UNIVERSITY OF NAPLES FEDERICO II

DEPARTMENT OF STRUCTURES FOR ENGINEERING AND ARCHITECTURE
PHD PROGRAM IN
STRUCTURAL, GEOTECHNICAL ENGINEERING AND SEISMIC RISK

CYCLE XXXIX

The undersigned prof. Beatrice Faggiano

(Full □ Associate X Researcher □) Department of Structures for Engineering and Architecture, S.S.D. ICAR/09 Structural Engineering

ASKS

to be included in the list of tutors for cycle XXXIX.

1. Curriculum vitae (max 500 words)

ACADEMIC CAREER:
2001 Doctoral degree in Structural engineering at UNINA.
Since 2005 Assistant professor in Structural Engineering.
Since 2013 Qualified as Associate professor in Structural Engineering.
2021 Associate professor in Structural Engineering.

- Teaching posts in national and international II level masters in the domains of Metallic Structures, Timber constructions, Glass Engineering.
- Tutor for more than 90 degree theses, 9 PhD theses and 8 visiting foreign students.
- Responsible of 8 Erasmus bilateral agreements with European universities.

RESEARCH ACTIVITY:

- Research areas: Structural Engineering, Submerged Floating Tunnel, steel, timber structures, Earthquake engineering, vulnerability of historical and monumental buildings against exceptional actions.
- Author of more than 275 papers in national and international journals, conference proceedings, technical documents, monographs.

OTHER ACHIEVEMENTS:

- Tutor inside the Professor Council of the PhD Course DISGERS at UNINA; Member of: professor councils for the II level master courses in the domain of civil engineering, the Erasmus Commission for DiSt; CNR, Committees for design, construction and testing of timber structures and for elements made of glass; IIWC – Italian ICOMOS Wood Committee; the Intern. Associations for Bridge Maintenance and Safety (IABMAS) and for Life Cycle Civil Engineering (IALCCE); Fib, Task Group 1.2 Concrete Structures in marine environment., WP 1.2.4 'Submerged/floating bridges in seismic areas'.

- Member of organizing and scientific committees of International Conferences, also co-editor of proceedings; Behaviour of Steel Structures in Seismic Areas STESSA; Earthquake Protection of Historical Buildings by Reversible Mixed Technologies PROHITECH; COST Action C26 Urban Habitat Constructions under Catastrophic Events; Steel and Composite Structures EUROSTEEL; SHATIS Structural health assessment of timber structures; SUFTUS Submerged Floating Tunnels and Underwater Tunnel Structures; WCTE World Conference on Timber Structures.
- Organizer and chairman of special sessions and minisimposia, on submerged floating tunnels (9th Intern. Conf. on Bridge Maintenance, Safety and Management, IABMAS 2018, 2020; 2022, 2024, 14th Intern. Conf. on Vibration Problems, ICOVP 2019), as well as on timber structures (SHATIS'19, XIX Convegno ANIDIS 2022 - L'ingegneria sismica in Italia; WCTE2023, IALCCE2023 8th Intern. Symposium on Life-Cycle Civil Engineering).
- Responsible (with prof. Raffaele Landolfo) of the international trilateral agreement for Cooperation, in the field of Structural Engineering and in particular of Submerged Floating Tunnel, among Korea Advanced Institute of Science and Technology (Research Center for Smart Submerged Floating Infrastructural Systems), Zhejiang University (Research Center for Submerged Floating Tunnel) and the University of Naples, Federico II (Dist).
- Participant to national and international research projects, also as research responsible.
- Participant to national and international conferences as speaker, chairman and invited lecturer.
- Lecturer within national and international specialized courses.
- Referee for national and international journals, research projects and conference proceedings.

EXHIBITION

05/2017 Engineering: Archimedes Bridge, a submerged floating tunnel. TDW2017 Tianjin International Design Week 2017: The future is now. Beining cultural creative center, Italian Pavilion.

AWARD

2018 Wibe Prize - best ranked 30 Papers among 200. Paper title The submerged floating tunnel: a new frontier for strait crossings, B. Faggiano, G. Iovane, R. Landolfo, F. M. Mazzolani

2. PhD students of whom the undersigned has been a tutor in the last three years	
n. 1	*Dante Marranzini (XXXVI cycle)* *type of scholarship: none*

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3. Title of the proposed research

Development of CLT panels and glulam timber in Pinus nigra laricio from Sila for the design and retrofit of sustainable seismic resistant constructions

4. Field of study

Geotechnical Engineering □
Structural Engineering X
Seismic Risk □

5. Type of Scholarship for the project proposal

Ateneo ☒
DM 117 (Investimento 3.3)
(in questo caso indicare l'azienda co-finanziatrice)
DM 118 (Investimento 4.1 P.A.) □
DM 118 (Investimento 4.1 generici) ☒
DM 118 (Investimento 4.1 Patrimonio culturale) ☒

6. Summary of the research project (max 500 words. State of the art, short program planned for the activities, etc.)

The research topic is the development of CLT panels and glulam timber in Pinus nigra laricio, which is the main autochthon species of softwood from Sila, in the Calabria region of the South of Italy. The species has the peculiarity to be very resistant to the environmental agents, therefore specifically indicated for the design of sustainable constructions. Aim of the project is to create a process of industrial production, in a short chain, starting from the extraction from the forest up to the realization of the construction, characterized by low environmental impact during the whole life cycle, in a perspective of circular economy up to the dismantling and reuse or recycling.
The research activity also includes experimental test for the mechanical characterization of component materials (timber and glue) and structural systems.
Dissemination of research outputs through research reports and scientific publications, both national and international, are planned.
The project is multidisciplinary. It perfectly fits with the current topics of the green actions. It deals with the national strategic areas of interest (SNSI), related to the smart, secure and inclusive communities with specific emphasis to the sustainable and intelligent industry, energy and environment, proposing innovative and eco compatible materials. In the context of the PNR (National Recovery Plan) also the topics of

bioeconomy, natural resources, agricultural and forest systems knowledge and management are involved. Results match the scopes of React-Eu, enhancing the human value of the south Italy region, it being based on the cooperation among institutions and companies of the southern regions of Italy . Outputs are either products like CLT panels and glulam timber in Pinus nigra laricio from Sila, for structural applications in sustainable, durable and seismic resistant constructions, or the short chain process itself for the industrial production.

It is in this twofold perspective that the research activity is proposed and will be articulated.

The topicality of the research is apparent both at national and international levels, as testified by the large amount of more and more innovative realizations in timber, like large roofs, bridges and multistory buildings, the latter realized both as heavy timber framed structures and as shear wall structures, as well as by the studies in progress that highlight the position of note presently acquired by the timber constructions, underlining the need to operate with actions for the reduction of risk induced by natural agents.

7. Research publications

2023 Iovane G., Rodrigues L., Branco J., Faggiano B.. Monotonic tests on beam-to-column joint with steel link for timber seismic resistant structures. In World Conference on Timber Engineering(WCTE) 2023. 19-22 Giugno 2023, Oslo, Norvegia.

2023 Iovane G., Noviello C., Mazzolani F.M., Landolfo R., Faggiano B.. A proposal for the mechanical classification of beam-to-column joints for timber structures. In World Conference on Timber Engineering (WCTE) 2023. 19-22 Giugno 2023, Oslo, Norvegia.

2023 Iovane G., Sandoli A., Marranzini D., Landolfo R., Prota A., Faggiano B.. Timber based systems for the seismic and energetic retrofit of existing structures. In Procedia Structural Integrity,44 (2023) 1870–1876. Online ISSN: 2452-3216. DOI:10.1016/j.prostr.2023.01.239.

2022 Faggiano B., Sandoli A., Iovane G., Fragiacomo M., Bedon C., Gubana A., Ceraldi C., Follesa M., Gattesco N., Giubileo C., Lauriola M. P., Podestà S., Calderoni B. . The Italian instructions for the design, execution and control of timber constructions (CNR-DT 206 R1/2018). In: Engineering Structures, Publisher: Elsevier. https://doi.org/10.1016/j.engstruct.2021.113753

2021 Iovane G., Faggiano B.. Timber beam-to-column joint with steel link: design and mechanical characterization through numerical investigation. In 8th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN) 2021, 2359-2365, 28-30 Giugno 2021, in streaming da Atene, Grecia. Published by Eccomas Proceedia. ISSN: 262-33347. DOI:10.7712/120121.8642.19355.

2021 Iovane G., Noviello C., Mazzolani F.M., Landolfo R., Faggiano B.. Beam- to- column joint with steel link for timber structures: system optimization through numerical investigations and design criteria. In: World Conference on Timber Engineering (WCTE 2020), 24- 27 August 2020, Santhiago, Chile.

2021 Faggiano B., Iovane G., Gaspari A., Fournely E., Bouchair, A., Landolfo, R.; Piazza, M.. The Cartis Form for the Seismic Vulnerability Assessment of Timber Large-Span Structures. BUILDINGS, 11, 45. https://doi.org/10.3390/buildings11020045

2020 Faggiano B., Iovane G., Salzillo D., Mazzolani F. M. & Landolfo R.. Dissipative bracing systems for seismic upgrading of new and existing timber structures, INTERNATIONAL JOURNAL OF ARCHITECTURAL HERITAGE. doi.org/10.1080/15583058.2020.1830451

2018 Faggiano B., Marzo A., Mazzolani F.M.. The Diplomatic Hall of the Royal Palace of Naples: structural identification of the roofing timber structures by ND tests. CONSTRUCTION AND BUILDING MATERIALS, ISSN: 0950-0618, Vol. 171, pp. 1005-1016, doi: 10.1016/j.conbuildmat.2015.07.174.

2018 Faggiano B., Marzo A., Grippa M. R., Calicchio D., Mazzolani F.M.. The inventory of structural typologies of timber floor slabs and roofs in the monumental built heritage: the case of the Royal Palace of Naples. INTERNATIONAL JOURNAL OF ARCHITECTURAL HERITAGE, Special Issue on Existing Timber Structures, Guest Editors Branco J., Giongo I.. DOI: 10.1080/15583058.2018.1442525.

8. Funded research projects in which the proposed research fits

The research activity is relevant to the DPC/RELUIS Project 2022/2024 – WP13. Contribution to standards for timber structures.

9. Funds available for research grants, equipment, missions, etc.

The research activity can be supported by the cooperation with the University of Minho (Portugal). It is also supported by the University of Calabria (DIC), which was partner for the proposed project PRIN2022 on "Structural and energetic efficiency upgrading of historical built heritage in areas exposed to multi natural hazards using technological integrated systems based on Calabrian larch pine in a circular economy concept – ReThinCaPine", also in cooperation with the Università del Salento and the industrial partner Holzbau Sud Srl.

10. Information related to the research period abroad (min. 3 months) provided for the PhD student (please indicate University/research institution and professor/researcher of reference) (max 300 words)

Study periods at the University of Minho aiming at carrying out the experimental activity on members or structural systems can be planned during the PhD course. Other opportunities can be also evaluated.

11. Collaborations with companies on the research topic (if available) (max 300 words)

Several opportunities are being evaluated, such as for example with the following companies leader in the field Rubner Holzbau, Holzbau Sud.

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Naples, 29 June 2023 SIGNATURE

Beatrice Faggiano

Il presente modulo va compilato in ogni sua parte ed inviato all'indirizzo di posta elettronica phd.dist@unina.it entro e non oltre il 30/06/2023.