



PhD in INGEGNERIA ELETTRICA / ELECTRICAL ENGINEERING - 39th cycle

THEMATIC Research Field: ELECTRICAL AND ELECTRONIC MEASUREMENTS

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

The research activity will be focused on, but not necessarily restricted to, the measurement of physical quantities in complex processes, with a special attention to the topic of distributed measurement systems. Smart sensors and innovative measurement architectures are considered, capable of providing reliable results by exploiting embedded measurement systems. Typical application will include sensors, transducers, optical instrumentation, measurement algorithms and architectures for monitoring and diagnostic of electrical power systems/components, smart grids and experiments in high energy physics and magnetic confined nuclear fusion.

A more recent topic in the research activity is represented by the reliability assessment. In particular, the research will be focused on system reliability (PV systems are an application) and useful life evaluation of electric and electronic components and the development of virtual sensors to improve reliability.

<http://www.deib.polimi.it/eng/research-lines/details/131>

<http://www.deib.polimi.it/eng/research-lines/details/102>

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

Analog and Digital processing methods for measurement and uncertainty estimation for systems monitoring using wide distributed measurement systems and smart metering. Development of multiprocessors and dedicated data acquisition and distributed monitoring instruments. Development of smart sensors for electrical and non-electrical quantities. Study and development of optical



	instruments, based on novel measurement methods, for scientific and industrial applications.
Educational objectives	This research theme has the aim of forming a highly qualified engineer in the field of Instrumentation and Measurement, with specific skills on metrology, uncertainty estimation, signal processing, instrumentation, system diagnosis and electrical/non-electrical quantity measurements.
Job opportunities	The natural position for a PhD achieving this curriculum is any R&D position in the R&D department of instrument manufacturers, electric utilities, supervision of in-field measurements and monitoring, calibration labs and research centers both in and outside academia.
Composition of the research group	5 Full Professors 4 Associated Professors 1 Assistant Professors 5 PhD Students
Name of the research directors	Prof. Alessandro Ferrero

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Additional support - Financial aid per PhD student per year (gross amount)			
Housing - Foreign Students	1st year	2nd year	3rd year
	1500.0 € per student	1500.0 € per student	1500.0 € per student
max number of financial aid available: 3, given in order of merit ..			
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
Educational activities: Financial aid per PhD student is available for purchase of study books and material, funding for



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.

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.

Computer availability: individual use.

Desk availability: individual use.