

PhD in PHYSICS

Research Title: Printed Organic and Hybrid Electronics

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€. 1300 (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	10/3/2017 at 2:00 pm.
Context of the research activity	
Motivations and objectives of the research in this field	Printed Electronics is an emerging field, aiming at fabricating large-area, flexible and lightweight circuits by means of scalable printing techniques. In this context, besides solution-processable organic semiconductors, also hybrid semiconductors, such as hybrid perovskites, are being investigated as excellent options. A PhD in this area will tackle both the challenges of developing new high performance printed devices, to the deep understanding of the device physics to boost the development of the field.
Methods and techniques that will be developed and used to carry out the research	The activity will be performed within the "Printed and Molecular Electronics" group, in the Milan Center of Istituto Italiano di Tecnologia. The research will be based on the study of the charge transport properties of solution-processed/printable hybrid perovskites, especially in transistors configurations.
Educational objectives	A solid knowledge of solution processing techniques for hybrid semiconductors will be developed, along with a deep insight on their electronic properties, in particular charge transport.

Job opportunities	Printed Electronics is a worldwide expanding field, with several growing opportunities worldwide, particularly in EU and also in Italy. Careers in academia, in printed electronics industry, industrial R&D and consulting are possible.
Composition of the research group	webpage of the Printed and Molecular Electronics group at IIT: https://www.iit.it/lines/printed-and-molecular-electronics Group head: Dr. Mario Caironi, 2014 ERC grantee Number of Post-Docs 5; Number of PhD students 7
Names of the research directors	<i>Mario Caironi</i>
E-mail address, phone number and web-page	Mario.caironi@iit.it , tel. 0039 02 2399 9875; https://www.iit.it/people/mario-caironi
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	<ol style="list-style-type: none"> 1. University of Groningen – The Netherlands 2. Dongguk University – Seoul – Korea 3. Polyera Corporation – Skokie – Chicago – US 4. University of Freiburg – Freiburg – Germany
Additional support	
<u>Housing:</u> financial aid per PhD student per year (gross amount)	
<u>Funding for educational activities</u> (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): funding per PhD student per year	<p>1st year: euros per student: -</p> <p>2nd year: euros per student: € 1370</p> <p>3rd year: euros per student: € 1370</p>
<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>	<p>1st year: indicate <i>individual use</i></p> <p>2nd year: indicate <i>individual use</i></p> <p>3rd year: indicate <i>individual use</i></p>
<u>Desk availability:</u>	<p>1st year: indicate <i>individual use (possibly share used in the first couple of months)</i></p> <p>2nd year: indicate <i>individual use</i></p> <p>3rd year: indicate <i>individual use</i></p>