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The deeply virtual structure of nuclei from inclusive to exclusive processes SIMONETTA LIUTI, University of Virginia, STANLEY BRODSKY, SLAC, Stanford University, GERALD MILLER, University of Washington — We discuss several new advancements in our understanding of the deeply virtual structure of nuclei as obtained from both inclusive and exclusive lepton nucleus scattering processes. The latter involve nuclear Generalized Parton Distributions. At low Bjorken x , gluon exchange between the outgoing partons and the target spectators affects the structure functions at the leading twist level. The modification of the nuclear structure function with respect to the free nucleon ones observed in experiments is therefore not related to the wave function of the nucleus, but it is due to partonic final state interactions. At larger values of x , in the so-called EMC effect region, rescattering can still affect the structure functions although to a lesser extent, as nucleon off-shellness effects become more important. As a result of leading twist partonic reinteractions, the traditional baryon number, momentum, and angular momentum sum rules are expected to be violated in the deep inelastic processes on nuclei which have been measured so far. Additional new information on all of these questions can be obtained through deeply virtual exclusive processes which allow us to access, in particular, transverse spatial configurations of partons in nuclei.

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