Canadian Association of Physicists

Association canadienne des physiciens et physiciennes

Contribution ID: **3184** Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) EIC Accelerator Technology Challenges

Tuesday, 7 June 2022 11:15 (30 minutes)

An understanding of how the properties of matter originate from the deeply fundamental constituents of QCD is the primary goal of nuclear physics and the motivation for a new facility, the Electron-Ion Collider (EIC). The EIC will be constructed at Brookhaven National Lab and will take advantage of the entire existing Relativistic Heavy Ion Collider (RHIC) facility, but requires challenging modification and additions to provide unprecedented beam intensities while maintaining a high degree or polarization. The well-established beam parameters of the present RHIC facility are close to what is required for the highest performance of the EIC, with the exception of three times the hadron beam current that will be achieved by increasing the number of bunches. The addition of an electron storage ring (ESR) inside the present RHIC tunnel will provide polarized electron beams up to 18 GeV for collisions with the polarized protons or the heavy ions of RHIC. The EIC accelerator design must satisfy all the requirements of the science program while having acceptable technical risks, reasonable cost, and a clear path to achieving design performance after a ramp-up period.

Primary authors: Prof. KESTER, Oliver (TRIUMF); LAXDAL, Robert (TRIUMF)

Presenter: Prof. KESTER, Oliver (TRIUMF)

Session Classification: T2-6 Physics at the EIC Symposium: Accelerator Developments at the EIC (DNP) | Symposium sur la physique à l'EIC: avancées d'accélérateurs à l'EIC (DPN)

Track Classification: Symposia Day (Tues. June 7) / Journée de symposiums (mardi, le 7 juin): Symposia Day (DNP) - Physics at the Electron-Ion Collider (EIC)