Decreto Rettorale n. */2022  

Oggetto: Manifestazione di interesse – Joint PhD opportunity within the Collaborative Doctoral Partnership (CPD) programme of the Joint Research Centre of the European Commission in the field of Resilience of built infrastructure to natural and man-made hazards

* n. della registrazione di protocollo riportato nei metadati del sistema di protocollo informatico Titulus

Area: Area Attività Istituzionali, Didattica e Valutazione

U.O.: Corsi PhD, Lauree magistrali, Didattica post laurea e Centri di ricerca

IL RETTORE

VISTO Lo Statuto della Scuola;

VISTO Il Regolamento per i corsi di dottorato della Scuola, nelle more della revisione dello stesso per adeguamento normativo;

VISTO Il Collaborative Doctoral Partnership Agreement tra il Joint Research Center della Commissione Europea e la Scuola IUSS sottoscritto in data 8 novembre 2021;

CONSIDERATO che l’accordo suddetto prevede la possibilità per gli allievi iscritti al 1° e 2° anno del corso di dottorato in Comprensione e Gestione delle Situazioni estreme di svolgere un periodo di ricerca fino a 24 mesi presso il Joint Research Center sulle tematica “Resilience of built infrastructure to natural and man-made hazards”;

RITENUTO opportuno procedere con l’emanazione dell’avviso per la manifestazione di interesse in oggetto;

DECRETA

art.1 – È aperta la manifestazione di interesse per n. 1 posizione finalizzata allo svolgimento di un periodo di internship presso il Joint Research Center della Commissione Europea, come da allegato costituente parte integrante del presente atto.

Pavia, data del protocollo

IL RETTORE
All.

Expression of Interest – Joint PhD opportunity within the Collaborative Doctoral Partnership (CPD) programme of the Joint Research Centre of the European Commission in the field of Resilience of built infrastructure to natural and man-made hazards

Article 1
(Available positions)

The Scuola Universitaria Superiore IUSS, hereinafter referred to as IUSS Pavia, hereby announces n. 1 position opening in the framework of the Collaborative Doctoral Partnership agreement with Joint Research Centre of the European Commission – CDP in the field of Resilience of built infrastructure to natural and man-made hazards.

The collaboration will address the resilience of the built infrastructure, such as buildings and bridges, to natural and man-made hazards. The collaboration topics include multi-hazard and multi-criteria assessment of existing physical assets at risk, and integrated retrofit of buildings. Natural (e.g. earthquakes, climatic actions, landslides, floods, etc.) and man-made hazards will be considered as well as climate change adaptation, circularity and sustainability.

The PhD student will spend a period of up to 24 months at JRC.

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<th>Topic</th>
<th>Description</th>
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<td>Integration of seismic risk and energy efficiency assessment</td>
<td>Currently available seismic and energy classification guidelines are typically implemented independently, leading to the choice for distinct building intervention schemes that are not combined nor eventually optimised. The purpose of this PhD thesis will be to summarise different existing seismic risk and energy efficiency classification approaches, apply them to a number of case-study buildings, characteristic of the European building stock, and propose a blended approach for optimal use of resources.</td>
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<td>Consideration of environmental impact in multi-criteria assessment and design of seismic retrofitting schemes</td>
<td>The selection and design of retrofitting schemes for the reduction of seismic risk of existing buildings is traditionally carried out based on experience and purely structural performance criteria. At most, more recent approaches have introduced cost-benefit analyses to include the reduction of monetary losses on an annual basis (expected annual losses) and consideration of break-even times. Several other aspects, such as invasiveness, architectural impact, amongst others, may play a relevant part in the choice for an optimal seismic (or other) retrofitting scheme. This is also the case of environmental impact (related to CO2 emissions for the production, installation, maintenance and disposal of the retrofitting). The purpose of this PhD thesis will be to outline and integrate multi-criteria approaches for the definition of an optimal retrofitting scheme with environmental impact considerations. Expected output of the PhD research/thesis: practical methods for simplified estimation of environmental impact, as alternative to computationally expensive thorough approaches; case-study applications for different building typologies (residential, schools, industrial, etc.).</td>
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| Multi-hazard risk assessment methodologies and their application in Europe | Different natural hazards (for instance earthquakes, landslides or floods) are characterised in distinct manners, particularly for what concerns the definition of intensity measures or fragility/vulnerability models. This aspect renders the risk assessment of existing buildings more challenging and, for the time being, hard to
The purpose of this PhD thesis will be to address the homogenisation of hazard and vulnerability models from multiple hazards (including possible cascading effects), to enable practical risk analysis procedures at regional level, for intervention prioritisation purposes.

| Multi-hazard assessment of ageing and deteriorating bridge infrastructure | Many existing European bridges suffer from ageing and deterioration effects, given by the proximity of the end of their designed life-cycle or natural hazard continuous threats (hydrogeological, geotechnical, seismic, etc.). The numerosity of these structures and lack of information on many of them, renders a thorough inspection and analysis campaign impossible on all of them. In turn, more expedite and simplified, first-level classification frameworks are needed for identification of prior cases. The purpose of this PhD thesis will be to implement, expand and validate a multi-hazard risk classification approach for ageing bridges that allows the identification of high-priority structures for detailed safety assessment. Expected output of the PhD research/thesis: simplified methodology for collapse risk assessment of ageing bridges; multi-hazard risk-based classification and prioritisation scheme for existing bridges; guidelines for large-scale implementation. |

**Article 2**
*(Requirements for taking part in the selection)*

Candidates should, prior to the start of the employment contract with the JRC:

- have the nationality of a Member State of the EU or a country associated to the Research Framework Programmes or being resident in a EU Member State since at least five years;
- be enrolled in 1st year of the PhD programme in Understanding and Managing Extremes.

Candidates who are already enrolled in the doctoral study program with IUSS Pavia for less than 12 months can also be considered eligible.

The selected candidate will have not more than 6 months from the request for confirmation of interest in the position, to produce proof of enrolment in the doctoral study programme.

During the time at the Joint Research Centre the candidate will sign a contract as a Grant Holder 20 within the framework of the research programmes managed by the JRC *(GH Rules)*.

**Article 3**
*(Application to take part in the selection)*

The application to take part in the CDP programme shall be submitted by **February 28th, 2022, 13:00 CET** to sellaurea@iusspavia.it.

Candidates are required to submit the following in the application, on their responsibility:

- surname, name, place and date of birth, nationality;
- chosen topic(s);
- the domicile or contact details for receiving competition-related communications and the undertaking; to inform of any further changes of address;
- email address, mandatory for competition-related correspondence;
- updated CV signed and motivation letter;
- any other relevant document.
Article 4
(Selection Board and test examinations)

Application evaluation Examining Board consists of the CDP coordinators, one member for IUSS and one member for JRC.
The Examining Board will shortlist a minimum of two candidates and will send the applications to JRC.
JRC appoints a panel for each PhD position consisting of a president from the recruiting Unit, PhD supervisor or member of the Unit, a representative of Unit JRC A.5.
All shortlisted applicants may be invited to an interview and the panel establishes a final list by ranking applicants.
The request for confirmation of interest for the PhD position is sent to the first ranked candidate and, if accepted, the recruitment process starts including verification by JRC of all the requested supporting documents:

a) Updated CV - signed
b) A recent (not older than 6 months) and original criminal record abstract of the country or countries of which you are a national AND of the country or countries where you resided for at least one year during the two years preceding the recruitment if applicable: Visa (the JRC will support the candidate with the administrative procedure for obtaining the residence/work permit)
c) Copy of student’s passport or identity card
d) Legal entity form and financial identification form duly filled in, signed and dated
e) If relevant’, marriage certificate and birth certificate of children.

Studies / Experience certificates:

a) Copy of the university degree/s and
b) Proof of enrolment in a university doctoral studies programme. This proof must be provided before the Grant-holder contract may start and within six months from the date of the position’s offer.

JRC reserves the right to request additional documents in order to ensure the compliance with all requirements and specific rules applicable to JRC sites.

The selected candidate must also be recognized as medically fit to carry out the work activities foreseen. To this end the candidate must undergo, in advance and independently, the medical checks specified by the JRC.
The list of the candidates shortlisted will be published on the University’s website.

JRC will send then information to IUSS Pavia and A.5 about the outcome of JRC selection procedure. At this stage of the selection, the request for confirmation of interest sent to selected candidate does not constitute any commitment whatsoever by the JRC.
At the end of the selection process, the JRC informs all interviewed candidates about the outcome.

The Rector
Prof. Riccardo Pietrabissa
Procedure Supervisor:
Mrs. Giovanna Spinelli, – Palazzo del Broletto, Piazza della Vittoria n. 15 – 27100 Pavia – tel. +39 0382375811, fax +39 0382375899, e-mail: info@iusspavia.it.

Data handling:
Ai sensi della normativa in materia di protezione dei dati personali (D. Lgs. 196/2003 e ss.mm.ii nonché Personal data provided by candidates shall mainly be handled automatically by the School and in compliance with article 11 of Italian Legislative Decree no. 196/2003 and Regulation (EU) 2016/679 for management of the competition procedures. The data, which is made anonymous, may also be used for statistical purposes. Data must be provided in order to take part in the Competition. The interested parties have the right to ask the data controller to access personal data and to correct or cancel it or limit the processing that concerns it or to oppose the processing (articles 15 and following of EU Regulation 679 / 2016). The appropriate application should be submitted in writing to the University School for Advanced Studies IUSS Pavia, Head of Personal Data Protection RPD - Piazza della Vittoria No. 15, email: dpo@iusspavia.it The interested parties, having recourse to the conditions, also have the right to lodge a complaint with the Guarantor in accordance with the procedures laid down in Regulation (EU) 2016/679. Further information on the handling of personal data of the University School for Advanced Studies IUSS Pavia can be found at the link: http://www.iusspavia.it/protezione-dati-personale

Transparent administration:
The Scuola Universitaria Superiore IUSS Pavia operates in compliance with the legislation on the prevention of corruption (Italian Law 190/2012), by applying the measures identified in the “Piano Integrato” in the “Trasparenza” section (in Italian) of the University’s web site at: http://www.iusspavia.it.