

Emanuele Reccia

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ACADEMIC ACTIVITY

- From December 2019: **Assistant Professor** of "Solids and Structural Mechanics" at University of Cagliari, Department of Civil and Environmental Engineering and Architecture - DICAAR
- From January 2018 to November 2019 **Research Fellow** of "*Solids and Structural Mechanics*" at University of Cagliari, Department of Civil and Environmental Engineering and Architecture - DICAAR
- From January 2017 to December 2018: **Post Doc Researcher** at Sapienza University of Roma, Department of Structural Engineering and Geotechnics - DISG, supervisor Prof. P. Trovalusci
- From October 2015 to March 2016: **Research collaboration** at Sapienza University of Roma, Department of Structural Engineering and Geotechnics - DISG, supervisor Prof. P. Trovalusci
- From September 2012 to December 2016: **Post Doc Researcher** at IUAV University of Venice, Department of Architecture Construction and Conservation - DACC, supervisor Prof. A. Cecchi

EDUCATION

- 2013: **Ph.D.** in "*Economics and Techniques for the Conservation of Architectural and Environmental Heritage – ETCAEH*", at University of Nova Gorica; Ph.D. dissertation: "*Conservation of historical masonry arch bridge: a procedure for modelling and strengthening*", mentor Prof. E. Siviero, committee Prof. A. Cecchi, A. Tralli and B. Briseghella
- 2009: **M.Phil** in "*Economics and Techniques for the Conservation of Architectural and Environmental Heritage – ETCAEH*", at IUAV University of Venice and University of Nova Gorica, in 2009; master thesis "*Planned maintenance and conservation: a maintenance plan for restoration projects. The case study of Roscigno Vecchia*", mentor Prof. P. Faccio, committee Prof. J. Jokiletho, P. Falini and S. Dobricic
- 2006: **Master Degree** in "*Architettura Engigneering*", at University of Cagliari, Faculty of Engineering; thesis "*Ritrovarsi al Largo Carlo Felice*", mentors Prof. G. Balletto and P. Mistretta

RESEARCH ACTIVITY

Research activity lies in the field of materials and structural mechanics, in particular it is aimed at development of analytical and numerical methods to the modelling of traditional and innovative heterogeneous materials. Moreover, experimental tests, both in lab and in situ, have been coupled to the theoretical research. In relation to the studied material, the following research themes have been developed:

I. Masonry materials and historical structures:

1. Theoretical research: formulation of theoretical and numerical models, both in linear and non-linear as well as in static and dynamic fields, for the evaluation of the behavior of masonry materials and masonry structures

- Discrete models DEM and mixed models FEM/DEM
- Classical and micropolar continua, obtained by means of homogenization procedures
- Structural behavior of vaulted masonry structures: masonry arch bridges, masonry vaults and domes
- Limit analysis for masonry structures

2. Experimental research: experimental test in lab and in situ for the characterization of masonry materials and for the identification of masonry structures

- Dynamic identification of multi-leaf masonry walls
- Natural fibers composite materials
- Dynamic measures of slender masonry structures, bell towers
- DT and NDT for the characterization of historical masonries

II. Random composite materials:

- Statistically-based homogenization procedures
- Classical and micro-polar continua
- Virtual Element Method VEM
- Random porous media

SCIENTIFIC PRODUCTION AND BIBLIOMETRICS

- ORCID ID: [0000-0003-0499-4295](https://orcid.org/0000-0003-0499-4295)
- Scopus Author ID: [55696360800](https://orcid.org/55696360800)
- Researcher ID: [O-8826-2015](https://orcid.org/O-8826-2015)
- Google Scholar [Profile](#)
- Research Gate [Profile](#)
- Publons [Profile](#)

TEACHING ACTIVITY

Lecturer of the courses:

Statics and Solids and Structural Mechanics at the University of Cagliari, Faculty of Engineering and Architecture, Degree in *Sciences for Architecture*, second year, second semester, SSD ICAR / 08

Structural Analysis for Historical Architecture at the University of Cagliari, Faculty of Engineering and Architecture, Master's Degree in Architecture, curriculum "Historical Architecture and Project", second year, second semester, SSD ICAR / 08

EDITORIAL ACTIVITY

Guest Editor of the following special issued:

- "Computational Strategies for Fracture and Damage Detection in Masonry Structures", *Frattura e Integrità Strutturale*, with Michela Monaco, Francesco Portioli and Patrizia Trovalusci, [URL](#)
- "Structural Health Monitoring through Vibration-Based Approach", *Shock and Vibrations*, with Giosuè Boscato, Luca Zanotti Fragonara, Antonella Cecchi and Daniele Baraldi, [URL](#)

Member of **Editorial Boards**:

- Mechanics of Materials, *Frontiers in Materials* (Review Editor)

Reviewer of International journals:

- Advances in Civil Engineering
- Composite Structures
- Engineering Failure Analysis
- Frattura e Integrità Strutturale (Fracture and Structural Integrity)
- Frontiers in Materials
- International Journal of Architectural Heritage
- International Journal of Masonry Research and Innovation
- International Journal of Mechanical Sciences
- International Journal for Multiscale Computational Engineering
- Journal of Building Engineering
- Journal of Building Pathology and Rehabilitation
- Mathematical Methods in the Applied Sciences
- Mathematical Methods in the Applied Sciences
- PLOS ONE
- Shock and Vibration
- The Structural Design of Tall and Special Buildings
- International Conference of Computational Methods in Sciences and Engineering