



PhD in FISICA / PHYSICS - 38th cycle

PARTENARIATO PNRR Research Field: PHOTONICS FOR MOLECULAR SENSING

Monthly net income of PhDscholarship (max 36 months)

€ 1200.0

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	<p>The aim of this PhD project, in the framework of the Italian I-PHOQS infrastructure and the FUSI project, is the development and characterization of innovative sources of quantum light in the mid and far infrared spectral regions to be used for applications in quantum communication and quantum sensing.</p> <p>Progetto I-PHOQS - CUP B53C22001750006 & progetto FUSI - CUP B53C22002830005</p>
Methods and techniques that will be developed and used to carry out the research	<p>The scholar will characterize novel mid and far infrared quantum cascade lasers and mid infrared interband cascade lasers. Moreover, he/she will realize sources based on non-linear generation. The characterization techniques are the measurement of intensity correlations and homodyne detection.</p>
Educational objectives	<p>The scholar will receive a multidisciplinary training in topics including laser physics, nonlinear optics, frequency metrology, and molecular spectroscopy.</p>
Job opportunities	<p>Due to the multidisciplinary training in cutting-edge techniques of optical frequency comb synthesizers as well as broadband spectroscopy, the scholar will have excellent job opportunities in high-tech industries. In addition, he/she will be well positioned for an academic career.</p>
Composition of the research group	<p>1 Full Professors 4 Associated Professors 5 Assistant Professors</p>



	3 PhD Students
Name of the research directors	Paolo De Natale, Paolo Laports

Contacts
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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	600.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities per year : 1 st year: -2nd year: 1534 euros per student3rd year: 1534 euros per student.</p> <p>Teaching assistantship: No teaching</p> <p>Computer availability: individual use.</p> <p>Desk availability: shared use</p>