

CURRICULUM VITAE

Jacopo Maria De Ponti

Current position



Assistant Professor (RtdA)
Department of Civil and Environmental Engineering, Politecnico di Milano
Piazza Leonardo da Vinci 32, 20133 Milan, Italy
e-mail: jacopomaria.deponti@polimi.it

ORCID: 0000-0002-6155-2031

Profile

Researcher in the field of Structural Mechanics and Elasticity. Specific focus on metamaterials to control elastic wave propagation for applications in Energy harvesting, MEMS and SAW devices.

Education

Course of study

April 2021: PhD cum laude in Structural, Seismic and Geotechnical Engineering (2017-2021) at Politecnico di Milano (Italy) together with Doctor Europaeus certification. Thesis: "Graded elastic metamaterials for energy harvesting". Supervisor: Prof. Alberto Corigliano.

October 2017: Master of Science cum laude in Civil Engineering (Structures) at Politecnico di Milano (Italy). Supervisor: Prof. Raffaele Ardito.

November 2015: Bachelor of Science in Civil Engineering (108/110) at Politecnico di Milano (Italy). Supervisor: Prof. Raffaele Ardito.

July 2012: Scientific high school diploma (liceo scientifico) with full marks (100/100) at "Iris Versari", Cesano Maderno (Italy).

Certifications

September 2015: TOEIC certificate for the English language (765/990).

July 2018: License to practice as a Civil Engineer (Esame di Stato).

Participation to workshops and extra-curricular courses

15-17 April 2019: Workshop on Metamaterials, from Optics to Geophysics, Marseille. Coordinators: Prof. Boris Galak e Sebastien Guenneau, Institut Fresnel, Marseille (France).

28-29 June 2018: Doctoral school on "Tunable and Software-Driven Functional Metasurfaces". Coordinators: Prof. Sergei Tretyakov e Dr. Fu Liu, Aalto University (Finland).

Conferences

12-16 June 2023: Oral presentation at Phononics 2023: 6th International Conference on Phononic Crystals/Metamaterials/Metasurfaces, Phonon Transport, Topological Phononics, Manchester (UK).

10-12 October 2022: Invited speaker at EUROMECH Colloquium “Unification of microsystems and metamaterials for new generation engineering solutions”, Milan (Italy).

12–17 September 2022: Oral presentation at “Metamaterials 2022”, Siena (Italy). Chair of a conference session on Mechanical and elastic MTMs.

21-24 August 2022: Invited speaker at INTER-NOISE 2022

4-8 July 2022: Invited speaker at the “ESMC - 11th European Solid Mechanics Conference”.

5-9 June 2022: Oral presentation at “European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS)”, Oslo (Norway).

20-25 September 2021: Poster presentation at “Metamaterials 2021”, New York (USA).

13-14 September 2021: Invited speaker at “workshop on Acoustic & Mechanical Metamaterials”, Imperial College London, London (UK).

22-27 August 2021: Oral presentation at “ICTAM 2020+1 virtual”, Milan (Italy).

9-11 October 2019: Oral presentation at “Symposium on Acoustic Metamaterials 2019”, Ischia (Italy). Chair of a conference session.

16-21 September 2019: Oral presentation at: “Metamaterials 2019”, Rome (Italy).

Seminars in foreign institutions

7 November 2021: Metamaterials Colloquium “Autonomous low-power wireless sensors via graded elastic metamaterials” at the University of Exeter (department of Physics and Astronomy) and UK Metamaterials Network.

Working periods in foreign institutions

15-18 November 2021: Visiting scientist at the University of Exeter (UK), department of Physics and Astronomy. Research activity: “Underwater experiments on the elastic spiral phase pipe”.

5-9 July 2021: Visiting scientist at ETH Zürich (Switzerland), department of Civil, Environmental and Geomatic Engineering. Research activity: “Experimental tests at ETH centre for immersive experimentation” in the framework of the H2020 FET-proactive project Metamaterial Enabled Vibration Energy Harvesting (MetaVEH), under Grant Agreement No. 952039.

3-5 February 2020: Visiting scientist at Imperial College London, department of Mathematics. Research activity: “Graded arrays of resonators for rainbow trapping and rainbow reflection”.

January-June 2019: Visiting PhD student at Imperial College London, department of Mathematics. Research activity: “Metasurfaces for energy harvesting”. Supervisor: Prof. Richard V. Craster.

20-21 March 2019: Visiting PhD student at Grenoble-Alpes laboratories, Institut des Sciences de la Terre. Research Activity: “Experiments on plates with periodic arrays of resonators”. Supervisor: Dr. Andrea Colombi.

Funded projects and Awards

2021: Young researcher in the project “FETPROACT-EIC-05-2019 Breakthrough zero-emissions energy generation for full decarbonization” submitted to EU. The proposal, entitled Metamaterial Enabled Vibration Energy Harvesting, has been approved under grant agreement ID:952039. Personal contribution: research background and creation of the international research team.

2019: Winner of the PhD grant for PhD students and young researcher at “Symposium on Acoustic Metamaterials 2019”, Ischia (Italy).

Teaching activity

Teaching activity for master and bachelor courses at Engineering and Architecture at Politecnico di Milano (Italy). Scientific-disciplinary sector ICAR/08 (Structural mechanics).

2023-now: Assistant professor in Architectural design studio for complex construction 2 - Structural and Seismic design (master in Architecture).

2022-2023: Assistant professor in Architectural Design Studio 2 – Structural Mechanics (bachelor in Architecture).

2018-2021: Teaching assistant in Solid Mechanics (bachelor in Energy Engineering).

2020-2021: Teaching assistant in Theory of Structures (master in Civil Engineering).

Supervisor of master thesis

2023: T. Panigati, “Topological metamaterials for SAW Devices”, Politecnico di Milano (Italy).

2022: A. Comana, “Graded three dimensional meta-frames for elastic wave control”, Politecnico di Milano (Italy).

Co-supervisor of master thesis

2022: Pingping Liu, “Dynamic analysis of graded metamaterials via adiabatic theorem”, Politecnico di Milano (Italy). Supervisor: Prof Raffaele Ardito (2022).

2021: L. Iorio, “Rainbow trapping and reflection in elastic waveguides”, Politecnico di Milano (Italy). Supervisor: Prof. Alberto Corigliano.

2021: S. Dario, “Piezoelectric oscillators for vibration energy harvesting”, Politecnico di Milano (Italy) Supervisor: Prof. Alberto Corigliano.

2021: E. Sametti, “Modeling and optimization of a graded metasurface for energy harvesting applications”, Politecnico di Milano (Italy). Supervisor: Prof. Raffaele Ardito.

2018: S. Iannaccio, “Analyses and interpretative models for elastic metamaterials”, Politecnico di Milano (Italy). Supervisor: Prof. Raffaele Ardito.

2018: N. Paderno, “3D metastructures for the manipulation of mechanical waves and energy harvesting”, Politecnico di Milano (Italy). Supervisor: Prof. Alberto Corigliano.

Reviews for international journals

Reviewer for the following international journals:

- Frontiers in Physics (since 2023)
- Proceeding of the Royal Society A (since 2023)
- Wave Motion (since 2023)
- Journal of Physics D: Applied Physics (since 2023)
- International Journal of Theoretical Physics (since 2023)
- Journal of Sound and Vibration (since 2023)
- Mechanical Systems and Signal Processing (since 2022)
- Engineering Structures (since 2022)
- European Journal of Mechanics / A Solids (since 2022)
- International Journal of Solids and Structures (since 2021)
- Physics Letters A (since 2021)
- Meccanica, Springer (since 2021)
- International Journal of Mechanical Sciences (since 2020)
- Mechanics Research Communications (since 2020)

Review Editor for international journals

- Frontiers in Materials – Metamaterials (since 2023)
- Frontiers in Physics – Condensed Matter Physics, Physical Acoustics and Ultrasonics (since 2023)

Milan, 20/10/2023

Jacopo Maria De Ponti