

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Black Holes as Probes for UV Physics

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The existence of classical black holes is by now established by various astrophysical observations. As I will discuss black holes also serve as probes for UV physics closely connected to quantum gravity. This role of black holes actually emerges in the context of UV-IR mixing within the swampland program for quantum gravity. More specifically, black holes can probe infinite distance limits in quantum gravity moduli spaces, either related to emergent strings or to decompactification to higher dimensions. I will furthermore discuss that, from an observational point of view, higher-dimensional primordial black holes can serve as natural dark matter candidates in the so-called dark dimension scenario.

Tuesday, April 29, 2025, 2:30 pm

Cosman Seminar Room

Center for Theoretical Physics

Building 6C, Room 6C-442

Massachusetts Institute of Technology