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Overview of lattice QCD results relevant to the study of the 3D structure of the nucleon

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The 3D structure and tomography of the nucleon is among the frontiers of Nuclear Physics, and is under investigation in many experimental facilities worldwide. It also consists a key part of the physics program at a potential next-generation Electron-Ion-Collider. A progress in understanding the nucleons requires a synergy between the experimental and theoretical communities, and Lattice QCD (LQCD) is a powerful non-perturbative tool to provide input from first principle calculations. Progress in the simulation of LQCD has been impressive over the last years and modern simulations are carried out at parameters very close to their physical values. This has allowed to provide reliable estimates for benchmark quantities, but has also led to the exploration of new avenues of hadron structure. In this talk I will present recent developments relevant to the 3D structure of the nucleon. Main focus will be given to the spin of the proton, recent approaches to compute directly the x-dependence of quark PDFs, as well as studies of TMDs on the lattice.

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