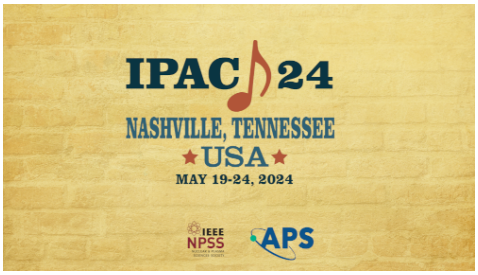

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Fabrication of 1.3 GHz Nb cavities at RadiaBeam

Thursday, 23 May 2024 16:00 (2 hours)

Niobium cavities are key elements in superconducting radiofrequency (SRF) accelerators. Despite increasing worldwide demand, global commercial production capacity is limited to a small number of vendors with virtually no US-based turn-key suppliers. As SRF technology expands across scientific research, industry, and technology sectors, the demand for their production is expected to rise even more in the coming years. Due to the limited supply base and very long delivery times, the US accelerator community is seeking to promote new vendors to enter SRF business capable of rapid iteration of low-volume/high mix R&D cavities. RadiaBeam has been involved in developing niobium fabrication capabilities for several years now, with the objective of understanding the technological challenges and commercial opportunities. In this paper, we present the progress in fabrication process of a single 1.3 GHz TESLA-style niobium cavity at RadiaBeam. This process involves the deep drawing of half cells, machining of weld joints, chemical cleaning, and electron beam welding capabilities.

Footnotes

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