UTC Research Institute

"Quantum-Enhanced Sensing for Axion Dark Matter"

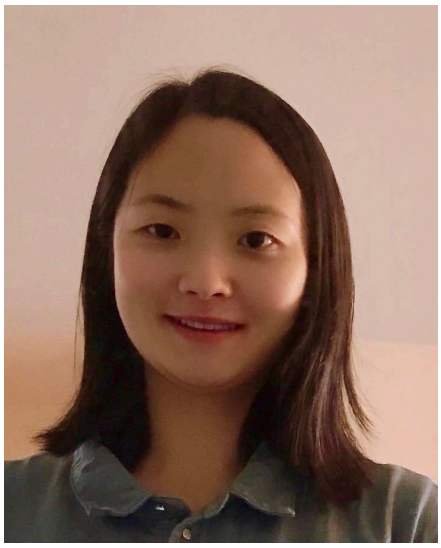
given by **Yue (Joyce) Jiang**

Postdoctoral Research Associate

at JILA

Friday, January 19, 1:30 p.m.,
ECS 426 (Maytag Room)*

Public Invited



Quantum metrology can be used to accelerate the search for weak signals arising from physics beyond the Standard Model. In this presentation, I'll discuss how quantum-enhanced sensing techniques can be used to overcome the limitations posed by quantum noise when searching for the axion – a well-motivated dark matter candidate. In particular, I will focus on our recent demonstration where we engineered a quantum non-demolition interaction to achieve an eight-fold speedup in the search for a synthetic axion signal relative to a search operated at the quantum limit.

Yue (Joyce) Jiang is a postdoctoral research associate at JILA. She received her Ph.D. in Physics from the Hong Kong University of Science and Technology in 2020, where her research was focused on the nonlinear interaction between photons and cold atomic ensemble. At JILA, she has been working with Konrad Lehnert on developing quantum-enhanced sensing techniques for weak signal detection using superconducting circuits.

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