



PhD in INGEGNERIA ELETTRICA / ELECTRICAL ENGINEERING - 40th cycle

THEMATIC Research Field: ELECTRICAL ENGINEERING AND MEASUREMENTS

Monthly net income of PhDscholarship (max 36 months)

€ 1500.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The research activity in the EE area is mainly focused on the design and simulation of electrical circuits and systems, including novel approaches for analysis, design and testing of the main EM applications and devices, model based diagnosis of electrical power systems and components, optimal signal processing, wide area monitoring systems, non invasive diagnostics systems. Involved research areas include EM theory, Optimization Theory, Machine Learning and Computational intelligence techniques, Antenna Design, Wireless Sensor Networks, Electromagnetic Compatibility (EMC), advanced electromagnetic field simulation, distributed systems and device modeling, multi-physics modeling and simulation of renewable energy production systems, electrical storage systems and electrical vehicles, also in view of novel micro-grids supplying heat and electricity, to ensure secure and efficient operation also in the presence of high penetration of renewable generation. These research activities, even though pursued at the fundamental level are directly inspired and tested on real world, state of the art applications.

Methods and techniques that will be developed and used to carry out the research

Methods and techniques include: circuit theory, computational electromagnetics, biomimetic approaches, evolutionary algorithms and numerical techniques for the analysis of electromagnetic field for electromechanical systems, device simulation and parameters extraction, modeling of nonlinear phenomena in renewable energy systems by means of mixed approaches, digital and



	optimal signal processing for non invasive diagnosis, estimation and prediction.
Educational objectives	The aim is to form a highly qualified engineer in a highly motivated and qualified research group, gaining experience, knowledge and skills in cutting edge technologies of the power generation and energy conversion field, and microgrid design and optimization with possible involvement in international and EU projects as well as in the cooperation with leading industries and R&D institutions.
Job opportunities	This research activity will qualify the candidate for future academic and research positions, as well as for a highly qualified professional career in industries or organizations operating in the energy and electrical fields, such as Aerospace, Automotive, Energy and Environment, Railways.
Composition of the research group	4 Full Professors 4 Associated Professors 3 Assistant Professors 7 PhD Students
Name of the research directors	Sonia Leva, Riccardo Zich, Gabriele D'Antona

Contacts	
<p>Email: sonia.leva@polimi.it Phone: +39-022399-3709 Web-page: www.solartech.polimi.it</p> <p>Email: riccardo.zich@polimi.it Phone: +39 02 2399 4405 Web-page: https://www.energia.polimi.it/en/energy-department/research/research-groups/electrical-engineering/#c1806</p> <p>Email: gabriele.dantona@polimi.it Phone: +39 02 2399 3706 Web-page: https://www.energia.polimi.it/en/energy-department/research/research-groups/electrical-and-electronic-measurements/#c1808</p>	

Additional support - Financial aid per PhD student per year (gross amount)



Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	750.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities: Financial aid per PhD student is available for purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences, instrumentations and computer, etc. This amount is equal to 10% of the annual gross amount, for 3 years.</p> <p>Teaching assistantship: Availability of funding in recognition of supporting teaching activities by the PhD student. There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p> <p><i>Computer availability:</i> individual use. <i>Desk availability:</i> individual use.</p>