

## Joint Seminar Series

# Using Quantum Optics to Illuminate the Universe's Mysteries

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**Date: Tuesday, October 1, 2024**

**Time: 2:00pm – 3:30pm**

**In-person: EEB 248**

<https://usc.zoom.us/j/92584409725>

**Abstract:** Advanced quantum techniques are revolutionizing our ability to observe and understand the universe. From employing squeezing in LIGO detectors to demonstrate human-scale macroscopic quantum phenomena, to utilizing photon-counting methods for measuring Earth's rotation and detecting dark matter, I will discuss how quantum optical applications enhance precision measurements, interface quantum mechanics and gravity, and offer new insights into fundamental questions about the nature of our universe.



**Biography:** Haocun Yu is a Marie-Cuire Postdoctoral Fellow at the University of Vienna working with Prof. Philip Walther. She completed her Ph.D. in physics in MIT LIGO group working with Prof. Nergis Mavalvala, working on quantum techniques and phenomena for gravitational-wave detectors. Her research interests lie in using various quantum techniques and precision sensing methods for fundamental physics. Her work has been recognized with honors including the MIT Martin Deutsch Award, APS Carl E. Anderson Dissertation Award, and Boeing Quantum Creators Prize. She is enthusiastic about continuing interdisciplinary work that advances quantum technologies and addresses intriguing fundamental questions about our world.

Hosted by

Quntao Zhuang, Eli Levinson-Falk, Jonathan Habif, Daniel Lidar, Kelly Luo, Todd Brun, Tony Levi, Stephan Haas