

**Short Course:
Practical Quantum Optics 2019**

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Course description

What does it mean if optics is quantum? Is hard core quantum optics solely concerned with the study of fundamental physics questions or is it also useful for practical applications? The course will give answers to these questions and discuss quantum aspects in optics using phenomenological approaches whenever possible and mathematical description whenever necessary. The generation, propagation and detection of quantum light is one central topic. Practical quantum optics is all about noise, noise reduction and over coming established sensitivity limits in interferometry, imaging, communication and sensing. Such applications of modern quantum optical technologies will be addressed in detail and emphasis is put on practical considerations. Possible limits and opportunities that quantum effects may impose on applications in industry in the foreseeable future will be discussed.

Experimental demonstrations at the course:

- demonstration of the strong correlations of photon pairs generated in parametric down conversion.