

Abstract Submitted
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Coherent phenomena in nuclear high-energy scattering from UPCs to EIC SERGIO SCOPETTA, SARA FUCINI, Perugia University and INFN Perugia, VADIM GUZEY, Petersburg Nuclear Physics Institute, MATTEO RINALDI, Perugia University and INFN Perugia, MARK STRIKMAN, Penn State University, MICHELE VIVIANI, INFN Pisa, CHRISTIAN WEISS, Jefferson Lab — Studying coherent phenomena in the interaction of high-energy probes with nuclei is essential for understanding high-energy QCD in both the soft and hard regime. Measurements of coherent production of vector mesons in ultraperipheral collisions (UPCs) of heavy nuclei have established the presence of large shadowing effects in both the soft (ρ production) and hard (J/ψ production) regime. We explore the possibility of studying the same effects in coherent electroproduction of vector mesons on light nuclei ($A \leq 4$) at the Electron-Ion Collider (EIC). The controlled virtuality in electroproduction provides insight into the scale dependence of coherent effects; the use of light nuclei allows one to separate multiple scattering effects involving two, three and more nucleons. Our analysis uses two- and three-body nuclear form factors calculated using realistic $A = 3, 4$ nuclear wave functions. We discuss the complementarity between the two types of measurements and the possibility of a combined analysis.

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