How to image the proton in 3D

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Despite many decades of intense study, our knowledge about the internal structure of the proton remains incomplete in many respects. At a scale of 0.1 femtometers or less, the proton is a strongly bound, highly relativistic dynamical system, and producing 'images' of such a system is a conceptual and experimental challenge. A programme of three-dimensional proton imaging has been devised since the turn of the century, and experimental prospects to realise it, have received a strong boost with the planning of an Electron-Ion Collider in the United States. In this talk, I will explain the science motivations for the imaging of the proton and of nuclei, the underlying physics principles, recent developments, and open problems.