This school aims at introducing students and post-docs with an optics background to the concepts of integrated quantum photonics. We will start from the general concepts of quantum optics, quantum information, quantum simulation and computing and we will move to the main building blocks of an integrated photonic quantum circuits (single photon sources, entangled photon sources, single photon detectors, linear optical devices, quantum interference devices, and materials and processing to manufacture integrated quantum devices). Then we will discuss integrated quantum circuits and their applications in security, communication, computing, sensing-measurements and quantum key distribution. The lectures will be presented by the main scientists who have pioneered this photonic technology.
In addition to standard classes, laboratory sessions will be organized to facilitate the development of a proper design of integrated circuits on the student request. Rump evening sessions on hot topics in the field will be organized to facilitate discussions among students and lecturers. Since this is a residential school, both the students and the lecturers will reside in the same place which will make easy discussions in an informal venue or on the ski fields.

Poster Session

During the school, a poster session to stimulate discussions and networking will be held. The description of current activity of the students is encouraged. While it is mandatory to submit an abstract at the registration time, it will not undergo any review process and will be accepted as it is. The abstract should contain a Title, Author(s) list and Affiliation and the text of max 250 words.

Lecturers

- **Mario Agio** – University of Siegen, Germany
  Nanophotonics and electronics for bright single-photon sources based on color centers in diamond
- **Martin Booth** - University of Oxford, UK
  3D Dynamic Laser Processing for Photonic Circuits in Diamond, Glass and Other Materials
- **Massimo Borghi** - University of Trento, Italy
  Design, simulation, and challenges in the realization of Silicon On Insulator quantum integrated circuits
- **Gianluca Boso** - ID Quantique, Switzerland
  Quantum key distribution
- **Tommaso Calarco** - Ulm University, Germany
  Quantum information processing and quantum control
- **Iacopo Carusotto** - INO-CNR BEC Center, Italy
  Quantum Optics: from basic concepts to present challenges
- **Jonathan Finley** - Walter Schottky Institut - Technische Universität München, Germany
  Semiconductor Nanostructures for Quantum Information Technologies
- **Andrea Fiore** - Technische Universiteit Eindhoven, Netherlands
  Single-photon detectors for integrated quantum photonics

- **Florian Kaiser** - Université Nice Sophia Antipolis, France
  Quantum optical measurement methods for advanced determination of material properties
- **Gerd Leuchs** - Max Planck Institute for the Science of Light, Erlangen, Germany
  From Maxwell's equations to quantum optics and particle physics
- **Marco Liscidini** - University of Pavia, Italy
  Generation of non-classical states of light via parametric fluorescence in integrated devices
- **Jonathan Matthews** - Centre for Quantum Photonics – University of Bristol, UK
  Sub shot noise parameter estimation with single photons
- **Georg Pucker** - Bruno Kessler Foundation, Italy
  Introduction to silicon microfabrication technology in the context of silicon photonics and quantum optical circuits
- **Roberta Ramponi** - IFN-CNR - Politecnico di Milano, Italy
  Femtosecond laser micromachining: an enabling tool for quantum technologies
- **Fabio Sciarrino** - Sapienza University of Rome, Italy
  Boson Sampling with integrated photonics
- **David Stoppa** - Bruno Kessler Foundation, Italy
  Single-Photon CMOS Sensors for Quantum Technology Applications
- **Peter G.R. Smith** - University of Southampton, UK
  Fabrication of silica on silicon and periodically poled nonlinear devices for quantum technologies
- **Philip Walther** - University of Vienna, Austria
  Photonic Quantum Technology, Advantages of Photonic Quantum Computing, Photonic Quantum Simulation

School Directors

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- **School history** (/en/iqp2017/school-history)
- **Venue and Accomodation** (/en/iqp2017/venue-and-accomodation)

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