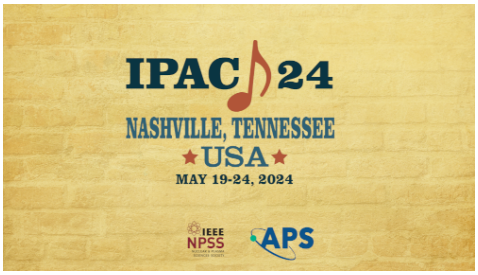

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Progress on high power FPC development for EIC

Wednesday, 22 May 2024 16:00 (2 hours)

The Electron-Ion Collider (EIC) requires 34, 500 kW continuous-wave (cw), 591 MHz Fundamental Power Couplers (FPCs) to compensate the Electron Storage Ring's (ESR) 10 MW of synchrotron radiation and other beam driven losses. This paper will describe the FPC design and fabrication status, particularly the technical challenges associated with 500 kW cw operation and the innovative design addressing this. Of important note, the RF window based on 99.5% purity alumina window was designed to be wide operating bandwidth, which makes it applicable to FPCs for the EIC's RF systems outside of the ESR with frequencies ranging from 197 MHz-591 MHz. This results in significant savings by eliminating the need to design multiple different RF windows for the different RF systems. This paper will describe the design and prototype progress of the High Power FPC for EIC.

Footnotes

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