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Dipartimento di Ingegneria "Enzo Ferrari"

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Researchers in Hollow-Core Optical Fibers

University of Modena and Reggio Emilia – Department of Engineering "Enzo Ferrari"

Location: Modena, Italy

Salary: about 1700€/month

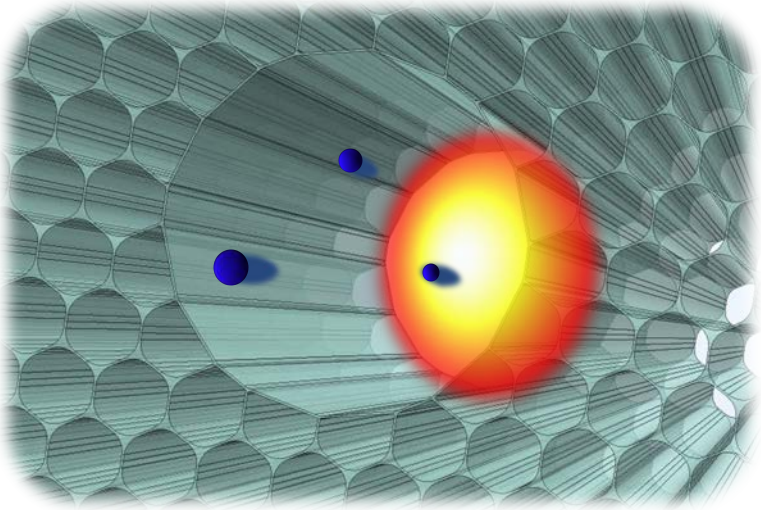
Hours: Full Time

Contract Type: Fixed-Term

Placed On: 4th June 2024

Closes On: 14th July 2024

Interview date: To be confirmed



Simulation and design of hollow-core dielectric accelerating structures for portable healthcare linear accelerators

We are actively searching for one self-motivated researcher to participate in the development of novel types of waveguide-based platforms for realization of high-gradient hollow-core dielectric accelerating structures.

This research post is part of a multi-institutional research grant funded by the Italian government to open a new technological path to development of portable healthcare products, pushing for the conception of compact LINACs capable of guaranteeing higher and higher particle energy: "Dielectric Optical accelerators for hEalth" (DOSE) project.

Linear Accelerators (LINACs) are widely used in medicine for diagnostic imaging, cancer treatment, sterilization of equipment, irradiation of blood products, and other applications.

Hollow-core waveguides are a useful platform for novel methods to considerably reduce of size and cost, and improve robustness, reliability and availability of LINACs on a global scale with respect to metallic ones operated in S band, which are currently used in medicine and healthcare.

The candidate will then have a strong opportunity to gain core competencies in a field 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 close collaboration with University of Brescia, University of Catania, and the National Institute of Nuclear Physics (INFN).

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

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

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 1700€. Living cost in Italy is 27% less than UK, according to livingcost.org

For informal enquiries about this position, please contact Prof. Luca Vincetti (email: luca.vincetti@unimore.it).