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Jet tomography of the proton at the EIC¹

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The future Electron-Ion Collider (EIC) will use electrons to image the quarks and gluons inside nucleons with unprecedented precision. It thus offers great discovery potential to reveal the inner workings of the strong nuclear force, including the origin of the nucleon spin, mass, radius and other properties. The EIC will not only allow us to extend studies from fixed-target experiments to uncharted kinematic regions, but also will give us a novel, powerful tool: jets. In this talk, I will focus on the prospects of using jets to enable a quantum tomography of the proton at the EIC. I will discuss the experimental feasibility of key measurements that will exploit the unprecedented combination of hermetic tracking, particle identification, and calorimetry of the future EIC detectors. I will argue that a jet program at the EIC could unleash a new era in the field of 3D imaging of the nucleon.

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