

Photonics Lecture

16 July 2025 | 16:00h | A1

Squeezed Light from Lithium Niobate Photonic Integrated Circuits for Quantum Communication

Squeezed light - quantum states of light with reduced noise in one quadrature - has become a cornerstone resource in quantum optics, enabling enhanced precision measurements and secure quantum communication.

One particularly promising application is in quantum key distribution (QKD), where squeezed states can improve both data transmission rates and resilience to channel noise. However, to transition from laboratory demonstrations to scalable, real-world systems, it is crucial to integrate these quantum light sources into compact and stable photonic platforms. In this talk, I will present recent advances in the generation of squeezed light using integrated photonic devices based on titanium-diffused lithium niobate waveguides and thin-film lithium niobate. These platforms offer a path toward practical, high-performance quantum technologies by combining strong nonlinear optical properties with the benefits of photonic integration.



Assoc. Prof. Dr. Tobias Gehring,
Technical University of
Denmark, Copenhagen (DK)