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MODENA E REGGIO EMILIA

Dipartimento di Ingegneria “Enzo Ferrari”

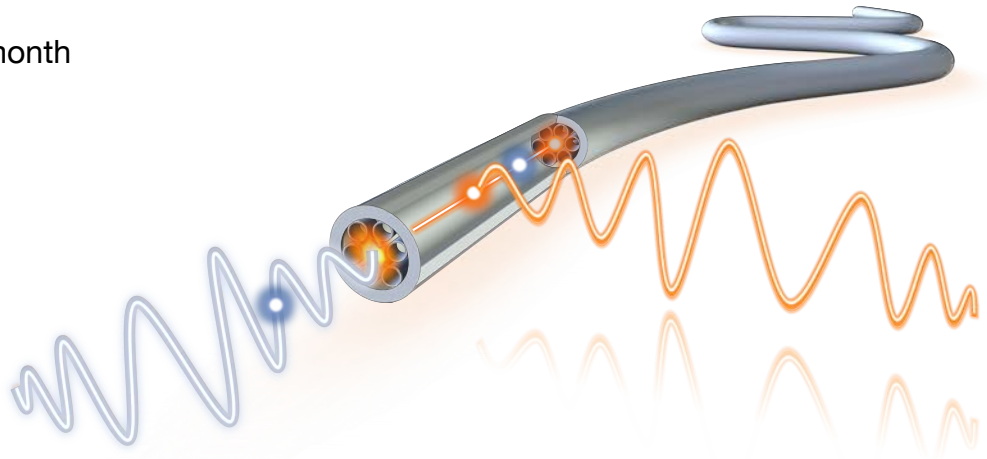
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Researchers in Hollow-Core Optical Fibers or Nonlinear Optics

University of Modena and Reggio Emilia – Department of Engineering “Enzo Ferrari”

Location: Modena, Italy
Salary: about 1850€/month
Hours: Full Time
Contract Type: Fixed-Term
Placed On: 5th June 2024
Closes On: 15th July 2024

Interview date: To be confirmed



Simulation and design of hollow-core fibers for entangled photon pair sources

We are actively searching for one self-motivated researcher to participate in the development of novel types of optical fiber-based platforms for generation of correlated entangled photon pairs.

We envision a low-cost entangled photon source directly built out of a hollow-core fiber, with high technological compatibility with the fibers proposed for high-coherence quantum state transmission, and which can be directly spliced into quantum fiber communication systems.

This research post is part of a multi-institutional research grant funded by the Italian government to open a new technological path to low cost and robust quantum communication networks.

Hollow-core fibers are a useful platform for novel methods to quickly advance quantum communication technologies, which are areas of knowledge that have attracted enormous development funding efforts in the last few years, bridging the gap between lab and industry practice in an astonishingly short time.

The candidate will then have a strong opportunity to gain core competencies in two fields whose successful development is assured for the years to come.

Successful candidates will be placed within the PhEmLab research group (www.phemlab.unimore.it) based at the Department of Engineering “Enzo Ferrari” within the University Campus in Modena, Italy (www.dief.unimore.it). The project envisages a close collaboration with the University of Parma.

To achieve the goals of the project, the research fellow will be involved in the electromagnetic modelling and design of hollow-core fibers and will provide support to the team of researchers responsible for the experimental part of the project.



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Qualifications for potential candidates include a robust background in photonics or physics, and basic expertise in design or analysis of optical fibers. The ability to evaluate and interpret results and compare them with experimental data is essential.

The potential candidate should be able to show at least six months of documented research activity on topics within the scope of the project at universities or research institutions.

Familiarity with Matlab modeling is preferred, as well as experience with Comsol Multiphysics modeling, or other electromagnetics/optics simulator tools.

Applicants are expected to demonstrate:

- Strong independent work abilities;
- Effective teamwork skills;
- Excellent communication and organizational skills.

The initial appointment is for 1 year, with effective possibilities for an extension.

Net monthly salary is about 1850€. Living cost in Italy is 27% less than UK, according to livingcost.org

For informal enquiries about this position, please contact Prof Lorenzo Rosa (email: lorenzo.rosa@unimore.it).