



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

CYCLE XXXVII

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 XXXVII.

**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 85 degree theses, 9 PhD theses and 7 visiting foreign students.
- Member of the professor councils for the II level master courses in the domain of civil engineering, member of the Erasmus Commission for DiSt, tutor inside the Professor Council of the PhD Course in “Construction Engineering” at UNINA; Member of CNR (Research National Council) Committees for design, construction and testing of timber structures and for elements made of glass; Member of IIWC – Italian ICOMOS Wood Committee.
- 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 260 papers in national and international journals, conference proceedings, technical documents, monographs.



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**OTHER ACHIEVEMENTS:**

- 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.
- Organizer and chairman of special sessions and minisymposia, in International Conferences, on submerged floating tunnels (9th International Conference on Bridge Maintenance, Safety and Management, IABMAS 2018, 2020; 14th International Conference on Vibration Problems, ICOVP 2019), as well as on timber structures (5th International Conference on Structural Health Assessment of Timber Structures, SHATIS'19).
- Responsible (with prof. Raffaele Landolfo) of the international trilateral agreement for Cooperation, in the field of Structural Engineering and in particular in the field 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 (Department of Structures for Engineering and Architecture).
- 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. Beijing cultural creative center, Italian Pavilion.

**AWARD**



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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. 2	<p><i>specify the type of scholarship: university funds, PON, POR, etc.</i></p> <p><i>Giacomo Iovane (XXXII cycle)</i>  <i>type of scholarship: university funds</i>  <i>Dante Marranzini (XXXVI cycle)</i>  <i>type of scholarship: none</i></p>
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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 of sustainable seismic resistant constructions

**4. Field of study**

Geotechnical Engineering ☐

Structural Engineering ☒

Seismic Risk ☐

**5. 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.



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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.

## **6. Research publications**

- 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
- 2019 Faggiano B., Iovane G., Tartaglia R., Ciccone G., Landolfo R., Mazzolani F.M., Andreolli M., Tomasi R., Piazza M.. Numerical simulation of monotonic tests on beam-column timber joints equipped with steel links for heavy timber seismic resistant MRF. Proceedings of the 16th International Conference of Numerical analysis and Applied Mathematics, ICNAAM 2018, 13-18 September 2018, Rodi, Greece, minisimposium "Numerical Methods for Static and Dynamic Analysis of New and Existing Structures in Seismic Areas: Design and Performance Evaluation",



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Montuori and Nastri eds. AIP Conference Proceedings 2116, 260017 (2019); <https://doi.org/10.1063/1.5114268>

2019 Calderoni B., Bedon C., Ceraldi C., Faggiano B., Follesa M., Fragiocomo M., Gattesco N., Giubileo C., Gubana A., Iovane G., Lauriola M. P., Martinelli E., Pizzo B., Podestà S., Sandoli A.. The instructions for the design, execution and control of timber construction (CNR-DT 206 R1/2018). In XII National Conference ANIDIS The seismic Engineering in Italy, PISA University Press, Pisa, Italia, paper SG08-2, pp. 1057-1065.

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.

2018 Masse A., Faggiano B., Fournely E., Iovane G., Mazzolani F. M., Bouchair A.. On the seismic vulnerability assessment of timber and steel large-span structures. Proceedings of 2018 World Conference on Timber Engineering (WCTE2018), August 20-23, Seul, Republic of Korea.

2018 CNR 2018 Committee. "Instruction for the design, execution and control of timber structures". CNR-DT 206-R1/2018". Technical document, Roma – CNR (in Italian).

2016 Faggiano B., Iovane G.. First considerations on the design approach and criteria for seismic resistant moment resisting and bracings timber frames. In World Conference on Timber Engineering, WCTE2016, 22-25 August, Vienna, Austria, CD-ROM. Eds.: J. Eberhardsteiner, W. Winter, A. Fadaï, M. Pöll, Publisher: Vienna University of Technology, Austria, ISBN: 978-3-903039-00-1. Full paper ID1094.

**7. Funded research projects in which the proposed research fits**

The research activity is relevant to the DPC/RELUIS Project 2019/2021 – WP13. Contribution to standards for timber structures.

**8. Funds available for research grants, equipment, missions, etc.**

The research activity can be supported by the cooperation with the University of Minho (Portugal) and by HolzbauSud Srl company.

**9. 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.



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

The project has been conceived in agreement with the HolzbauSud Srl company, who is renovating the agreement for traineeship, demonstrating the interest in cooperation

Naples, 7 October 2021

SIGNATURE

*Beatrice Fagnano*

This form must be filled and sent to the e-mail address [phd.dist@unina.it](mailto:phd.dist@unina.it) no later than Friday 8/10/2021.