Tampere University

Physics Colloquium

Quantum Imaging meets Adaptive Optics

Speaker: **Prof. Hugo Defienne**

Sorbonne University, Paris, France

Date: **Thursday 2nd May 2024**

Time: **15:15 o'clock.**

Location: **Sähkötalo SA203**

hosted by Assoc. Prof. Robert Fickler

Abstract:

Imaging technologies rooted in quantum principles, known as quantum imaging, can surpass classical methods or offer novel imaging capabilities otherwise unattainable. For instance, some of these methods exceed the diffraction limit or enable sub-shot-noise imaging. In our work, we harness the quantum properties of entangled photon pairs within the realm of adaptive optics. Specifically, we demonstrate that measuring spatial correlations between photon pairs allows for more effective aberration correction in a label-free imaging system compared to conventional methods. This approach could play a pivotal role in the development of future quantum microscopes. In this presentation, we'll delve into quantum entanglement, imaging, adaptive optics, and there will even be cat pictures — you should come and see!