PERSONAL INFORMATION

Claudio Boni

Via Umberto Giordano, 11, Reggio Emilia (RE), IT-42123, Italy

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Sex M | Date of birth 07/03/1994 | Nationality Italian

POSITION

Assistant Professor (RTD-A, ricercatore a tempo determinato di tipo A)
Università degli Studi di Genova, Dipartimento di Ingegneria Chimica, Civile e Ambientale (DICCA)
via Montallegro, 1, Genova (GE), IT-16145, Italy

WORK EXPERIENCE

03 / 2024 – present

Assistant Professor (RTD-A) in Solid and Structural Mechanics

Università degli Studi di Genova, Dipartimento di Ingegneria Chimica, Civile e Ambientale (DICCA)
via Montallegro, 1, Genova (GE), IT-16145, Italy

Research sector Solid and Structural Mechanics

11 / 2022 – 02 / 2024

Post-Doc Research Fellowship in Solid and Structural Mechanics

Università di Parma, Dipartimento di Ingegneria e Architettura (prof. Gianni Royer-Carfagni)
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Research sector Solid and Structural Mechanics

02 / 2019 – 04 / 2019

Extracurricular Internship (475 h)

Main Engineering srl (Ing. Salvatore Vera)
Via Carlo Levi, 10, Reggio Emilia (RE), IT-42124, Italy

- Static and seismic assessment of a multi-storey concrete building.
- Design of a steel structure for the backstage of a local theatre.
- Static assessment of belvedere terrace foundations.
- Fire-resistance certification of hotel walls and ceilings.

Business or sector Civil Engineering

INTERNATIONAL EXPERIENCE

02 / 2023

Invited speaker at the University of Oxford

University of Oxford, Department of Engineering Science
Parks Road, Oxford, OX1 3PJ, UK

Seminar title: Exploring the new structural concepts of flextegrity and sheartegrity
Host: prof. Zhong You

08 / 2021 – 12 / 2021

Exchange Ph.D. Student at EPFL (*jointly funded by the EPFL and UniPR*)

EQF level 8

École Polytechnique Fédérale de Lausanne, fleXLab
MED 0 1526, Station 9, Lausanne (VD), CH-1015, Switzerland

Research activity: fluid-structure interaction laboratory tests
Funding: EPFL and UniPR
Host: prof. Pedro M. Reis

TEACHING

09 / 2024 – present

Teacher of Structural Mechanics

Università degli Studi di Genova, Dipartimento di Architettura e Design (DAD)
Stradone S. Agostino, 37, Genova (GE), IT-16123, Italy

Course: Meccanica delle Strutture (6 ECTS)

04 / 2024

Lecturer – Ph.D. program in Civil, Chemical and Environmental Engineering

Università degli Studi di Genova, Dipartimento di Ingegneria Chimica, Civile e Ambientale (DICCA)
via Montallegro, 1, Genova (GE), IT-16145, Italy

Corso: Large deflection of slender beams: Euler's elastica (1 ECTS)

09 / 2024 – 10 / 2025

PhD thesis co-supervisor

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Thesis topic: yarn and fabric made with carbon nanotube fibers
Candidate: Vincenzo Andrea Muratore
Supervisor: Gianni Royer-Carfagni

09 / 2022 – 12 / 2022

Teaching assistant (10 h)

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Course: Principles of structural design for industry
Main teacher: Laura Galuppi

01 / 2023 – 03 / 2024

Master thesis advisor

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Thesis topic: concrete slabs heated via live wires made of carbon nanotube fibers
Candidate: Alberto Troni
Supervisor: Gianni Royer-Carfagni

01 / 2023 – 03 / 2024

Master thesis advisor

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Thesis topic: cable-stayed bridges with strands made of carbon nanotube fibers
Candidate: Maria Todica
Supervisor: Gianni Royer-Carfagni

09 / 2022 – 12 / 2022

Bachelor thesis advisor

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Thesis topic: design of structural glass elements and influence of mechanical/geometric parameters
Candidate: Elena Martini
Supervisor: Laura Galuppi

EDUCATION AND TRAINING

03 / 2025

National Scientific qualification as associate professor in the Italian higher education system for the disciplinary field 08/B2 - Structural mechanics

Ministero dell'Università e della Ricerca
Ufficio V "Stato giuridico ed economico del personale universitario"
Largo Antonio Ruberti, 1, Roma, IT-00153, Italy

11 / 2019 – 10 / 2022

Ph.D. Program in Industrial Engineering (XXXV cycle)

EQF level 8

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Supervisor: prof. Gianni Royer-Carfagni
Thesis title: Flexural Tensegrity
Final mark: outstanding, cum laude (with additional certification of Doctor Europaeus)

11 / 2020 – 04 / 2021

Course in Psychology and Pedagogy propaedeutic to teaching (PF24)

Università di Parma, Dipartimento di Discipline Umanistiche, Sociali e delle Imprese Culturali
Via Massimo D'Azeglio, 85, Parma (PR), IT-43125, Italy

06 / 2019 – 07 / 2019

Admission Exams to the Register of Italian Engineers

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

09 / 2016 – 12 / 2018

Master Degree in Civil Engineering

EQF level 7

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Supervisor: prof. Daniele Ferretti
Thesis topic: effect of brick pattern in masonry vaults via discrete element modelling
Final mark: 110/110 cum laude
Subjects include:

- Seismic engineering
- Computational mechanics
- Reinforced-concrete, steel, wood and masonry buildings
- Foundations
- Highways and bridges
- Hydraulic infrastructures (sewers, aqueducts and dams)

01 / 2014 – 03 / 2014

First Certificate in English (FCE)

Lingua Point (Scuola di lingue a Reggio Emilia)
Via Domenico Francesco Cecati, 5/B, Reggio Emilia (RE), IT-42123, Italy

09 / 2013 – 07 / 2016

Bachelor Degree in Civil and Environmental Engineering

EQF level 6

Università di Parma, Dipartimento di Ingegneria e Architettura
Parco Area delle Scienze, 181/A, Parma (PR), IT-43124, Italy

Supervisor: prof. Roberto Cerioni
Thesis topic: design of masonry buildings within linear static analysis
Final mark: 110/110 cum laude

Subjects include:
- Geology
- Chemistry and material science
- Hydraulics and hydrology
- Solid and structural mechanics
- Topography and technical drawing
- Environmental engineering (wastewater treatment)

01 / 2012 – 06 / 2012

Professional Habilitation as Lifeguard and BLSD operator

Società Nazionale di Salvamento
Via Luccoli, 24/A, Genova (GE), IT-16123, Italy

09 / 2008 – 07 / 2013

Scientific High School Diploma

Liceo classico-scientifico Ariosto Spallanzani
Via Raimondo Franchetti, 3, Reggio Emilia (RE), IT-42123, Italy
Final mark: 100/100 cum laude

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2 Independent	B2 Independent	B2 Independent	B2 Independent	B2 Independent
	First Certificate in English (FCE) - Cambridge English - European Level B2				
French	A1 Basic	A1 Basic	A1 Basic	A1 Basic	A1 Basic
	Intermediate School - 3 years course - no certification				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills Active Listening, Open-Mindedness, Summarizing, Written Communication, Confidence, Feedback, gained through my experience at school and university.

Management / Job-related skills Planning, Decision-Making, Problem-Solving, gained through my experience at school and university.

Computer skills
- good command of Microsoft Office™ tools
- good command of LaTeX writing tools
- good command of AutoCAD® for 2D and 3D modelling
- good command of Matlab® and Mathematica® software
- good command of Straus7® and PRO_SAP® FEM software
- fairly good command of Chrono::Engine© DEM software (masonry simulator package)
- basic command of Adobe Photoshop®

Other skills
- DIY and carpentry
- Swimming
- Target shooting

Driving licence B (with own car)

ADDITIONAL INFORMATION

Publications

- Vozzella, S., Boni, C., Massabò, R., & Royer-Carfagni, G. (2025). Direct evaluation of the modification coefficient k_{mod} for the static-fatigue design of annealed glass panes under wind load. *Journal of Mechanics of Materials and Structures, 20(3),* 289-313.
- Boni, C., Fried, E., & Royer-Carfagni, G. (2025). Kinematic and static characterization of everting Möbius kaleidocycles with slightly incongruent links. *Mechanism and Machine Theory*, *216*, 106185.
- Boni, C., & Galuppi, L. (2024). A kinematics-based single-actuator setup for constant-curvature bending tests in extremely large deformations. *Extreme Mechanics Letters*, *73*, 102259.
- Boni, C., Muratore V.A., & Royer-Carfagni, G. (2024). Experimental assessment of the eigenstress state in two-ply yarns and its effect on tensile properties. *Journal of the Mechanics and Physics of Solids*, *187*, 105613.
- Boni, C., & Royer-Carfagni, G. (2024). Micro-mechanical interpretation of the non-linear tensile response of structured rods. Experiments on prototyped Gedankenmodelle with wavy sub-rods and application to Carbon NanoTube fibers. *International Journal of Non-Linear Mechanics, 160,* 104650.
- Boni, C., & Royer-Carfagni, G. (2024). Flextegrity arched structures for Lunar bases built from indigenous materials. *Acta Astronautica, 215*, 107-116.
- Boni, C., & Royer-Carfagni, G. (2023). Shear and flexural deformations in flextegrity segmental beams inspired by Leonardo's triangular masonry construction. *Proceedings of the Royal Society A, 479*(2279), 20230453.
- Boni, C., & Royer-Carfagni, G. (2023). Flextegrity simple cubic lattices. *Proceedings of the Royal Society A*, *479*(2270), 20220637.
- Boni, C., & Royer-Carfagni, G. (2023). Strengthening of a case-study colonnade: comparison between a traditional and an innovative glass-based seismic retrofitting technique. *GNGTS 2023 Conference Proceedings, Bulletin of Geophysics and Oceanography*.
- Boni, C., & Royer-Carfagni, G. (2023). Transparent hybrid glass-steel bracing to improve the seismic capacity of historic buildings with colonnades. *Engineering Structures*, 278, 115522.
- Boni, C., & Royer-Carfagni, G. (2022). Flexural tensegrity: field applications. *Proceedings of the XXV Convegno AIMETA , Materials Research Forum LLC*.
- Boni, C., Reis, P.M., & Royer-Carfagni, G. (2022). Flexural-tensegrity snapping tails for bio-inspired propulsion in fluids. *Extreme Mechanics Letters,* 101853.
- Ballarini, R., Boni, C., & Royer-Carfagni, G. (2022). Geometry of sliding lamellae dictates the constitutive properties of nacre-like hierarchical materials. *Journal of the Mechanics and Physics of Solids*, 105000
- Boni, C., & Royer-Carfagni, G. (2022). Energy harnessing in the snap-through motion of a flexural-tensegrity flagellum. *Mechanism and Machine Theory*, 173, 104845.
- Boni, C., & Royer-Carfagni, G. (2021). A new flexural-tensegrity bow. *Mechanism and Machine Theory*, *164*,104698.
- Boni, C., & Royer-Carfagni, G. (2021). Equilibrium of bi-stable flexural-tensegrity segmental beams. *Journal of the Mechanics and Physics of Solids*, *152*, 104411.
- Boni, C., & Royer-Carfagni, G. (2021). Nonlinear effects in the vibrations of flexural tensegrity beams. *International Journal of Non-Linear Mechanics*, *128*, 103616.
- Boni, C., & Royer-Carfagni, G. (2021). A nonlocal elastica inspired by flexural tensegrity. *International Journal of Engineering Science*, *158*, 103421.
- Boni, C., Ferretti, D., & Lenticchia, E. (2021). Effects of Brick Pattern on the Static Behavior of Masonry Vaults. *International Journal of Architectural Heritage*, 1-21.
- Boni, C., Silvestri, M., & Royer-Carfagni, G. (2020). Flexural tensegrity of segmental beams. *Proceedings of the Royal Society A*, *476*(2237), 20200062.
- Boni, C., Ferretti, D., Lenticchia, E., & Tasora, A. (2019). DEM modelling of masonry vaults: influence of brick pattern and infill on stability during supports displacements. In *Proceedings of IASS Annual Symposia* (Vol. 2019, No. 18, pp. 1-8). International Association for Shell and Spatial Structures.
- Coïsson, E., Ferretti, D., Boni, C., & Tasora, A. (2019). Defining the Structurally Compatible Uses of Ancient Vaults: A Comparison between Traditional and Modern Modelling Approaches. In *Key Engineering Materials* (Vol. 817, pp. 267-274). Trans Tech Publications Ltd.

Participation in workshops

- IASS Symposium (October 2019) – Hotel Crowne Plaza - Fira Center, Barcelona, Spain
- MuRiCo 6 (June 2019) – Bologna, Italy
- IWSS (June 2020) – online due to Covid-19 pandemics

- Congresso Aimeta (September 2022) – Palermo, Italy
- GNGTS (February 2023) – Bologna, Italy
- EMI 2023 IC (August 2023) – Palermo, Italy
- ICoNSoM (June 2024) – Palermo, Italy
- Congresso Aimeta (September 2024) – Napoli, Italy
- HICOMP (June 2025) – Rhodes, Greece
- NHISMEH (July 2025) – Lucca, Italy
- ARCH25 (October 2025) – Genova, Italy

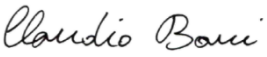
Participation in research projects

- DPC-ReLUIS 2019-2021 – Work package 5 on the seismic retrofitting of historical buildings, joint work with prof. Royer-Carfagni, funded by ReLUIS.
- DPC-ReLUIS 2022-2023 – Work package 5 on the seismic retrofitting of historical buildings, joint work with prof. Royer-Carfagni, funded by ReLUIS.
- PRIN 2020 – drafting of the project titled "*Glass in and for the Italian cultural heritage: where the past meets the future. From ancient glazed windows to multi-functional solutions for preservation and protection. Monitoring, theoretical modelling, experiments and design by testing. Basis of knowledge and practical solutions*" with prof. Royer-Carfagni as principal investigator, not funded.
- PRIN 2022 – drafting of the project titled "*Glass for the Italian Cultural Heritage (GICH): a way to preserve a world historical legacy*" with prof. Royer-Carfagni as principal investigator, not funded.
- Carbon Hub – project tilted "*Advanced modelling of CNTFs and CNTF-based cables for structural applications*" with prof. Royer-Carfagni as principal investigator, funded by Rice University (Houston, TX, USA)
- Convenzione tra la Società Aero-rossa S.r.l. e Università degli Studi di Parma – safety checks on the stability of wind turbines in Raddusa (Sicily, Italy), funded by Società Aero-rossa S.r.l.

Awards

- Best PhD Thesis 2023 in Mechanics of Materials, GMA - AIMETA Mechanics of Materials Group

Genova, 22 / 11 / 2025



(Claudio Boni)