

PhD In Information Technology

Research Area n. 2 Title: Electronics

Research Field: “Electronic platforms for the electrical detection of biomarkers”

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€. 1.200 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Beginning of PhD	1/5/2017
Deadline for application	13/03/2017
Context of the research activity	
Motivations and objectives of the research in this field	The research aims at developing innovative electronic platforms in the form of Lab-on-Chip for the selective detection of biomolecules to target diseases (like the Malaria in the Tid Mekii project) or neural exocytosis (like in the EU project TRAINING4CRM). The scientific challenge will be in the high sensitivity required in these systems to detect the disease at a very early stage.
Methods and techniques that will be developed and used to carry out the research	The research will focus on the design of magnetic nanodevices for the detection of Emozoin crystals (a by product of the Malaria plasmodium), of electronic high sensitivity amperometers for catecholamine redox and of all the electronic analog and digital complementary circuits for user interface.
Educational objectives	The candidate will acquire a strong hardware design specialization in the field of biomedical microsystems and Lab-on-Chip, that is expected to play a significant role in the next generation of Health and Care portable devices.
Job opportunities	National and International bioelectronics Companies (Flextronics, Bracco et al.), Electronic companies developing microsystems for sensor applications (STm,

	Invensense, Maxim, Technoprobe et al.)
Composition of the research group	Marco Sampietro and Giorgio Ferrari (DEIB); Riccardo Bertacco (POLIMI Fisica); Jenny Emneus (DTU, Denmark); Orjan Martinsen (Un.Oslo, Norway), Merab Kokaia (Lund Medical School, Norway).
Names of the research directors	1. Marco Sampietro, professore ordinario DEIB 2. Giorgio Ferrari, ricercatore confermato DEIB 3. Riccardo Bertacco, Prof. associate Dip Fisica
E-mail address, phone number and web-page	Marco.sampietro@polimi.it , INT.6188.
List of 5 Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	1. Technical University of Denmark DTU 2. Univ. of Oslo (Norway) 3. Lund University (Sweden) 4. Universidad Autonoma de Madrid (Spain) 5. Divisione III ^a di Malattie Infettive dell'Università di Milano (Ospedale Sacco).
Additional support	
<u>Educational activities</u> (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): financial aid per PhD student per year	2nd year: 1.370 euro per student 3rd year: 1.370 euro per student
<u>Teaching assistantship</u> : availability of funding in recognition of support to 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.
<u>Computer availability</u> :	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>
<u>Desk availability</u> :	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>