



PhD in FISICA / PHYSICS - 40th cycle

THEMATIC Research Field: SYNTHESIS AND ADVANCED CHARACTERIZATION OF COLLOIDAL NANOSTRUCTURES

Monthly net income of PhDscholarship (max 36 months)

€ 1500.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

<p>Motivation and objectives of the research in this field</p>	<p>In this PhD program we aim to synthesize and characterize colloidal nanocrystals made of multiple components, of which one is a metal halide. These materials are expected to have appealing applications in light emitting devices and also in photocatalysis and light detection. One important aspect of the program will be a thorough advanced characterization of the prepared samples by combining optical and structural techniques. This project will be carried out a collaboration between Politecnico di Milano and the Italian Institute of Technology in Genova.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>Advanced colloidal chemistry syntheses will be used to prepare the samples, based on hot injections approaches using air-free techniques. Optical characterization tools will be both steady state and time dependent optical absorption and photoluminescence, also at cryogenic temperatures. Multiple X-ray diffraction tools as well as advanced electron microscopy techniques will be used to a full structural and compositional characterization of the samples.</p>
<p>Educational objectives</p>	<p>The student will acquire a broad set of skills and deep knowledge in the fields of materials sciences and physics of nanoscale materials.</p>
<p>Job opportunities</p>	<p>Academic career in physics and materials science. High-tech industry.</p>



Composition of the research group	1 Full Professors 3 Associated Professors 16 Assistant Professors 10 PhD Students
Name of the research directors	Liberato Manna, Giuseppe Maria Paternò

Contacts	
<p>https://www.fisi.polimi.it/it/</p> <p>https://nach.iit.it/</p> <p>Names of the research directors: Prof. Liberato Manna; Prof. Giuseppe Maria Paternò</p> <p>Contacts: liberato.manna@iit.it; giuseppemaria.paterno@polimi.it</p>	

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)	1st year	2nd year	3rd year
	1000.0 € per student	1000.0 € per student	1000.0 € per student
max number of financial aid available: 1, given in order of merit (only for students with scholarship)..			

Scholarship Increase for a period abroad	
Amount monthly	750.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities: Educational activities (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences). Financial aid per PhD student per 3 years: max 6114,50 euros per student.</p> <p>Teaching assistantship: 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 and desk availability: individual or shared use computer and desk</p>