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(I) Electron-Ion Collider Accelerator Development

Tuesday 7 June 2022 10:45 (30 minutes)

The Electron-Ion Collider will be a new discovery machine for unlocking the secrets of the "glue" that binds the building blocks of visible matter in the universe. The EIC will consist of two intersecting accelerators, one producing an intense beam of electrons (Electron Storage Ring), the other a high-energy beam of protons or heavier atomic nuclei (Hadron Storage Ring), which are steered into collisions of spin-polarized beams in the Interaction Region. The EIC design will make use of existing ion sources, a pre-accelerator chain, a superconducting magnet ion storage ring, and other infrastructure of the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory. The Rapid Cycling Synchrotron will provide injection into ESR, while preserving beam polarization. The Strong Hadron Cooling system will preserve emittances of the proton beam during collision run. The EIC project has recently received Critical Decision 1 (CD-1) approval from DOE, and the project team is now working on the next milestone –CD-2. The EIC project will be delivered in a collaboration of domestic and international partners. In this talk, the status of EIC accelerator will be reviewed.

Author: SERYI, Andrei (Jefferson Lab)

Presenter: SERYI, Andrei (Jefferson Lab)

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