Silvia Marelli

Full professor

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Education and training

2008

PhD in Mechanical Engineering - Fluid Machines

Experimental study on turbocharging systems for automotive engines

Università degli Studi di Genova

2004

Master's Degree In Mechanical Engineering

Analisi sperimentale in regime transitorio delle prestazioni di turbogruppi di sovralimentazione per applicazione automobilistica

Università degli studi di Genova

Academic experience

2022 - ONGOING

Full Professor of Fluid Machines and Low Carbon Propulsion Systems

Università degli Studi di Genova

2021 - ONGOING

Coordinator of the Bachelor Course in Mechanical Engineering

Università degli Studi di Genova

2018 – 2022

Associate Professor

Università degli Studi di Genova

2011 - 2018

Assistant Professor

Università degli Studi di Genova

2008 - 2011

Research Assistant

Università degli Studi di Genova

2005 - 2008

PhD Student

Università degli Studi di Genova

Teaching activity

She teaches different courses related to internal combustion engines and fluid machines at the University of Genoa:

- 'Engines and propulsion systems for the energy transition' for Mechanical Engineering master's degree
  (A.Y. 2023/2024-ONGOING)
- 'Fluid Machines ' for Mechanical Engineering bachelor's degree
  (A.Y. 2024/2025)
- 'Fluid Machines 1' for Nautical Engineering bachelor's degree
  (A.Y. 2016/2017-ONGOING)
- 'Fluid Machines' for Mechanical Engineering master's degree
  (A.Y.2017/2018-ONGOING)

Postgraduate research and teaching activity

Supervision of PhD students and post-doctoral fellows

Silvia Marelli is tutor and supervisor of several PhD students and associate researchers.

PhD committee membership

She is a member of the teaching board of different PhD courses at the University of Genoa.
She has been a member of the board of PhD defence of different thesis in Europe.

Research interests and funding

Silvia Marelli is Full Professor of Fluid Machines and Low Carbon Propulsion Systems at the University of Genoa. Her field of expertise is the analysis of automotive engines intake and exhaust components performance, with special reference to turbochargers under steady and unsteady flow operation. She is collaborating with national and international companies. She is also responsible for the development of research activities related to the following topics:

- Experimental activity on components of propulsion systems (accurate definition of compressor and turbine maps, correlation between hot and cold turbine maps, direct measurement of turbine isentropic efficiency, maps correction for heat transfer phenomena, evaluation of turbocharger mechanical losses in turbocharger bearings, optimization of TC regulating device control (waste gate, VGT), single and two entry turbine configurations
- Compressor surge detection and active control
- Interactions between EGR and turbocharging circuits
- Study of hybrid boosting systems
- 1D modeling of components of propulsion systems in GT Power

Silvia Marelli has been Scientific Responsible for the University of Genoa of different research projects, including EU funded project (H2020: UPGRADE-High efficient Particulate free Gasoline Engines), private company research

(FPT Industrial SpA, Automobili Lamborghini SpA, General Motors Powertrain-Europe S.r.l., CRITT M2A, etc.).

Editorial activity

Silvia Marelli has authored more than sixty papers in international scientific congress and journals and she is reviewer of international journals.

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Other

Silvia Marelli is Secretary for Associazione Italiana delle Macchine a Fluido e dei Sistemi per l'Energia e l'Ambiente (AIMSEA).