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Mechanically polishing electroplated Nb3Sn for higher accelerating gradients

Tuesday 23 September 2025 14:30 (3 hours)

As the demand for more efficient SRF technology continues to rise, so does the need to improve the performance of Nb3Sn, the most promising alternative to niobium. Leveraging recent breakthroughs in Nb3Sn research from Cornell University and Fermilab, namely the electrochemical synthesis-based growth of Nb3Sn and the centrifugal barrel polishing (CBP) technique to smoothen the final Nb3Sn film, our primary goal is to reduce surface roughness while preserving the film's quality. We present promising RF results from an electroplated cavity that underwent mechanical polishing using the CBP technique, which showed an increase in the maximum accelerating gradient compared to the baseline test.

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Yes

Footnotes

Funding Agency

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