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eSTAR - a detector for eRHIC

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A high-luminosity polarized Electron Ion Collider (EIC) has been proposed to address 1) the distribution of the sea quarks and gluons, and their spins, in space and momentum inside the nucleon, 2) the dynamics of the gluon-dense regime in nuclei, 3) hadronization and energy loss in the nuclear medium. Such an EIC can be realized by the addition of an electron beam to the existing Relativistic Heavy Ion Collider (RHIC). This facility is called eRHIC. The STAR experiment, one of the two major experiments at RHIC, intends to evolve itself into eSTAR, a detector suitable for the initial stage of eRHIC. The evolution of STAR to eSTAR will be discussed in combination with detector upgrades and an assessment of eSTAR physics performance.

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