

11th International Workshop on Thin Films and New Ideas for Pushing the Limits of RF Superconductivity - TFSRF2024



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3D additive fabrication of Cu cavity with cooling channeling at CEA

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One of the most promising avenues of research for next-generation superconducting cavities is to increase the operating temperature ≥ 4.2 K by depositing new thin-film superconducting materials with temperatures at least twice as high as the Niobium currently used. These possibilities pave the way for the development of new cooling techniques (cryocooler with liquid He cooling circuits integrated into the cavity wall). One of the major problems is the evacuation to the cold source of the energy deposited inhomogeneously inside the cavity. I will present the materials and surface characterization of pure Cu 3.9 Ghz cavities fabricated by additive manufacturing (selective laser melting) with cooling channels imbedded in the walls. The cryogenic test will also be presented.

Presenter: Dr PROSLIER, Thomas

Session Classification: Advanced substrates

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