



PhD in INGEGNERIA ELETTRICA / ELECTRICAL ENGINEERING - 39th cycle

THEMATIC Research Field: ELECTROMAGNETIC COMPATIBILITY (EMC) AND CIRCUIT
THEORY (CT)

Monthly net income of PhDscholarship (max 36 months)

€ 1400.0

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

Electromagnetic Compatibility (EMC)

Research activity in the field of EMC covers the following main lines: a) modeling of interference effects in complex wiring structures (i.e., field-to-wire coupling and crosstalk, conducted immunity and emissions), b) statistical techniques for EMC estimation, c) new and/or simplified experimental procedures and setups for EMC testing, d) EMC-oriented design strategies (e.g., optimized design of EMI-filters, PCB lands, IC package, and interconnects), e) EMC aspects in power electronics. The research lines are mainly related to the Aerospace, Automotive, Shipbuilding, Energy, and Railway industry sectors.

Advanced Circuit Theory (CT)

Research activity is mainly focused on the design and simulation of electrical circuits and systems. The activities are: -- advanced circuit simulation methods, -- RF circuit macro-modeling for synchronization of electrical systems, -- advanced electro-magnetic field simulation and device modeling, -- multi-physics modeling and simulation of renewable energy production systems, electrical storage systems and electrical vehicles. 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 and simulation, multiconductor transmission line theory, statistical techniques for EMC, measurement theory and techniques for EMC, electromagnetic modeling, modeling and simulation (at system, unit, device and component level) by means of mixed approaches, nonlinear techniques, reduced-order techniques, model-parameters extraction from measurements, etc..
Educational objectives	The aim is to form highly qualified PhD candidates in: a) Electromagnetic Compatibility, with the ability to face complex EMC/EM problems in real-life electronic and electrical systems and applications, b) numerical simulation and analysis of electrical systems and circuits.
Job opportunities	Successful fulfilment of the research programs associated with these Scholarships will provide PhD candidates with the qualifications required to seek employment in diversified industry and university sectors in the EE field, such as Aerospace, Transportation (Automotive, Aeronautics, and Railway), Energy, Environment, etc.
Composition of the research group	5 Full Professors 6 Associated Professors 4 Assistant Professors 4 PhD Students
Name of the research directors	Sergio Pignari, Angelo Brambilla

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)			
	1st year	2nd year	3rd year
Housing - Foreign Students	1500.0 € per student	1500.0 € per student	1500.0 € per student



	max number of financial aid available: 3, given in order of merit (only for students without scholarship)..
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
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>