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Exploring the 3D nucleon structure with CLAS at JLAB and PANDA at FAIR — •Stefan Diehl for the CLAS and PANDA-Collaboration — II. Physikalisches Institut, JLU Gießen, 35390 Gießen, Germany — University of Connecticut, Storrs, Connecticut 06269, USA

Exploring the 3-dimensional structure of the nucleon can help to understand several fundamental questions of nature, such as the origin of the nucleon spin and the charge and density distributions inside the nucleon. The 3D momentum distribution of the partons can be accessed by transverse momentum dependent distribution functions (TMDs) measured in semi-inclusive deep inelastic scattering (SIDIS) or Drell-Yan processes, while the distribution in transverse coordinate and longitudinal momentum space is described by generalized parton distributions (GPDs), which can be accessed by deeply virtual Compton scattering (DVCS) and hard exclusive meson production (DVMP). Based on the high quality data of CLAS and the recently upgraded CLAS12 detector at Jefferson Laboratory (JLAB), a detailed study of these distribution functions can be performed. In the future also PANDA at FAIR will be able to contribute to this field in various aspects of 3D nucleon structure studies. The talk will present the results of recent SIDIS and DVMP studies with CLAS and CLAS12 and their impact on the understanding of the 3D nucleon structure. In addition the potential of PANDA to contribute to this field will be presented.
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