Luisa Pagnini

Associate professor

pagnini@dicca.unige.it
+39 010 3352291

Education and training

1996
PhD in Seismic Engineering
The seismic response of bridges with aseismic devices
Polytechnic of Milan - MIlano - IT

1992
Master degree in Civil Engineering
Forecasting models of period and damping of buildings - 110/110
University of Genova - Genova - IT

Academic experience

2020 - ONGOING
Associate professor of Structural Engineering
University of Genova - Genova - IT
teaching and research

Language skills

English
Proficient

Teaching activity
tenured professor of the following courses at the Polytechnic School of the Genova University:
Steel structures for the bachelor degree in Structural Engineering, from the Academic Year 2018-2019;
Structural Mechanics for the bachelor degree in Industrial Engineering Management, from the Academic Year 2004-2005;
Impact of Extreme Events on the Built Environment for the master degree in Engineering for Natural Risk Management, from the Academic Year 2018-2019;
Renewable Energy Production for the master degree in Environmental Engineering, from the Academic Year 2018-2019;

Postgraduate research and teaching activity

Supervision of PhD students, residents and post-doctoral fellows

Supervisor of PhD student: Andrea Orlando, Phd program in Civil, Chemical and Environmental Engineering, Curriculum in *Structural and Geotechnical Engineering, Mechanics and Materials*. Ciclo XXXIII, on the subject of the response to wind action of wind turbines and slender structures (from 2017)

PhD committees membership

Member of the Committee for the Phd program in Civil, Chemical and Environmental Engineering, Curriculum in *Structural and Geotechnical Engineering, Mechanics and Materials*.

Postgraduate (PhD) teaching activity

Professor of the PhD course “Introduction to Wind Energy and Wind Turbines” (10 hours, 2 CFU), Phd program in Civil, Chemical and Environmental Engineering, Curriculum in *Structural and Geotechnical Engineering, Mechanics and Materials* of The Genova University (Academic Year 2016-2017)

Research interests

My current research interests are centered on the structural response of small size Wind Turbines (WT) and on wind response models of slender structures with particular regard to aeroelastic phenomena.
Concerning small size WTs, an experimentalactivity is ongoing in the power facility of the Savona harbour, where we are monitoring two wind turbinbes having horizontal and vertical axis and the same rated power (20 kW). We are recoring in real time the wind field at the site with ultrasonic anemometers, the power production and the structural response with accelerometers and strain gauges installed on the supporting pole of the turbine. The research I'm developing faces three main issues. First issue concerns the actual power productuon in full scale turbulent environment; the second issue concern the optimal energy planning in smart districts and snart cities, considering small size WTs and other renewable power units, such as solar PVs. The third issue concerns the investigation of the structural response and dynamic behaviour of WTs, in order to develope fatigue life prevision and simplified models of the structural loads and effects.
Concerning aeroelastic phenomena, I'm currently working on procedure for dealing with gust-excited vibrations and aeroelastic phenomena of slender structures and structural elements in the framework of the Generalized Gust Factor technique with particular interest in the vortex-induced oscillations that are simulated through a nonlinear equivalent damping based on the classic Vickery and Basu approach. The model investigated is fully suitable to reproduce the effective structural aeroelastic behavior, also in the synchronization region at lock-in. Large uncertainties, however, arise from the choice of the model parameters, on which the literature is

still poor. Particular attention is devoted to the limiting magnitude (which governs the non-linear aerodynamic damping) and to the peak factor (which supplies the maximum response), both these quantities having a crucial role in the assessment of vortex-induced vibrations.

Grants

2013 - ONGOING

Athenaeum Research Grants - PRA 2013 PRA 2014 FRA 2016 FRA 2017

University of Genova - IT

Pricipal investigator

piezomechanic passive controlled structures

aeroelastic phenomena on slender structures

Editorial activity

reviewer for the *Research Grants Council* (RGC) of Hong Kong

reviewer of the following international journals: *Applied Energy*; *Journal of Wind Engineering and Industrial Aerodynamics*; *Engineering Structures*; *Advances in Structural Engineering*; *Wind and Structures* - An International Journal; *Journal of Earthquake Engineering*; *The Arabian Journal for Science and Engineering - B: Engineering*; *Earthquakes and Structures*; *Journal of Sound and Vibration*; *Meccanica*; *Journal of the Brazilian Society of Mechanical Sciences and Engineering*; *Structural Engineering and Mechanics - an International Journal*; *Renewable & Sustainable Energy Reviews*; *Journal of Mechanical Engineering*; *Energy Science & Engineering; Journal of Structures*

Assigments abroad

Visiting scholar at the *Department of Architectural Engineering* del *Tokyo Institute of Polytechnics*, Atsugi, Japan (from 17-12-1999 to 29-02-2000)

Fellowship Japan Society of Promotion of Science (JSPS) within the agreement JSPS– CNR that has financed the research journey at the *Tokyo Institute of Polytechnics* (1999-2000)

Professor of the course 'Seismic Risk' (10 hours) within the project CENAPRAD (*Centro Nacional de Prevencion y Attencion de Destrastres*) for the training of the managerial staff of the Civil Protection. The Course was organized by CIMA *Research Foundation* in cooperation with the Civil protection of Venezuela (year 2009)

Other professional activities

Auditor for the following design project of the Genova University:

1. 'Roofing of the multipurpose sport field in the Savona campus'. Total amount of the intervention: Euros 781409,11 (from 2016);
2. “Reorganization of vehicular and pedestrian viability, of parking areas and green areas, following the completion of new building for Sustainable Energy in the Savona campus”. Total amount of the

intervention: Euros 105591,26 (year 2017).

Participation in the investigation of damages to churches on behalf of the University of Genoa, Ministry for Cultural Heritage, Civil Protection following the Umbrian earthquake in March 1997, the earthquake in L'Aquila in 2009, the earthquake in Central Italy of 2016;