

## Cosmic Probes of the Dark Sector

*Tuesday 15 November 2022 12:20 (30 minutes)*

In this talk, I will describe my efforts to understand the nature of the mysterious dark matter, using the assumption that dark matter is comprised of ultralight axions. From the optical to the X-ray and gamma-ray universe, astrophysics has a role to play in understanding the details of this major problem in particle physics. I will give some insight into how I am using a range of tools to get at the basic question of “what is the statistical mechanics of dark matter?” I will show that astrophysical phenomenology is dependent on the microphysical details of ultralight axion models, and I will present results from recent collaborations.

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**Session Classification:** Session I