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## eRHIC: A Precision Tool for Studying Nuclear Structure.

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eRHIC is envisaged as a next-generation upgrade to the RHIC facility, involving the addition of a high-intensity, high-energy electron beam, to deliver a broad programme of both nuclear and spin physics. e+A collisions at eRHIC will answer open questions about the distribution and interactions of gluons within nuclei, something not possible with any existing machine. They will allow precise probing of the nuclear initial state, due to both the absence of the final-state interactions present in nucleus-nucleus collisions, which obscure details of the initial state, and the precise reconstruction of the initial event kinematics afforded by an electron beam. Exclusive diffractive collisions will allow the nuclear gluon distribution to be imaged in detail, while the use of nuclear beams will provide access to the regime of low-x gluon saturation, for which there are presently only tantalising hints. Meanwhile, polarised electron and proton beams will yield unmatched detail in characterising the spin structure of nucleons. I will summarise the features of the eRHIC accelerator itself and some of the key measurements to be made, with a focus on in its e+A physics programme.

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