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Imaging the quark and gluon substructure of the pion

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As the theory of quantum chromodynamics has unfolded, the pion has come to be understood as Nature's most fundamental Nambu-Goldstone boson. It is attached to chiral symmetry, which is dynamically broken, quite probably as a corollary of emergence of hadron mass that has measurable implications for the quark and gluon substructure of the pion. Continuum Schwinger function methods are well suited to tackling the pion. This presentation describes the theoretical developments on pion structure, thereby providing challenges and opportunities for modern and anticipated high-luminosity, high-energy facilities - JLab at 22GeV, the AMBER project at CERN, and electron ion colliders in the USA and China - and surveys the developments in global phenomenological fits and lattice regularised QCD, enabling the picture of the pion to be drawn.

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