

# Uncovering Hidden Spatial Quantum Modes of Squeezed Vacuum

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Quantum-enhanced measurements rely on the generation of squeezed light with quantum fluctuations reduced below the standard quantum limit. Precise knowledge of the spatial structure of squeezed modes is crucial to reach maximal quantum advantage in sensing applications. However, the characterization of a multimode squeezed vacuum, photon-deprived form of squeezed light, remains a major experimental challenge. We will present a method based on the structured-light quantum homodyning that enables the extraction of both squeezing levels and mode profiles from a multimode quantum squeezed vacuum beam.