UCLA Department of Physics & Astronomy

COLLOQUIUM

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The renaissance of jet physics

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The particle collisions observed in high energy colliders are dominated by the phenomenon of *jets*. These are collimated sprays of particles that result directly from quantum chromodynamics (QCD). Following advances in both experimental techniques and theory, the study of jets has become a powerful tool for the exploration of fundamental properties of QCD under different conditions, and for the search for new phenomena in high-energy collisions. Jets can now be characterized not just by their overall direction and energy but also by their internal substructure. Jet physics is at the forefront of phenomenology studies at the Large Hadron Collider (LHC) and at the future Electron Ion Collider (EIC). In this talk, I will highlight novel experimental opportunities and new theoretical studies of the physics of jets, how they affect probes of QCD at the LHC and studies of the quantum imaging of protons at the EIC.