



# PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 38th cycle

Research Area n. 2 - Electronics

**THEMATIC Research Field: MODELLING OF DIELECTRIC LAYERS RELIABILITY FOR  
GALVANIC ISOLATION**

**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**

Modern multi-chip modules include low- and high-voltage parts that are separated by dielectric layers, and new polymeric materials are being developed to this purpose. Proper device design involves the assessment of the working conditions and reliability of such devices. Aim of the work is to study breakdown phenomena in galvanic isolation devices from an experimental and theoretical viewpoint.

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

The work involves experimental characterization and numerical modeling, both carried out in the new university lab devoted to power devices. Research is carried out in collaboration with STMicroelectronics, that will provide samples and support.

**Educational objectives**

The candidate will learn the experimental techniques adopted in the industry to characterize and qualify a device, while getting a knowledge of numerical simulation tools and model development. It is expected that she/he will become able to conduct an independent research project, from the conception to the writing of results for reporting and publication.

**Job opportunities**

This activity is supported by STMicroelectronics, that has directly funded a dedicated laboratory and is strongly



	interested in hiring knowledgeable people in this field. Moreover, competences in the power-device area are highly requested by all IC manufacturers in Europe and outside.
<b>Composition of the research group</b>	1 Full Professors 1 Associated Professors 1 Assistant Professors 4 PhD Students
<b>Name of the research directors</b>	Alessandro Spinelli, Christian Monzio Compagnoni

<b>Contacts</b>	
Prof. Alessandro Spinelli (phone +39 02 2399 4001) Prof. Christian Monzio Compagnoni (phone +39 02 2399 4038) DEIB, building 22, 4 <sup>th</sup> floor	

<b>Additional support - Financial aid per PhD student per year (gross amount)</b>	
<b>Housing - Foreign Students</b>	--
<b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>	--

<b>Scholarship Increase for a period abroad</b>	
<b>Amount monthly</b>	700.0 €
<b>By number of months</b>	6

<b>Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information</b>
<p>LIST OF UNIVERSITIES, COMPANIES, AGENCIES AND/OR NATIONAL OR INTERNATIONAL INSTITUTIONS THAT ARE COOPERATING IN THE RESEARCH: Politecnico di Milano; STMicroelectronics, Agrate Brianza, Italy; STMicroelectronics, Settimo Milanese, Italy</p> <p>EDUCATIONAL ACTIVITIES (purchase of study books and material, including computers, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student 5.707,13 Euro</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>COMPUTER AVAILABILITY: individual use</p>



DESK AVAILABILITY: individual use