

Optics & Photonics Days 2023 - Scientific programme

All topics are targeting presentation of novel research results covering fundamental science, technology aspects, and applications. The decision criteria for oral talks are novelty, relevance, and impact.

Topical session 1: Integrated photonics

Integrated photonics is vigorously developing towards becoming a key enabling technology for many application fields exploiting light-based technology. This is a broad domain of research including guided wave integrated optics, hybrid integration platforms (silicon photonics, lithium niobate, glass, polymer, III-V optoelectronics), as well as micro and nanostructures for plasmonics, photonic crystals, and metasurfaces.

Topical session 2: Sensing and imaging

Life sciences, (bio-)chemistry, environmental monitoring, food safety, LIDAR applications, or process control request advanced mechanisms for sensing with a continuous demand for higher selectivity and sensitivity. Topics in this session include, but are not limited to, developments of advanced techniques and technology for the detection and counting of particles, 3D imaging, hyperspectral imaging, high resolution optical spectroscopy of gases and liquids, and in general development of sensors enabling new limit of detection, higher signal-to-noise ratio, or higher versatility.

Topical session 3: Emerging active materials and devices

Novel active materials and their interaction with light are key to development of new photonics devices and application specific functionality defined by electronic or photonic control mechanisms. This topic cover, for example, emerging developments concerning lasers, light modulators, nonlinear optics, gain and absorbing heterostructures, and controllable metamaterials.

Topical session 4: Quantum technology

This topic covers fundamental and applied aspects where quantum superposition and entanglement play a significant role. Examples include preparation and manipulation of quantum states for quantum computing, quantum sensing, and quantum key distribution and cryptography. Single-photon generation and detection devices are also included in this category.