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Nb coatings, from 1.3GHz to 400MHz

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CERN developed significant know-how in the design and fabrication of niobium-coated copper superconducting radiofrequency (SRF) cavities for accelerators, from LEP to the LHC and HIE-ISOLDE. While 400MHz Nb-coated Cu cavities are being considered for the leptonic machine variants of the FCC, further optimization is required to comply with the established performance targets.

The work presented will focus on recent R&D efforts performed at CERN on the Nb thin film-coatings to ultimately raise the performance of the Nb/Cu cavities, as they constitute key elements to achieve running-feasibility for the FCC. Fundamental studies performed on samples and 1.3 GHz test cavities will be summarized. Recent advances and planned activities on the 400 MHz Nb/Cu coatings program at CERN will also be presented.

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