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Design of High-energy High-luminosity electron-ion collider eRHIC

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In this talk I will present most recent design of electron-ion collider at Brookhaven National Laboratory, eRHIC. In eRHIC we would collide polarized electrons (energy from 5 to 21.2 GeV) with polarized protons (energy from 100 GeV to 250 GeV), polarized He3-ion and heavy ions (energy from 50 to 100 GeV/u). Based on linac-ring design, eRHIC will cover the full range of c.m. energies covered in EIC white paper (arXiv:1212.1701) and described in the EIC physics case (arXiv:1212.1701) with luminosity reaching $2E34$ 1/sec/cm². I will also present the R&D program towards eRHIC pursued at BNL and Stony Brook University.

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