

I-PHOQS realises its ambition thanks to the funding of the
European Union – Next Generation EU in the framework of the National Recovery and Resilience Plan



The project is jointly realised by the
National Research Council and the Politecnico di Milano



The project is coordinated by the National Institute of Optics of CNR



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I-PHOQS

INTEGRATED INFRASTRUCTURE INITIATIVE
IN PHOTONIC AND QUANTUM SCIENCES

SCIENTIFIC COORDINATOR

PAOLO DE NATALE

CNR-INO



I-PHOQS is a network of leading national research infrastructures (RIs), focused on *Photonics* and *Quantum Sciences* and *Technologies*, providing a unique integrated, cross-domain and multi-faceted approach to complex scientific and technological questions.



















Photonic and Quantum sciences are unique tools strengthening innovation, industry and economy. EU aims to take the lead of these two strategic key enabling technologies with a disruptive innovation potential.

The Network will develop and make available a remarkable number of experimental set-ups and instrumentations well beyond the current state of the art, thus reaching a large and cross-cutting community of users.



-   POLITECNICO MILANO 1863
-   CNR-INO
-   CNR NANOTEC
-   CNR IFN
-   IMM
-   ISFIR

Research Infrastructures & Proposing Public Institutions

 European Laboratory for Non-Linear Spectroscopy & 	 Fi
 eli Extreme Light Infrastructure & 	 Fi  Pi  Pd  Mi
 Materials and processes BEYOND the NANO scale & 	 Le  Cs  Me  Ct
 Centre for Ultrafast Science and Biomedical Optics & 	 Mi

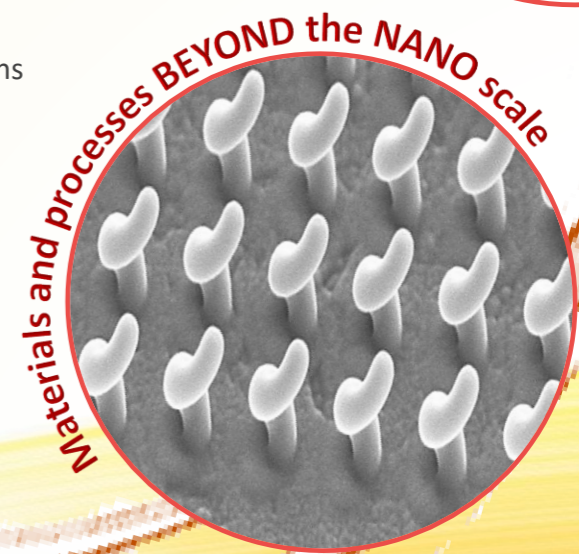
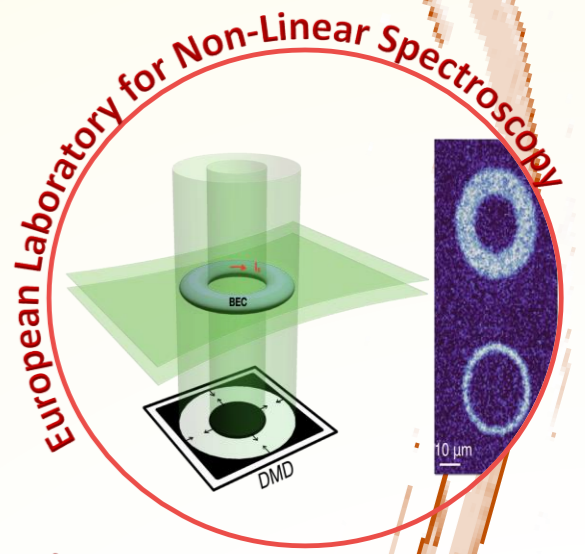
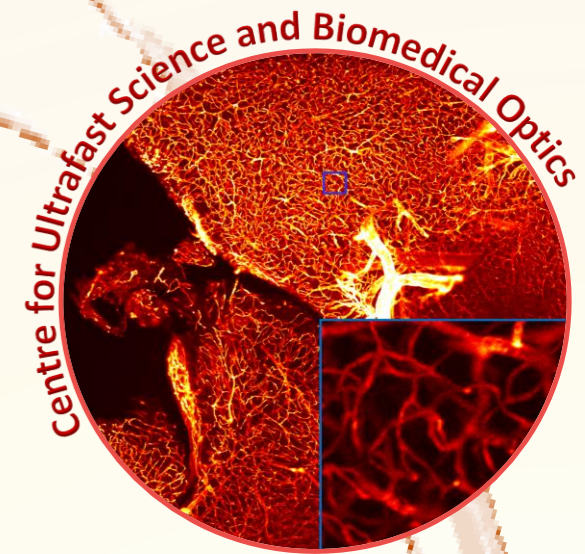
The planned **I-PHOQS** facilities will enable investigations in unexplored areas, combining matter and light over unprecedented ranges of distances, energies, and time scales, using novel methodological approaches.

More specifically, this innovative concept of Integrated Research Infrastructure will combine technologies in a wide variety of domains, such as: Novel Laser sources in extreme spectral regions, e.g. from XUV to THz, in extreme conditions (from single photons to high-energy laser pulses, down to attosecond time scales) to probe matter in an extremely wide range of thermodynamic conditions; nanofabrication and state-of-the-art diagnostic facilities for semiconductors and optoelectronics; full coverage of quantum science, from quantum simulation with ultracold matter and quantum computing and communication, to quantum sensing and quantum metrology.

The open access Italian distributed Infrastructure for Photonics, Nanofabrication and Quantum Technologies

I-PHOQS: science and networking

- Biophotonics
- Multiscale, Multidimensional Spectroscopy
- Extreme Photonics
- Quantum Sensing and Precision Measurements
- Quantum Information Processing and Communication
- Green Photonics
- Training
- Dissemination and Outreach
- Innovation Management and Industry Relations
- Access and Digitalization
- Management



I-PHOQS will be implemented with the participation of a large number of doctoral students and young researchers, recruited to take advantage of a unique opportunity for training and professional development at the frontiers of science and technology.