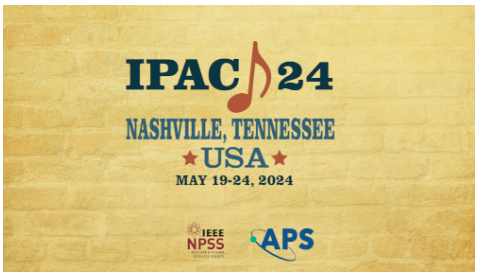

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Preliminary design of the normal conducting RF cavities for Electron-Ion Collider Hadron Storage Ring

Tuesday, May 21, 2024 4:00 PM (2 hours)

The Normal-Conducting Radio-Frequency (NCRF) systems for the Electron-Ion Collider Hadron Storage Ring (EIC HSR) consist of 4 unique cavity resonators. The HSR NCRF systems are composed of a 24.6 MHz capture and acceleration system, a combined 49.2 MHz and 98.4 MHz bunch splitting system, and a 197 MHz storage system for collider operations. This paper presents the preliminary design of the HSR NCRF systems. We describe the unique approach taken to optimize HSR performance while limiting the total number NCRF systems, reducing the NCRF systems contributions to the total HSR impedance while reducing operating complexity.

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