



Contribution ID: 447

Type: **Oral Presentation**

## Electron-Ion Collider eRHIC: Design and R&D status

*Thursday, 1 August 2019 14:20 (20 minutes)*

The Electron-Ion Collider will open exciting new frontiers for research in nuclear physics and quantum chromodynamics. eRHIC, a proposed realization of the Electron-Ion collider in BNL, is based on the existing and highly optimized RHIC ion-ion collider. The design of eRHIC has been developed in a joint effort by nuclear physicists and accelerator scientists, enabling large acceptance experiments with unprecedented resolving power in the domain of quarks and gluons. It is planned to add an electron storage ring to the RHIC complex in order to enable electron-proton and electron-ion collisions in wide range of center-of-mass energies (29-140 GeV) with the luminosity exceeding  $10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ . For collisions of electrons with protons and light ions, both beams will be spin polarized with polarization of 70%. Accelerator R&D continues to address technological challenges which include crab-crossing, strong hadron cooling, aspects of SRF technology (HOM dampers, tunable coupler), superconducting interaction region magnets, in-situ beam pipe coating and others. The talk presents status of the eRHIC accelerator design and describes recent progress done on the accelerator R&D.

**Primary authors:** Dr PTITSYN, Vadim (Brookhaven National Laboratory); Dr WILLEKE, Ferdinand (Brookhaven National Laboratory); Dr MONTAG, Christoph (Brookhaven National Laboratory)

**Presenter:** Dr PTITSYN, Vadim (Brookhaven National Laboratory)

**Session Classification:** Accelerators

**Track Classification:** Accelerators