Contribution ID: **91** Type: **Invited Oral Presentation**

EIC vacuum system

Tuesday 4 March 2025 15:20 (30 minutes)

The Electron-Ion Collider (EIC) will be a new, state of the art nuclear physics research facility that is currently approaching the preliminary design milestone. This facility will be built at the US Department of Energy' s Brookhaven National Laboratory located in Upton, New York. The EIC will collide high energy (up to 18 GeV) polarized electrons with polarized protons (up to 275 GeV) and heavy nuclei with a peak design luminosity of 10^34 /cm/s. To achieve this level of performance, significant design challenges will need to be overcome. The electron accelerator vacuum system must be designed to absorber 10MW of synchrotron radiation and beam induced heating. With the planned bunch spacing of 10ns, electron cloud formation in the super conducting hardon storage ring will have a significant impact on beam stability without proper mitigation. Both storage rings will rely on thin films and surface treatments to reduce photon stimulated desorption as well as longitudinal impedance. This talk will give a overview of the various design solutions which are planned for the facility as well as the current status of ongoing development efforts.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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Session Classification: Vacuum

Track Classification: WG9 : Vacuum