Optics and Photonics Days 2025 - Academic program

The academic program consists of four thematic sessions with plenary speakers, invited talks and selected oral presentations. In addition, there are two poster sessions covering all aspects of photonics. 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.

When submitting your work in Conftool, please select the topic(s) from the list below that best suits your submission. This is to assist with the review process. The final division in four oral sessions will be made based on the quality and amount of the submitted contributions. Submission topics are:

1. **Integrated optics**

The research on integrated optical devices has been driven by the possibility to combine a large number of functionalities onto a single chip. The application domains cover, for example, telecom, sensor systems, instrumentation, data processing and quantum technologies. The topics include the light control in photonic circuit configurations and advancement in different integration platforms, such as, Si-photonics, compound semiconductor circuits together with the oxide and polymer waveguides. Hybrid integration methods to combine different materials are also included in this category.

2. **Sensing and Imaging**

Life sciences, medical and wellness applications, environmental monitoring, food safety, and process control set increasing need for advanced optical sensing and imaging tools with enhanced sensitivity, selectivity, and data processing. Topics in this session include research and technologies on spectroscopy, hyperspectral imaging, 3D imaging and photonic sensors for physical and (bio)chemical parameter monitoring. Portable and wearable devices with advanced interfacing functionalities drive research on augmented and virtual reality solutions which are covered by this category. Also, the latest advancements in photonics-enabled data processing, machine learning and artificial intelligence are included in this session.

3. **Novel photonic materials and devices**

Novel active and passive photonic materials and structures are key elements in the development of components with enhanced performance or new functionalities. The topics on devices cover, for example, advancements concerning lasers, light modulators, detectors and solar cells. The research on properties of photonic materials can address fluorescence, non-linear properties, absorption, electro-optics and processability. The session includes also micro and nanostructures for plasmonics, photonic crystals, and metasurfaces.

4. **Fundamental, classical and quantum photonics**

This theme covers all aspects of theoretical and experimental research dealing with fundamental understanding of both classical and quantum properties of light. The topics can include studies on spatiotemporal fields and coherence towards the advanced microscopy, novel guided-wave or free-space light transmission and material-light interaction. Advancements in opto-mechanics dealing with light-object interaction are also included in this category. This topic also covers aspects where quantum phenomena play a significant role, such as, manipulation of quantum states for quantum computing, sensing and cryptography.