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SRF R&D 1.3 GHz test results at CERN

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Niobium coated copper cavities proved their usefulness in several accelerators (e.g. LHC, HIE-ISOLDE). They allow operation at 4.5 K instead of 1.9 K leading to significant increase in the efficiency of cryogenic cooling. The main limitation of these cavities have been the significant Q-slope (the degradation of quality factor with increasing accelerating gradient). Another difficulty is caused by the thermoelectric currents induced in the bimetal junction between the niobium and the copper. Several years of research have been dedicated to produce better substrates and to optimize the coating parameters, to reach the target performance necessary for FCC-ee. In this work I present the results of the past measurements, as well as our current aim at improving the cavity performance, and achieving more reproducible cavity preparation and testing, as reproducibility will be critical to produce the number of cavities necessary for FCC-ee.

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