Pursuing Dark Matter Across the Cosmos

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Abstract: Understanding the fundamental nature of dark matter is one of the major challenges facing the physics community today. There are dedicated experimental efforts to search for dark matter interactions with the Standard Model of particle physics, but no concrete evidence of such interactions has been observed. In this talk, I will demonstrate how cosmological and astrophysical observations offer exciting, new possibilities for understanding dark matter beyond its gravitational impact. I will describe the effects of dark matter scattering, decay, and annihilation processes in the early Universe and show how observational data test broad classes of dark matter models.

Bio: Dr. Kimberly Boddy is a professor of physics in the Weinberg Institute at UT Austin. She is a theoretical physicist, working on a variety of topics in cosmology, astrophysics, and particle physics. Her interests include dark matter, direct and indirect detection, the cosmic microwave background, large-scale and small-scale structure formation, halo evolution, cosmic dawn and reionization, and gravitational waves.