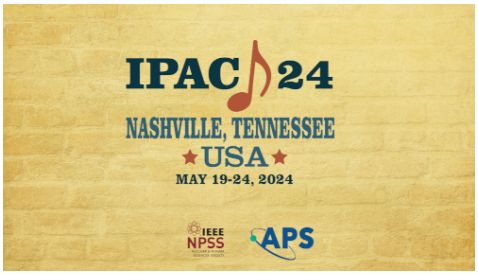

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First high-Q treatments for FCC 800 MHz 5-cell elliptical cavities

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

Development towards the FCC-ee "Z" machine requires optimization of sub-GHz elliptical cavities for high-gradient and high-Q operation, both in pulsed and CW mode, for application in the booster and collider portions. Previous development work validated the proposed 800 MHz 5-cell elliptical RF design, showing reasonable performance after EP treatment. However, the stringent high-Q (3.8e+10) and high-gradient (24 MV/m) goals of the FCC machine cavities will require further development, relying on advanced surface processing techniques developed at 1.3 GHz such as N-doping or medium-temperature furnace baking. We report the results of the first applications of these techniques to the 5-cell prototype 800 MHz elliptical cavity.

Footnotes

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