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JLEIC –A High Luminosity Polarized Electron-Ion Collider at Jefferson Lab

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The new NSAC Long Range Plan endorses construction of a high energy high luminosity polarized electron-ion collider in US for reaching new QCD frontier. JLEIC, a Jefferson Lab ring-ring design of electron-ion collider based on the CEBAF recirculating linac, will enable collisions of electrons with energy up to 10 GeV and either protons with energy up to 100 GeV, or heavy ions with energy up to 40 GeV/u. Both the proton beam and the light-ion beams will have high polarization above 70%. JLEIC will accommodate two physics detectors, a primary one with full acceptance and a secondary high-luminosity one with less demanding specification. By implementing the multi-phase traditional electron cooling in both the ion booster ring and the ion collider ring, ultrahigh luminosity close to 1034 cm-2s-1 per detector with large acceptance can be achieved. We will present the recent progress in the JLEIC design.

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