

Sara Muggiasca,

Born in Milan, 25 August 1978. 1997: Scientific degree at “Liceo Scientifico Galileo Galilei” in Legnano (MI). 2002: graduation in Mechanical Engineering at the Politecnico di Milano, (100/100 with honors). 2006: Ph.D in Mechanical System Engineering at the Politecnico di Milano. From 2003 to 2011 Technician at Politecnico di Milano Wind tunnel. Since December 2011: Researcher at the Faculty of Industrial Eng. of Politecnico di Milano, Mechanical Department.

Main area of interest: bridge aeroelasticity, vortex shedding from bluff bodies, yacht sails, aerodynamics of civil structures and roofs, fluid structure interaction, pedestrian comfort in urban areas, modal identification technique, wind energy.

Education

Ph.D in Mechanical System Engineering, Politecnico di Milano, Italy, 2006

Degree in Mechanical Engineering (5-year program), Politecnico di Milano, Italy 1997

Research Interests

Cables Aerodynamics Experimental and numerical study on vortex induced vibrations and galloping instability on circular cylinders: analysis of the dynamic behavior under wind excitation of overhead transmission lines (in collaboration with EDF), aerodynamic characterization of Large Observation Wheel spokes (Dubai and New York Large observation wheel)

Bridge Aeroelasticity: Experimental study by means of wind tunnel tests on long span bridges: characterization of sectional models and analysis of the dynamic behavior of complete aeroelastic models (Forth Replacement Crossing Bridge, deck and tower, Messina Bridge, Lusail Bridge). Aerodynamic design of footbridges and characterization of the required damping system to control wind induced vibrations (Pescara footbridge, Nomi and San Michele footbridges, Swan River Footbridge).

Wind Effects on Civil Structures: Experimental study global and local forces on civil structure considering the effects of atmospheric boundary layer and of the surrounding (Porta Nuova Isola, European Extremely Large Telescope, Palazzo Italia building for EXPO 2015, Unipol Sai building), analysis of the pedestrian comfort in the adjacent urban area (Porta Nuova Isola, Palazzo Italia building for EXPO 2015) and evaluation of the aeroelastic behavior of roofs (Nuovo Polo fieristico di Milano, Cometa)

Modal identification and monitoring of Civil Structures: Modal characterization of real structures to tune TMD system and monitoring activities to check structure and damping system behavior under wind excitation along the time (Aesthetical arches built for EXPO 2015, Torino Fashion Village Tower).

Sailing yacht: Wind tunnel studies on sails aerodynamic for sails design optimization (Prada Challenge for the America's Cup, BMW Oracle for the America's Cup) and to improve aerodynamic forces definition in numerical codes (VPP, Velocity Prediction Program), used for the definition of sailing yacht performances (in collaboration with the Technical Committee (ITC) of the Offshore Racing Congress (ORC)). Development of a new set up for surface pressure measurements on sails for wind tunnel tests and full scale boat. Participation to the Sailing Yacht Lab project for the realization of a real sailing yacht completely instrumented.

Wind energy: Experimental activity on wake characterization of vertical axis wind turbine and wind tunnel studies on Flettner rotors for commercial ship propulsion.

Teaching

Teaching activities focused on Applied Mechanics.

Lecturer in:

- Applied Mechanics for Biomedical Engineering Degree, 2016 – present

Assistant lecturer in:

- Applied Mechanics for Chemical Engineering Degree, 2003 – present
- Mechanics of Vibrations for Mechanical Engineering Degree, 2007-2014