

**Call for application for research scholarships  
for post-graduate international candidates**

**RESEARCH PROJECT N. 33**

**Title**

**JLab: a framework for experimental testing, modelling and simulation of gasturbine engine components**

**Scientific responsible (name, surname, role)**

Michele Ferlauto, Aggregate Professor ([michele.ferlauto@polito.it](mailto:michele.ferlauto@polito.it))

**Short description of the research activity (max 250 words)**

The project belongs to the research activity in Aerospace Propulsion at the Mechanical and Aerospace Engineering Department of the Politecnico di Torino. The JLab project is an academic research framework that focuses on the integration of experimental and numerical methods in the analysis and modelling of aeroengine systems and of the related components.

The simulation of gasturbine components follows an hybrid approach that combines hardware and software elements. Moreover, experimental investigations on micro-gasturbine systems are used to calibrate the engine models. Scope of the work is the implementation of real-time models of the basic structure of an aeroengine and its controls. The hardware-in-the-loop strategy is also considered. The full research project, in which the student is involved, aims to derive a complete set of core components and controls for the engine simulation in an embedded system.

The student is asked to contribute on the enhancement of the acquisition system of the test-rigs; on the test-rig setup; on the development of control and simulation units based on open-hardware platforms.

The student will be supervised and assisted by the technical supervisor and the Propulsion group at DIMEAS and involved in a team research with other student working at the same project at different components. Software and hardware will be provided by the local research group.

**Specific requirements (experiences, skills)**

Preferably: Programming experiences. Basic skills in electronics, thermodynamics and fluid dynamics

**Website of the research group (if any)**

<http://staff.polito.it/michele.ferlauto/>

[http://www.dimeas.polito.it/la\\_ricerca/gruppi/propulsione\\_aerospaziale](http://www.dimeas.polito.it/la_ricerca/gruppi/propulsione_aerospaziale)

**Keywords (min 3, max 6)**

Aerospace Propulsion, Aeroengine modelling, Jet engine simulation, Turbomachinery

**Research Area (max 1)**

Mechanics and Aerospace

The present form should be filled in English and sent to [scudo@polito.it](mailto:scudo@polito.it) by 2<sup>nd</sup> October 2017