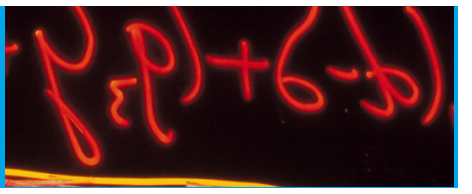
DESY
Particle and Astroparticle Physics Colloquium

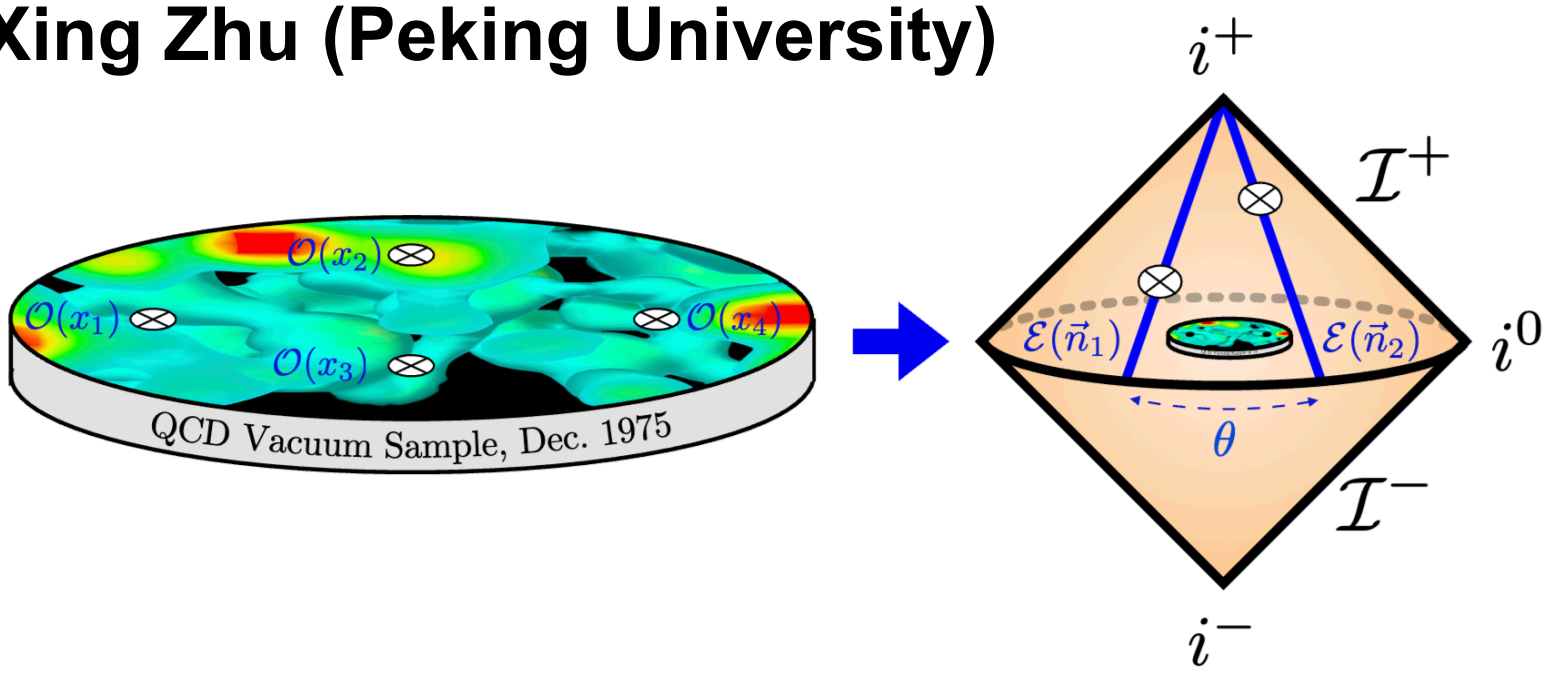


Energy Correlators: From Colliders to the Celestial Sphere and Back.

Tuesday, 03 February, 2026
Auditorium & Webcast 16:00 h

ZOOM ID: 996 1652 8733
Meeting Password: 733220

HuaXing Zhu (Peking University)



Energy correlators constitute a class of infrared-safe, perturbatively calculable observables originally introduced in the 1970s for precision tests of Quantum Chromodynamics (QCD). In recent years, they have experienced a renaissance due to a rare confluence of advances in formal theory, QCD phenomenology, and collider experiments.

In this talk, I will motivate energy correlators as natural observables at colliders from both theoretical and experimental perspectives. I will present recent phenomenological applications, including high-precision determinations of the strong coupling constant, a novel proposal for a precise top-quark mass measurement, and their use in probing the properties of the quark-gluon plasma. Finally, I will discuss recent theoretical developments that deepen our understanding of energy correlators in the small-angle limit, both in the perturbative regime and in the nonperturbative phase following confinement.

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