



PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 37th cycle

Research Area n. 4- Electronics

**THEMATIC Research Field: INTEGRATED PHOTONIC PROGRAMMABLE DEVICES FOR
SIGNAL PROCESSING ON CHIP AND FREE SPACE COMMUNICATION**

Monthly net income of PhDscholarship (max 36 months)

€ 1375.0

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	Activities related to industrial driven funded project (Huawei Free Space Optic Link). Objectives: conception, design, characterization and control of integrated photonic programmable circuits for signal processing on chip.
Methods and techniques that will be developed and used to carry out the research	Development of photonic integrated based devices for the implementation of a system for the processing of optical signals for communication, imaging, positioning, etc. operating in Free Space. The activities are both theoretical/numerical and experimental and concern the design of photonic integrated circuits, assembly, algorithms for dynamic chip control and implementation, thermal management, electronic boards for control and data acquisition. The research will be developed mainly in PoliMi (Photonic Devices Lab and Polifab) with short (weeks) period in the companies.
Educational objectives	Education objectives are multidisciplinary and Multiphysics: photonics, electronics, software, control theory, thermal management. Acquire experience in clean room working on micro and nanotechnologies.
Job opportunities	Opportunities in companies and research centers operating in photonics at large: production of systems with (integrated) photonic circuits or producing the photonic



	circuits. Huge offer of positions on the international market. In Italy: Huawei, Cisco, STm, AFR, Leonardo, etc.
Composition of the research group	1 Full Professors 1 Associated Professors 0 Assistant Professors 4 PhD Students
Name of the research directors	Prof. Andrea Melloni

Contacts	
Prof. Andrea Melloni andrea.melloni@polimi.it	

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	566.36 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>LIST OF UNIVERSITIES, COMPANIES, AGENCIES AND/OR NATIONAL OR INTERNATIONAL INSTITUTIONS THAT ARE COOPERATING IN THE RESEARCH: 1. Huawei Italia; 2. Università di Trento; 3. Partners of the EU project SUPERPIXEL</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 per year 2nd year: euros per student (1534) 3rd year: euros per student (1534)</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: 1st year: individual use 2nd year: individual use</p>



3rd year: individual use

DESK AVAILABILITY:

1st year: individual use

2nd year: individual use

3rd year: individual use