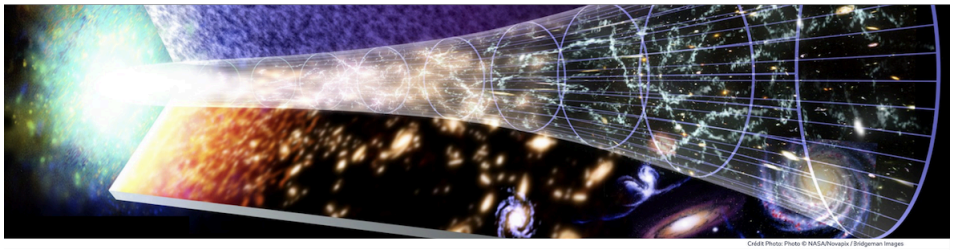

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The shape of emptiness: improving the signal from cosmic voids using reconstruction

mardi 2 juin 2026 12:00 (30 minutes)

Cosmic voids, the vast, underdense regions of the Universe, are emerging as powerful cosmological laboratories. They carry unique imprints of the growth of structure and the underlying physics driving cosmic acceleration. Among the most promising observables in this context is the *void-galaxy cross-correlation function*, which encodes both the geometry and dynamics of the cosmic web. In this talk, I will explore how the *shape of voids* can serve as a sensitive probe of cosmology, offering complementary constraints to traditional large-scale structure measurements. I will present recent developments demonstrating how void shapes respond to different cosmological models, and how systematic effects, particularly those related to redshift-space distortions, can be mitigated through advanced velocity reconstruction techniques.

These results highlight the growing potential of void-based analyses in the era of next-generation spectroscopic surveys, such as Euclid, DESI and Roman, where they will play a crucial role in refining our understanding of gravity, dark energy, and the large-scale structure of the Universe.

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