



Quantum Bio-Sensing and Networked Sensing

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The minimum resolvable signal in sensing and metrology platforms that rely on optical readout fields is increasingly constrained by the standard quantum limit (SQL), which is determined by the photon shot noise. Thus, shot noise reduction techniques will be critical to the development of the next generation of sensors for applications ranging from civil engineering to biochemistry and for novel microscopy platforms capable of resolving material properties that were previously obscured by quantum noise. This talk showcases some dramatic advances made in the use of two-mode squeezed light for sub-shot-noise-limited quantum bio-sensing, and highlights an implementation of machine learning algorithms for recovering quantum information that would otherwise be obscured by noise at the SQL in the world's first software-programmable quantum network infrastructure in downtown Chattanooga.



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IN-PERSON EVENT ROOM 202