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Deeply Virtual Compton Scattering at eRHIC SALVATORE FAZIO, DIETER MUELLER, BNL — The feasibility for a measurement of the exclusive production of a real photon, a process although known as Deeply Virtual Compton Scattering (DVCS), using the future eRHIC machine at BNL has been explored. eRHIC is a machine designed to collide an electron beam with energies ranging from 5 GeV up to 30 GeV with the RHIC hadron beams (protons (100 -250 GeV) and nuclei ($\leq$ 100 GeV)) at varying center-of-mass energies. DVCS is universally believed to be a golden measurement toward the determination of the Generalized Parton Distribution (GPDs) functions. The high luminosity of the machine, expected in the order of $10^{34} cm^{-2} s^{-1}$ at the highest center-of-mass energies, together with the large rapidity acceptance of a newly designed dedicated detector, will open the opportunity for very high precision measurements of DVCS, providing an important tool toward a $2+1$ dimensional picture of the internal structure of the proton. The huge impact such measurements would have on the determination of GPDs will be discussed.

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