

A New Fabrication and Stiffening Method of SRF Cavities, S. BOUSSON, A. CARUETTE,
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SACLAY - A new fabrication method of SRF cavities is proposed. The principle is to spray a copper layer onto a thin wall niobium cavity. The main advantages of this technique are fabrication cost reduction and simplicity of the method for cavity stiffening. Cavity stiffening is necessary to insure the frequency stability. Numerical simulations were performed to demonstrate the efficiency of the stiffening on the reduction of the cavity frequency shift due to Lorentz forces. A first series of cavities (1.3 GHz and 3 GHz) were fabricated and the corresponding cold RF tests are presented. In order to study the effect of the plasma sprayed copper layer on the heat transfer to the liquid helium, the thermal conductance of different samples (niobium-copper samples and pure niobium samples) was measured in a dedicated test-cell and the results are discussed.