Speaker: Sarah Shandera

Time: 3:30pm - 4:30pm

Title: Open quantum systems in cosmology

Abstract: The open questions in cosmology have been open for decades: Why is the present-day universe undergoing accelerated expansion? What is the particle physics behind the origin of structure in the universe? What is the dark matter? All of these questions must be answered in the framework of a quantum theory, and at least two also require quantum gravity. I will discuss why open quantum systems, where an unobserved environment affects the evolution of the observed system, are starting to play a more prominent role in cosmology and how they help to generate new ideas for long-standing puzzles.

Bio: Sarah Shandera is the Director of the Institute for Gravitation and the Cosmos at Penn State. She received her PhD in physics from Cornell University and held postdoctoral positions at Columbia University’s Institute for Strings, Cosmology, and Astroparticle Physics and at the Perimeter Institute for Theoretical Physics before joining the faculty at The Pennsylvania State University in 2011.