYSTEM DEVELOPMENT FOR LEAN-BURN H2-FUELED INTERNAL COMBUSTION ENGINES</b>   |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Giovanni FERRARA   |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>As is well known, hydrogen is one of the key energy carriers in the energy transition. In the context of technology neutrality, there is a strong focus on how far the internal combustion engine can maintain its leadership in transport (not only in the automotive sector) using this vector. One of the most relevant aspects is to keep under control NOx emissions, for which it is necessary to implement a very thorough control of the combustion process by working with a lean charge.</p> <p>The PhD activity will be concerned with the development of predictive control systems capable of working in real time on the engine and thus able to control the cycle-to-cycle combustion process. These control algorithms will then be tested on hydrogen-fuelled engines at the engine test bench of the LINEA laboratory in Calenzano.</p> <p>The PhD activity is perfectly aligned with the aims and purposes of the PNRR by bringing innovation in the field of Energy Transition. The activity will benefit from the strong focus on the topic by numerous companies both in Tuscany/Italy and internationally. This will greatly facilitate the PhD student's period abroad.</p> <p>In particular, collaboration in this sector is already in place with Yanmar R&amp;D Europe, and it is envisaged that the doctoral student will be able to spend his or her six months at the company's research site in Italy or Japan.</p> <p>The PhD student will be able to make use of DIFE's experimental facilities in Calenzano for test bench activities with the possibility of testing hydrogen-powered engines.</p> |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | italian/english  | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

## INTERNATIONAL DOCTORATE IN CIVIL AND ENVIRONMENTAL ENGINEERING

Director prof. Luca Solari

|     |                                       |                 |
|-----|---------------------------------------|-----------------|
| CUP | M.D. 117/2023                         | B12B23000600006 |
|     | M.D. 118/2023 - Public Administration | B12B23000420006 |
|     | M.D. 118/2023 - Cultural heritage     | B12B23000510006 |

|   |                        |  |                                |             |             |  |
|---|------------------------|--|--------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>DEFINITION OF INFORMED DIGITAL TWINS TO OPTIMIZE MAINTENANCE AND RENOVATION OF PUBLIC BUILDINGS STOCK</b>   |                                |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Pietro CROCE   |                                |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Public authorities and the European construction industry are facing some significant challenges in managing the huge existing building stock. Considering that 80 % of European buildings will still be in use in 2050, optimising the energy, structural and durability performance of existing buildings, preserving their historical and cultural values, and taking into account the effects of climate change is a primary objective of the dual green and digital transition. The "digital building logbooks" (DBL), which are the subject of the "BUILDCHAIN" research project funded by the EU in the Horizon Europe programme, coordinated by the referent, in which the Municipality of Florence participates, represent an advanced tool for monitoring and managing the built environment. The PhD student's research activity, also encompassed in the framework of the BUILDCHAIN research, will consist in the development of Digital Twins aimed at supporting the decision-making process with a view to improving the management, reliability, and sustainability of existing structures. The Digital Twin based on a BIM model of the building integrated and updated with monitoring data will be a useful tool for assessing and visualising the state of the building, identifying its vulnerabilities, outlining alert thresholds, and prioritising interventions. In the framework of the partnership with the Municipality of Florence, it will therefore be possible to integrate the procedures developed with the substantial digital database of the huge set of managed buildings, which the Institution will make available to the PhD student.</p> |                                |             |             |  |
| <b>COMPANY</b>  |                        | Studio Croce s.r.l.  |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                                     |
| 12  | 9                      | english  | September 1 <sup>st</sup> 2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, via di S. Marta, 3 - 50139 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                |             |             |  |
|---|------------------------|--|--------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>INNOVATIVE MANAGEMENT TOOLS TO INCREASE THE RESILIENCE OF PUBLIC BUILDINGS AGAINST NATURAL RISKS (OR CLIMATE CHANGE)</b>  |                                |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Pietro CROCE   |                                |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Public authorities and the construction industry are facing significant challenges in managing and preserving the existing building stock to make it more efficient and sustainable and improve its resilience against natural hazards. It is therefore necessary to develop advanced tools for monitoring, collecting, analysing, and managing data on existing buildings, which can support managing authorities in defining intervention strategies enhancing sustainability, energy efficiency, safety, and resilience. In this context, advanced tools are the 'digital building logbooks' (DBL), which are the subject of the 'BUILDCHAIN' research project funded by the EU in the Horizon Europe programme, which is coordinated by the referent and in which the Municipality of Florence participates. The PhD student's activity, also encompassed in the framework of the BUILDCHAIN research, will consist in the development of methodologies for the analysis of risks related to extreme climatic events, which will allow, starting from the information contained in the DBL, to assess the building's exposure and vulnerability. This classification, combined with other relevant information obtained from the DBL, such as seismic vulnerability and energy performance of the buildings, will allow the definition of intervention priorities. In the framework of the partnership with the Municipality of Florence, it will be possible to test the procedures developed with reference to significant case studies, identified within the huge building stock managed by the Municipality, which will make available the extensive database of available information for the investigated buildings.</p> |                                |             |             |  |
| <b>COMPANY</b>  |                        | Studio Croce s.r.l.  |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 12  | 9                      | english  | September 1 <sup>st</sup> 2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, via di S. Marta, 3 - 50139 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>ADAPTATION OF COASTAL DEFENSES IN CLIMATE CHANGE SCENARIOS</b> |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Lorenzo CAPPIETTI   |  |  |  |  |

|   |                        |  |                                |             |             |   |
|---|------------------------|--|--------------------------------|-------------|-------------|---|
| <b>RESEARCH TOPIC</b>                                     |                        | The coastal environment is exposed to coastal erosion which increasingly leads to the collapse of coastal structures and important infrastructures. Climate change, in this case, is characterized by the well-known increase in mean sea level but also by an increase in the frequency of devastating events that occurred much more rarely in the past. It is urgent to develop a new long-term planning in the management of the coasts and to develop new protection interventions that can adapt their function in the climate change scenarios. The doctoral research will focus on the following two objectives, to develop new protection interventions with experimental, physical and numerical methodology and to review and propose an update of the legislative and programmatic framework at regional and national level to facilitate the planning and execution of the developed protection interventions |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 9                      | english  | September 1 <sup>st</sup> 2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, Via di Santa Marta 3, 50139 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |  |                  |             |             |             |              |
|---|--|------------------|-------------|-------------|-------------|--------------|
| <b>M.D. 118/2023</b>                                      | Public Administration  |                  |             |             |             |              |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>IDENTIFICATION OF AN INDEX OF VULNERABILITY TO STORM SURGES FOR THE ITALIAN COASTS</b>  |                  |             |             |             |              |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Lorenzo CAPPIETTI  |                  |             |             |             |              |
| <b>RESEARCH TOPIC</b>                                     | Coastal erosion is increasing due to climate change. The increase in the frequency of extreme events plays a crucial role. An integrated analysis of coastal erosion is essential to produce knowledge on coastal vulnerability to support strategies of adaptation to changes. This research will aim to evaluate the vulnerability to storm surges also in climate change scenarios and to produce a metric based on physical indicators, e.g., geomorphology and geology, river barriers, wave motion, tidal levels etc. For this research, the measurements, analysis systems and tools managed by ISPRA through the national networks RON (National Ondametric Network and RMN (National Mareographic Network)) will be used. |                  |             |             |             |              |
| <b>MANDATORY EXPERIENCES</b>                              |  | <b>INTERVIEW</b> |             |             |             |              |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>   | <b>LANGUAGE</b>  | <b>DATE</b> | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b> |

|   |   |         |                                   |            |            |   |
|---|---|---------|-----------------------------------|------------|------------|---|
| 6 | 9 | english | September 1 <sup>st</sup><br>2023 | 09:00 a.m. | In-Person* | Scuola di Ingegneria, Via di Santa Marta 3, 50139 Firenze |
|---|---|---------|-----------------------------------|------------|------------|---|

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                   |             |             |   |
|---|------------------------|---|-----------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                   |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>ASSESSMENT METHODS TO SUPPORT NATURE BASED SOLUTION PLANNING FOR SUSTAINABLE WATER MANAGEMENT.</b>   |                                   |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Enrica CAPORALI   |                                   |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The overall objective of the research is to assess the possibility of using NBS - Nature Based Solutions, actions and infrastructures inspired or supported by nature, as an innovative tool for hydraulic risk mitigation, climate change adaptation and sustainable water management.</p> <p>Particular attention will be given to the subset of solutions constituted by the integrated interventions for the mitigation of hydrogeological risk and the protection and recovery of ecosystems and biodiversity that allow the integrated achievement of the objectives defined by the Management Plans in implementation of the Water Framework Directive 2000/60 EC and the Flood Directive 2007/60 EC.</p> <p>Specific objectives relate to: (i) the development of methodologies for quantitative assessment of the benefits and co-benefits produced by NBSs, analyzing the limitations in their current implementation and possible synergies between them and the existing infrastructure assets; (ii) support for the identification of integrated interventions that can be included within river basin and territorial planning (urban planning tools) thus facilitating their planning (resourcing) and implementation; (iii) the development of a regional planning decision support system for the definition of integrated strategies of the environment as a fundamental source of (ecosystem) services on which to base the Region of the future.</p> |                                   |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                   |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                       | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 9                      | english   | September 1 <sup>st</sup><br>2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, Via di Santa Marta 3, 50139 Firenze<br>Aula Caminetto |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |   |                                |             |             |   |
|---|------------------------|---|--------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Cultural heritage   |                                |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>INNOVATIVE METHODS FOR THE DOCUMENTATION AND PRESERVATION OF THE PARISH CHURCHES OF LUNIGIANA</b>  |                                |             |             |   |
| <b>PRINCIPAL INVESTIGATORS</b>                            |                        | Barbara PINTUCCHI - Valentina BONORA  |                                |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research project will adopt a multi-disciplinary and multi-scalar approach, integrating up-to-date methodologies for producing and managing spatial data and seismic risk assessment, aspiring to be a methodological example that may allow extending the assessments made on a specific case study to a broader context. An in-depth analysis of static and dynamic behaviour will be conducted on a parish church in Lunigiana, a territory with a high seismic hazard; the investigations will then be extended to a broader region employing tools (preferably open source) for filing, cataloguing, sharing data and maps to outline a network of small centres along the way of the Volto Santo, identify potentials and synergies that allow the protection of historic buildings and the enhancement of the territory simultaneously. The availability of digital tools for managing spatial and thematically and structurally relevant information according to their spatiality makes it possible to highlight correlations that are not immediately obvious, quantify the effect of specific phenomena, support cognitive paths, and make them effectively communicable.</p> |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 9                      | english   | September 1 <sup>th</sup> 2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, Via di Santa Marta 3, 50139 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Cultural heritage   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>QUANTITATIVE RISK ASSESSMENT OF ARCHITECTURAL HERITAGE FROM NATURAL HAZARDS.</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Anna DE FALCO   |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | <p>The common characteristics of architectural heritage assets are their outstanding universal value from an artistic, historical, and scientific point of view, and the strong connection with communities from an economic, historical, and socio-cultural perspective. Natural hazards pose a major threat to cultural heritage assets</p> |  |  |  |  |

|   |                        |   |                                |             |             |  |
|---|------------------------|---|--------------------------------|-------------|-------------|--|
|   |                        | <p>which are fragile in this respect. Multi-hazard risk assessment of the built heritage is therefore of primary importance in regions prone to natural hazards, for the implementation of disaster risk reduction and resilience-enhancing strategies. The assessment of the expected losses in the various hazard scenarios is a very complex task, due both to the huge variety of construction typologies and their tangible and intangible values. Currently, there are no specific methodologies for the quantitative risk assessment of the architectural heritage, either at a territorial scale or at the level of a single building.</p> <p>The project is aimed at developing a multi-hazard risk prioritisation framework for architectural heritage, based on different levels of refinement and information with an increasing degree of accuracy. Specific damage to loss functions for the architectural heritage portfolio could be created by clustering assets and identifying performance modifiers considering the intrinsic values for each case.</p> |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 6   | 9                      | english   | September 1 <sup>st</sup> 2023 | 09:00 a.m.  | In-Person*  | Scuola di Ingegneria, Via di Santa Marta 3, 50139 Firenze Aula Caminetto |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## AGRICULTURAL AND ENVIRONMENTAL SCIENCES

Director prof. Carlo Vitii

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 118/2023 - Digital and green transitions | B12B23000220006 |
|     | M.D. 118/2023 - Public Administration         | B12B23000480006 |

|  |                 |   |                                 |            |            |   |
|--|-----------------|---|---------------------------------|------------|------------|---|
| M.D. 118/2023                                      |                 | Transizioni digitali  |                                 |            |            |   |
| TITLE OF THE SCHOLARSHIP                           |                 | MICROALGAL CULTURES TO OBTAIN RAW MATERIALS FOR BIOSUSTAINABLE APPLICATIONS IN THE INDUSTRIAL AND FOOD SECTORS  |                                 |            |            |   |
| PRINCIPAL INVESTIGATOR                             |                 | Liliana RODOLFI   |                                 |            |            |   |
| RESEARCH TOPIC                                     |                 | <p>Microalgae (including cyanobacteria) are a microbial group up to now little exploited from the biotechnological point of view. The wide taxonomic differentiation and metabolic flexibility of microalgae are the basis of their great potential, still largely unexplored, in terms of production of biotechnologically relevant molecules and components (among which polymers, bioactive molecules and pigments); moreover, microalgae have the advantage to contribute to biofixation of atmospheric CO<sub>2</sub> through oxygenic photosynthesis. The research aims at investigating microalgae by selecting the strains with the highest efficiency of CO<sub>2</sub> biofixation while at the same time producing polymers of interest for applications in the industrial and food sectors. Particular focus will be the production of glucide polymers (exopolysaccharides and storage products) that could be applied in different products (e.g., in biomaterials production, as functional components or technological adjuvants in food, or as ingredients in cosmetic products), reducing their environmental impact. Polymers will be obtained through optimized cultivation processes, aiming also at energy consumption optimization to reduce production costs.</p> |                                 |            |            |   |
| MANDATORY EXPERIENCES                              |                 | INTERVIEW   |                                 |            |            |   |
| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE  | DATE                            | TIME       | MODE       | PLACE   |
| 6  | 6               | italian   | September 12 <sup>st</sup> 2023 | 02:00 p.m. | In-Person* | Plesso Novoli C9 aula 003 , Via Sandro Pertini, 16, 50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely



|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>AGRONOMIC/ENVIRONMENTAL IMPACT AND MICROBIAL PROCESSES INVOLVED IN INTERACTIONS BETWEEN LIVESTOCK DERIVATIVES AND BIOCHAR</b>   |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Carlo Viti   |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Agronomic valorization of livestock residues, such as digestate, cannot ignore environmental sustainability, mainly in terms of reducing greenhouse gas emissions, and soil chemical and biological fertility.</p> <p>One of the main environmental problems associated with the application of digestate in soil is the emission of nitrous oxide (N<sub>2</sub>O) as a result of processes operated by microorganisms, such as denitrification. Such emissions can be effectively reduced by the addition of biochar, due to its ability to control soil pH and its electrochemical properties. In addition, due to its large adsorbent surface area, biochar is also able to bind ammonia nitrogen, limiting its availability for subsequent microbial transformations that could lead to N<sub>2</sub>O emission, and making it available for crops.</p> <p>Biochar can influence soil microbial communities, in terms of interspecific electron transfer, however, the processes involved in electron flow and thus N<sub>2</sub>O production have yet to be fully investigated.</p> <p>This is the focus of this PhD project, which has as its objectives:</p> <ul style="list-style-type: none"> <li>- analysis of N<sub>2</sub>O emissions from biochar- and digestate-treated soil and study of microbial community structure and functions related to the nitrogen cycle;</li> <li>- study of the effect of biochar on electron transfer mechanisms.</li> </ul> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 10  | 6                      | italian  | September 12 <sup>st</sup> 2023 | 02:00 p.m.  | In-Person*  | Plesso Novoli C9 aula 003 , Via Sandro Pertini, 16, 50127 Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## ADVANCED AND SUSTAINABLE AGRICULTURAL-FORESTRY SYSTEMS

Director prof. Salvatore Moricca

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000330006 |
|------------|---------------|-----------------|

|   |                        |   |                                 |             |                      |
|---|------------------------|---|---------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research<br>University of Pisa   |                                 |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>INSECT PESTS OF GRAPEVINE AND HORTICULTURAL CROPS: FROM BEHAVIOUR TO MANAGEMENT</b>  |                                 |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Angelo CANALE   |                                 |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>For effective and sustainable crop protection, increased knowledge of the biology and ecology of harmful arthropods is essential. This doctoral proposal is structured on the following themes: (i) acquisition of basic biological, ecological and behavioral knowledge on key and emerging phytophages of the vineyard and main horticultural crops, special focus will be on the impact of climate change on the distribution and harmfulness of emerging pests in the Mediterranean coastal area; (ii) evaluation, in field and laboratory, of the efficacy of biological control agents (particularly predators and parasitoids) of the phytophages; (iii) development of tools for the behavioral analysis of biological control agents, with particular reference to laboratory-on-a-chip and deep learning; (iv) development and validation, in field and laboratory, of new tools for the sustainable management of phytophages: inoculative or flooding launches of entomophages, development of green insecticides made from by-products of the agri-food chain, use of semiochemicals and food attractants for the implementation of monitoring and mass-trapping techniques, and pheromones for the management of vineyard pests (<i>Lobesia botrana</i>, <i>Cryptoblabes gnidiella</i> and/or <i>Planococcus ficus</i>), by using sexual confusion techniques.</p> |                                 |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b>          |
| -   | 6                      | Italian/english   | September 13 <sup>th</sup> 2023 | 09:00 a.m.  | Remotely (videocall) |

## SUSTAINABILITY AND INNOVATION FOR THE DESIGN OF BUILT ENVIRONMENT AND SYSTEM PRODUCT

Director prof. Giuseppe Lotti

|     |                                       |                 |
|-----|---------------------------------------|-----------------|
| CUP | M.D. 117/2023                         | B12B23000610006 |
|     | M.D. 118/2023 - NRRP Research         | B12B23000340006 |
|     | M.D. 118/2023 - Public Administration | B12B22001390006 |

|   |                        |  |             |             |             |              |
|---|------------------------|--|-------------|-------------|-------------|--------------|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |             |             |             |              |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>ANALYSIS AND DEVELOPMENT OF INNOVATIVE AND ADAPTIVE TOOLS/METHODOLOGIES FOR MOBILITY PLANNING AND SUSTAINABLE URBAN DEVELOPMENT</b>   |             |             |             |              |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Iacopo ZETTI   |             |             |             |              |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>"The proposed research has two main objectives:</p> <p>1) Critical assessment of compatibility and/or consistency of SUMP's drawn up in Italy over the last decade.</p> <p>2) Recognition and development of innovative tools/methodologies for the drafting of new SUMP's and their monitoring, according to a dual approach: adaptive; innovative.</p> <p>At the methodological level, the research will be based on a comparative evaluation of significant Italian and European case studies, then will recognise innovative and adaptive methods and tools and, finally, will arrive to hypothesise guidelines for SUMP, but also an innovative and adaptive application set/methodologies to be tested in pilot interventions.</p> <p>The European Community Recommendation 2023/550 states that the concept of SUMP needs to be updated to reflect new EU strategies and integrate new political priorities.</p> <p>Planning the transition towards an attractive, inclusive and sustainable urban mobility is therefore a priority for the next decade.</p> <p>A contribution should therefore be made to: the definition of a national approach for the preparation and implementation of SUMP's in cities; the organisation and coordination of campaigns and communication activities related to SUMP's; the definition of sustainable urban mobility indicators; support cities in the development of disaggregated data collection mechanisms, including by gender."</p> |             |             |             |              |
| <b>COMPANY</b>  |                        | TPS Pro s.r.l.   |             |             |             |              |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |             |             |             |              |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b> | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b> |

|    |   |                 |                                    |            |            |  |
|----|---|-----------------|------------------------------------|------------|------------|--|
| 18 | 6 | Italian/english | September 11 <sup>st</sup><br>2023 | 10:00 a.m. | In-Person* | Dip. Architettura (DIDA) - Via della Mattonaia, 8 - Firenze Room 402 |
|----|---|-----------------|------------------------------------|------------|------------|--|

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                    |             |             |  |
|---|------------------------|--|------------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                    |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>METHODS AND TOOLS FOR THE CO-CONSTRUCTION OF SUSTAINABLE TERRITORIES</b>  |                                    |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Iacopo ZETTI   |                                    |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The geological era in which we are living is characterised by such a strong impact of human actions on the Earth system that it causes irreversible changes on the climate and the territory.</p> <p>This horizon poses an important challenge to the culture of the project in general and to the dominance of urban and regional planning in particular.</p> <p>The aim of the research project is to work on the 'profiling' of theories, methods and tools at the service of this new role of the planner, hybridising and innovating methodologies and techniques of systemic design for the territory, service design, design thinking, creative conflict resolution and deliberative democracy.</p> <p>The PhD student will carry out research activities in order to identify methodologies and tools anticipating and reacting to changes, impulses and trends affecting the world of co-construction of sustainable territories.</p> <p>His training will be articulated according to the following structure:</p> <ul style="list-style-type: none"> <li>- First phase: survey about methods and tools.</li> <li>- Second phase: construction of a methodological proposal and first experimentation.</li> <li>- Third phase: evaluation of the first methodological proposal in the light of the results of the fieldwork and definition of a final proposal, complete with operational tools.</li> </ul> |                                    |             |             |  |
| <b>COMPANY</b>  |                        | Avventura Urbana Srl   |                                    |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                    |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                        | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 18  | 6                      | Italian/english  | September 11 <sup>st</sup><br>2023 | 10:00 a.m.  | In-Person*  | Dip. Architettura (DIDA) - Via della Mattonaia, 8 - Firenze Room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                 |             |             |  |
|---|------------------------|--|---------------------------------|-------------|-------------|--|
| <b>M.D. 117/2023</b>                                      |                        | Scholarships co-funded by Companies  |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>INNOVATIVE METHODS OF INDUSTRIALISATION WITH MANUAL TECHNIQUES</b>  |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Giuseppe LOTTI   |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>For many years in the furniture industry, quality was associated with the ability to serialise a model into identical products offering the same aesthetic and comfort characteristics.</p> <p>Despite numerous attempts and innovations, manual work still seems to be able to compete with automation and even generate product and process innovations.</p> <p>The research theme is therefore based on the analysis and enhancement of company know-how and the innovation of methodologies and techniques in prototyping and production, emphasising the role and impact of manual dexterity through a scientific interpretation.</p> <p>Framing the project is a specific focus on the environmental, social, cultural and economic sustainability of the proposed technological solutions.</p> <p>While the application of digital solutions aimed at innovative storytelling to increase the added value of the product will also be evaluated.</p> |                                 |             |             |  |
| <b>COMPANY</b>  |                        | EDRA S.p.a.  |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| 18  | 6                      | Italian/english  | September 11 <sup>st</sup> 2023 | 10:00 a.m.  | In-Person*  | Dip. Architettura (DIDA) - Via della Mattonaia, 8 - Firenze Room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | NRRP Research   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>THE ARCHAEOLOGICAL SITES OF DISADVANTAGED AREAS OF TUSCANY AS A RESOURCE FOR THE INCLUSIVE, SUSTAINABLE AND RESILIENT REGENERATION OF COMMUNITIES AND TERRITORIES</b>  |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Antonio LAURIA  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The research is developed in connection with the activities that the University of Florence is conducting in Spoke 8 (Sustainability and Resilience of Tangible Cultural Heritage) of the Extended Partnership 5 of the PNRR. |  |  |  |  |

|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | <p>The proposed theme brings together three domains of primary interest of the PNRR: (1) enhancement of cultural heritage, (2) social inclusion, and (3) regeneration of disadvantaged areas.</p> <p>The research is aimed at processing the Guidelines for the regeneration of the archaeological sites of the disadvantaged areas of Tuscany as a set of strategies and actions for the enhancement of the archaeological heritage according to criteria of conservation and accessibility, to contribute to the creation of an integrated cultural system, and to revitalize the economic and social fabric of the communities.</p> <p>The Guidelines will be divided into two Sections: tangible and intangible cultural heritage. For each Section, the proposed Strategies and Actions will be divided into four key areas: Knowledge, Safeguarding, Enhancement and Management.</p> <p>The candidate must have the competence/show an aptitude for developing guiding tools for planning interventions according to a human-centered approach.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| -   | 6                      | Italian/english   | September 11 <sup>th</sup> 2023 | 10:00 a.m.  | In-person*  | Dip. Architettura (DIDA) - Via della Mattonaia, 8 -Firenze Room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |
|---------------------------------|--|
| <b>M.D. 118/2023</b>            | Public Administration  |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>URBAN PLANNING AND DESIGN FOR ECOLOGICAL TRANSITION: ANALYSIS AND TOOLS TO SUPPORT PROXIMITY CITY AND WALKABILITY</b>   |
| <b>PRINCIPAL INVESTIGATOR</b>   | Francesco ALBERTI  |
| <b>RESEARCH TOPIC</b>           | <p>Starting from the international bibliography on the subject and from the critical analysis of case studies, the research will develop the concept of the "15-Minute City" in its concrete applicability to the Italian context. In this perspective, the city of Prato is assumed as an example of a polycentric urban-metropolitan system and as a test bed of approaches and methodologies of analysis, evaluation, and planning to be adapted and scaled to settlements different from the morphological, social, and economic point of view. This concept implies a radical revisitation of urban planning tools, which must be integrated with policies, sectoral plans, and initiatives at various levels to promote new forms of proximity and urban accessibility. Within this framework, walkability is seen not only as a lever to promote an environmentally sustainable form of mobility but also as an essential part of an integrated strategy of overall urban reform.</p> |
| <b>MANDATORY EXPERIENCES</b>    | <b>INTERVIEW</b>   |



| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE        | DATE                            | TIME       | MODE       | PLACE  |
|--|-----------------|-----------------|---------------------------------|------------|------------|--|
| 12   | 6               | italian/english | September 11 <sup>th</sup> 2023 | 10:00 a.m. | In-person* | Dip. Architettura (DIDA) - Via della Mattonaia, 8 - Firenze Room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## URBAN FUTURE STUDIES

Director prof. Giuseppe De Luca

|     |   |                 |
|-----|---|-----------------|
| CUP | M.D. 118/2023 - Digital and green transitions | B12B23000230006 |
|     | M.D. 118/2023 - Public Administration         | B12B23000430004 |

|   |                        |   |                                |             |             |   |
|---|------------------------|---|--------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Digital and green transitions   |                                |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>BIODIVERCITY: IMPROVING THE BIODIVERSITY OF RIPARIAN URBAN ENVIRONMENTS THROUGH TARGETED REVEGETATION</b>  |                                |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Nadia BAZIHIZINA  |                                |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>Urban areas are the fastest growing ecosystem on Earth. Cities are responsible for 75% of the global CO2 emissions and hosts ca. 56% of the world population. Thus, cities are crucial tools to solve the issue of biodiversity decline and climate change. With a focus on riparian areas, this project will develop and evaluate new approaches to maximise plant and animal biodiversity. The work will focus on the revegetation with a range of plants capable of: (i) creating microcosms for fish/amphibians/mammals/insects, (ii) attracting pollinator and (iii) capture pollutants. The impact of these interventions on supplied ecosystem services will be measured by evaluating the removal of pollutants, a soil, water and atmosphere health status, the efficiency the ecological networks and the biodiversity conservation.</p> |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | Italian/english   | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | In-person*  | Dip. Architettura (DIDA) - Plesso di Santa Teresa - Via della Mattonaia, 8 - Firenze room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>IED. TECHNOLOGICAL INNOVATION FOR THE DEEP RENOVATION OF PUBLIC BUILDINGS</b> |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Rosa ROMANO  |  |  |  |  |



|   |                        |  |                                |             |             |   |
|---|------------------------|--|--------------------------------|-------------|-------------|---|
| <b>RESEARCH TOPIC</b>                                     |                        | <p>IED's research aims at developing innovative envelope technology solutions for public buildings' deep renovation, using additive manufacturing processes, innovative and ecological materials, RES, and digital sensors and tools (like BIM and BEM) to promote innovative management and maintenance processes of the built environment.</p> <p>The objective is to build an innovative research model based on an interdisciplinary approach and the contamination of knowledge and skills between the research sector inherent to architecture technology and the design/management sector, positively affecting the conservation of the ecosystem, biodiversity, as well as the reduction of climate change impacts and the promotion of sustainable development goals.</p> |                                |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>  |
| 6   | 6                      | Italian/english  | September 7 <sup>th</sup> 2023 | 10:00 a.m.  | In-person*  | Dip. Architettura (DIDA) - Plesso di Santa Teresa - Via della Mattonaia, 8 - Firenze room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |
|---------------------------------|--|
| <b>M.D. 118/2023</b>            | Public Administration  |
| <b>TITLE OF THE SCHOLARSHIP</b> | <b>REINHABITING VILLAGES: PROXIMITY AND URBAN REGENERATION IN REMOTE AREAS</b>   |
| <b>PRINCIPAL INVESTIGATOR</b>   | Valeria LINGUA   |
| <b>RESEARCH TOPIC</b>           | <p>The status of small urban settlements (villages, towns, small municipalities) in Italy and Europe presents important territorial differences and diversified development paths. Based on the definitions and categorizations of the National Strategy for Internal Areas (SNAI) and other research projects in progress and existing networks (see the activities of associations as Riabitare l'Italia, Dislivelli, etc.), the research project is aimed to identify methodological paths for re-inhabiting villages through sustainable development and urban regeneration actions. Integrated urban planning policies and practices, building renewal, social and community reactivation interventions are expected to regenerate the local communities, enhance cultural heritage and natural ecosystems, develop services and nearby public spaces, contrast hydrogeological instability, define systems of networking for rare services and, in general, to improve the quality of local social life.</p> |
| <b>MANDATORY EXPERIENCES</b>    | <b>INTERVIEW</b>   |



| COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months) | ABROAD (months) | LANGUAGE        | DATE                           | TIME       | MODE       | PLACE   |
|--|-----------------|-----------------|--------------------------------|------------|------------|---|
| 6  | 6               | Italian/english | September 7 <sup>th</sup> 2023 | 10:00 a.m. | In-person* | Dip. Architettura (DIDA) - Plesso di Santa Teresa - Via della Mattonaia, 8 - Firenze room 402 |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## PHILOLOGY, ITALIAN LITERATURE, LINGUISTICS

Director prof. Francesco Bausi

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000350006 |
|------------|---------------|-----------------|

|   |                        |  |                                |             |             |  |
|---|------------------------|--|--------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | NRRP Research  |                                |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | LINGUISTIC CORPORA AND DIGITAL LEXICOGRAPHIC TOOLS   |                                |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Marco BIFFI  |                                |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research topic to be developed aims at the creation of diversified textual corpora and in parallel at the realisation of integrated linguistic tools (dictionaries, glossaries, writing aids) for the valorisation of the Italian language and literature as an intangible cultural heritage.</p> <p>Technical dictionaries and glossaries relating to the various fields of knowledge, thanks to their digital layout and use, can be made available to researchers or the public, to make more accessible any kind of text, over all the technical texts with high impact and wide audience. The development of writing aids, possibly integrated with the main word processing software, is a fundamental starting point for effective transparent communication, especially the institutional communication.</p> <p>In the current political geography, with Italy being part of Europe, the valorisation of all the Union languages as intangible cultural heritage is fundamental and consistent with the MIC3 component of the PNRR (M1 Digitalisation, Innovation, Competitiveness, Culture and Tourism, Component 3 Tourism and Culture). The whole research line contributes to strengthening the basic and applied research systems envisaged in PNRR component M4C2 (M4 Education and Research, Component 2 From Research to Enterprise).</p> |                                |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>   |
| -   | 6                      | italian  | September 8 <sup>th</sup> 2023 | 09:00 a.m.  | In-person*  | Dipartimento di Lettere e Filosofia<br>Sala La Pergola |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## COMPARATIVE LANGUAGES, LITERATURE AND CULTURES

Director prof. Fernando Cioni

|            |               |                 |
|------------|---------------|-----------------|
| <b>CUP</b> | M.D. 118/2023 | B12B23000440006 |
|------------|---------------|-----------------|

|   |                        |   |                                 |             |             |  |
|---|------------------------|---|---------------------------------|-------------|-------------|--|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                 |             |             |  |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>LISTENING AND READING OF A FOREIGN LANGUAGE FOR THE ELDERLY PEOPLE</b>   |                                 |             |             |  |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Inmaculada SOLÍS GARCÍA   |                                 |             |             |  |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The project "Listening and reading in L2" (ALiL2) aims to create a digital environment that shares the resources and the results of the research in the field of Language science and foreign language teaching, focusing on the development of the communicative and intercultural competences of the elderly in listening and reading a foreign language (EP). The objective of ALiL2 is the construction of a multimedia platform as repository of resources created for the development of the comprehension of spoken and multimedia texts in a foreign language. The platform is meant for teachers, educators, students involved in teaching a foreign language to the elderly. Considering listening and reading central in language education ensures inclusion, and enlarges the range of educational aids, as listening is the first access to a foreign language, and it is the main access to its learning. Moreover, the project aims to help the digital transition of the civil service; it helps the adoption of Key Enabling Technologies in order to ensure efficacy and efficiency of the public educational action. The project results will be freely available according to the FAIR data principles. The project develops the main objectives of the Horizon Europe program and of the smart specialization strategy; it fosters the development of a new generation of professionals of knowledge transfer.</p> |                                 |             |             |  |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |  |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                                     |
| 10  | 6                      | italian   | September 12 <sup>th</sup> 2023 | 11:00 a.m.  | In-person*  | Dip. FORLILPSI - via Santa Reparata 93 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

## EDUCATION SCIENCES AND PSYCHOLOGY

Director prof. Vanna Boffo

|     |               |                 |
|-----|---------------|-----------------|
| CUP | M.D. 118/2023 | B12B23000450006 |
|-----|---------------|-----------------|

|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration   |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>ANALYSIS OF THE ADDED VALUE OF TRAINING IN MUSIC AND ART LANGUAGES FOR INCLUSIVE PATHS AND THE GROWTH OF PERSONAL AND ORGANIZATIONAL WELL-BEING, IN A EUROPEAN COMPARISON, THROUGH THE EMBODIED COGNITION MODEL</b>  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Rossella CERTINI  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The research project will investigate, through a collection and analysis of data, the formative value of the musical experience in the inclusive paths of the basic school. Starting from the observation practices, the PhD student will have to build monitoring and teaching activities, which will go to the implementation of the European project ALIISA, being relaunched for the three-year period 2024-2027. The countries involved are Italy, Austria, Lithuania and Finland and the PhD student will have to build a permanent research network in order to monitor the development of musical activities aimed above all at people with disabilities. The ultimate goal of the research project will be the creation of an inclusive educational model capable of outlining a training profile and skills of the teacher specialized in special education through the arts, also defining a specific internship path. The PhD student must have notions related to embodied cognition to be developed according to suggestions that he will have to articulate personally during the years of doctorate.</p> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                            |
| 6   | 6                      | Italian/english   | September 12 <sup>th</sup> 2023 | 09:30 a.m.  | In-person*  | Dip. FORLILPSI - via Laura 48 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>THE UNIVERSITY OF THE FREE AGE FOR LONGEVITY</b>  |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Vanna BOFFO  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The Research Project will analyze the social and cultural construction of the construct of Longevity. In this sense, we will verify what public institutions build |  |  |  |  |



|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | and propose to support the prevention of aging and development and support for longevity. The University of the Free Age has been, for some decades, a rich and stimulating experience for the construction of Active Ageing skills. Starting from the mapping of the experience of the Municipality of Florence and, at the same time, from the comparison with other Italian experiences, in order to understand what longevity means in Training Policies, it aims to identify which active ageing skills learning and training processes act in non-formal and informal contexts. |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                            |
| 6   | 6                      | Italian/english   | September 12 <sup>th</sup> 2023 | 09:30 a.m.  | In-person*  | Dip. FORLILPSI - via Laura 48 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |   |                  |                                 |             |             |   |
|---|---|------------------|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>THE CARE OF ONESELF, OF OTHERS AND OF THE SYSTEM TO PROMOTE WELL-BEING IN SCHOOL CONTEXTS AND IN THE COMMUNITY</b>   |                  |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Enrica CIUCCI   |                  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     | The project must consist of a research part that investigates the relationships between individual and contextual characteristics that affect the ability of students and teachers to take care of themselves, others and the system in which they live (with particular attention to constructs such as empathy, compassion for oneself and others, gratitude, prosociality), as well as a part aimed at preparing - on the same themes - empowerment paths that adopt a participatory approach, as well as evidence-based for measuring effectiveness. The proposal must be addressed, through the Comprehensive Institute leader, to a network of schools in the territory of Pistoia. The project must include dissemination activities of the results achieved to the scientific community and dissemination to other schools of the national territory of the practices developed based on well-being for themselves and for the physical and relational environment, be it the class group, the school or the wider community. |                  |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                            |
| 6   | 6   | Italian/english  | September 12 <sup>th</sup> 2023 | 09:30 a.m.  | In-person*  | Dip. FORLILPSI - via Laura 48 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|   |                        |  |                                 |             |             |   |
|---|------------------------|--|---------------------------------|-------------|-------------|---|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                 |             |             |   |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>THE SCHOOL IN THE HOSPITAL. TO TRAIN EDUCATIONAL, SCHOOL AND CARE PROFESSIONALS</b>   |                                 |             |             |   |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Vanna BOFFO  |                                 |             |             |   |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The Project is part of the pedagogical-educational research, within the in-depth studies related to the themes of Continuing Education and Adult Education, going to deal with the establishment and construction of educational, training and care professionalism that support and are activated within and starting from the Meyer hospital school. The research aims to investigate the work processes of the professionals of the School, on the one hand, of Education, on the other in order to have a mapping of didactic, educational, training and pedagogical care skills to address the teaching and pedagogical role in the health contexts of pediatric hospitals. The main purpose is to provide the most appropriate tools to develop the most appropriate managerial, educational leadership, organizational professionalism to support well-being in the educational relationship with the subjects who support the hospitalized child/adolescent, the territory, the environments and the subjects surrounding the hospital. In particular, the main objectives of the research are aimed at studying:</p> <ul style="list-style-type: none"> <li>• Qualified professionals who deal with educational-training planning and pedagogical leadership with the aim of assisting and organizing hospital contexts with a high rate of complexity.</li> <li>• The model of educational/narrative/autobiographical skills, in a diagnostic and prognostic, reflective and self-reflective key, of professionals in the public and private sectors, with particular reference to the contexts of hospital school and educational-health care to increase the overall well-being of the different operational contexts.</li> </ul> |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                            |
| 6   | 6                      | Italian/english  | September 12 <sup>th</sup> 2023 | 09:30 a.m.  | In-person*  | Dip. FORLILPSI - via Laura 48 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely

|                                 |  |   |  |  |  |  |
|---------------------------------|--|---|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration   |  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>THE SCHOOL PSYCHOLOGIST AS AN ACTIVE PROMOTER OF MENTAL HEALTH AND SCHOOL WELL-BEING</b>   |  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Christian TARCHI  |  |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The research project aims to redefine the role of the school psychologist (or school psychology service) as an active promoter of health, therefore not limited to the psychological desk service. The project will have two main objectives: i) definition |  |  |  |  |



|   |                        |   |                                 |             |             |   |
|---|------------------------|---|---------------------------------|-------------|-------------|---|
|   |                        | of tools for assessing literacy levels in teaching staff on key psychological components (e.g., well-being, mental health and scientific research); ii) development and validation of paths to strengthen transversal skills in the student body (e.g., media literacy, health literacy). |                                 |             |             |   |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                 |             |             |   |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                     | <b>TIME</b> | <b>MODE</b> | <b>PLACE</b>                            |
| 9   | 6                      | Italian/english   | September 12 <sup>th</sup> 2023 | 09:30 a.m.  | In-person*  | Dip. FORLILPSI - via Laura 48 - Firenze |

\* In the application form candidates residing abroad may ask to conduct the interview remotely



## HISTORICAL STUDIES

Director prof. Teresa De Robertis

|     |                                       |                 |
|-----|---------------------------------------|-----------------|
| CUP | M.D. 118/2023 - Public Administration | B12B23000460006 |
|-----|---------------------------------------|-----------------|

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>BETWEEN LATIN AND VERNACULAR. LAW, CITIZENSHIP AND LINGUISTIC COMMUNICATION IN MEDIEVAL ITALY</b>   |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Francesco SALVESTRINI  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | The research aims to investigate the technical use of Latin and the vernacular in regulatory texts in medieval Italy (13th-15th centuries) produced by both territorial authorities and associations (lay religious fraternities and trade guilds). The aim of the work is not the strictly linguistic analysis of statutes, regulations and resolutions, but the study of forms of communication between governing classes and citizens. The aim is above all to verify whether and to what extent the use of legislative translations from Latin was actually a useful vehicle for the knowledge of norms and their comprehensibility at the level of citizenship, trying to understand the origins of an active political participation in the government of medieval societies in the light of the comparison with contemporary reality. |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 8 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |

|                                 |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| <b>M.D. 118/2023</b>            |  | Public Administration  |  |  |  |
| <b>TITLE OF THE SCHOLARSHIP</b> |  | <b>BETWEEN TRADITION AND INNOVATION: EXPERIENCES AND PERSPECTIVES OF THE DIRECTORATE GENERAL FOR POLITICAL AFFAIRS OF THE ITALIAN MINISTRY OF FOREIGN AFFAIRS</b>  |  |  |  |
| <b>PRINCIPAL INVESTIGATOR</b>   |  | Bruna BAGNATO - Massimiliano GUDERZO   |  |  |  |
| <b>RESEARCH TOPIC</b>           |  | The project, conducted in agreement with the Directorate General for Political and Security Affairs of the Ministry of Foreign Affairs and International Cooperation, aims at the cultural valorisation of the documentary heritage held by the Historical Diplomatic Archives of the Ministry since the Fourth Legislature, 1963-68. The research will focus on the correspondence of the Ministers of Foreign Affairs and the Directorate-General for Political Affairs. Besides assisting the staff of the General Directorate and the Archives in the possible re-organisation of document |  |  |  |

|   |                        |   |                                |             |                      |
|---|------------------------|---|--------------------------------|-------------|----------------------|
|   |                        | series, the winner of the scholarship will carry out parallel research at archives, foundations and other institutions, also with the aim of collaborating with MAECI staff to prepare a synoptic catalogue of material already available or soon to be opened to historiographic research. |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>  |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>   | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english   | September 8 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |

|   |   |                  |                                |             |                      |
|---|---|------------------|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      | Public Administration   |                  |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           | <b>THE STONEMASON'S WORKSHOP IN THE PRE-CLASSICAL AGE: RECONSTRUCTING TRADITIONS TO ENHANCE THE TERRITORY</b>   |                  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             | Marina PUCCI  |                  |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     | <p>The aim of the research is to study the work of the stone craftsman in a pre-industrial context in order to reconstruct the traditional processing techniques and the material supply areas with a view to safeguarding and museumising the archaeological heritage. The case study is related to a collaborative project between UNIFI and CNR-ISPC of Milan based in western Syria. Combining a phase of fieldwork (DGAM), a phase of analysis of the samples taken (ISPC) and a phase of study and reconstruction of the craft workshops, the project has two main objectives: historical/social and methodological. The first aims to fill a gap in research on crafts in the preclassical period and to understand the functioning of sustainable economic production in the territorial context. The second aims to create an interdisciplinary (best practice) open source procedure useful for the knowledge of the material, to hypothesise its provenance and for a better design of the conservation intervention, and for public archaeology activities. The ideal candidate should have expertise in ancient Near Eastern archaeology and material studies.</p> |                  |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |   | <b>INTERVIEW</b> |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b>  | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 9   | italian/english  | September 8 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |

|   |                        |  |                                |             |                      |
|---|------------------------|--|--------------------------------|-------------|----------------------|
| <b>M.D. 118/2023</b>                                      |                        | Public Administration<br>University of Siena   |                                |             |                      |
| <b>TITLE OF THE SCHOLARSHIP</b>                           |                        | <b>HISTORY OF THE MINISTRY OF FOREIGN AFFAIRS. ORGANIZATION AND STAFF (1944-1967)</b>  |                                |             |                      |
| <b>PRINCIPAL INVESTIGATOR</b>                             |                        | Gerardo NICOLOSI   |                                |             |                      |
| <b>RESEARCH TOPIC</b>                                     |                        | <p>The project has as its terminus a quo 1944, the year of the July 15 DM and Service Order No. 1 issued by Pietro Badoglio, and as its terminus ad quem 1967, the year of DPR No. 18 of January 5, which incisively reorganized both the organizational structure and the diplomatic career. For the period in question, we note an evolution of the relevant regulations, which, particularly from 1947 until 1962, constitute the main background of the ordinal architecture that will take shape with the two decrees of January 5, 1967.</p> <p>The research will focus on changes in the organizational structure and the mechanisms of staff recruitment. It will also have to reconstruct the debate that accompanied the normative development, which took place in parliament, in ministerial circles, in the specialized press and even in major national newspapers. It should be noted that in the same years, the same need for reform was being felt in other European countries (particularly Great Britain) and major structural changes were being made. Therefore, the 6 months of study abroad provided by the fellowship should be aimed in this direction.</p> <p>The predominant research activity will take place at the Historical Diplomatic Archives of the Ministry of Foreign Affairs and International Cooperation.INSERIRE</p> |                                |             |                      |
| <b>MANDATORY EXPERIENCES</b>                              |                        | <b>INTERVIEW</b>   |                                |             |                      |
| <b>COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)</b> | <b>ABROAD (months)</b> | <b>LANGUAGE</b>  | <b>DATE</b>                    | <b>TIME</b> | <b>MODE</b>          |
| 6   | 6                      | italian/english  | September 8 <sup>th</sup> 2023 | 09:30 a.m.  | Remotely (videocall) |