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Update in deposition of Nb thick films on Cu for 6 GHz cavities

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One of the well-known difficulties concerning the performances of the Nb coated Cu cavities, is the reproducibility of the results. Two cavities fabricated by the same method and sputtered with the same deposition parameters, may present different performances during the RF characterization. Two main approaches are taken into consideration for this research: substrate and film reproducibility. In order to improve the substrate reproducibility, the standard mechanical grinding of the 6GHz cavities that leads to defects on the inner surface of the cavities that can remain even after chemical treatments, has been replaced for Vibrotumbling technique in order to improve the inner surface of the cavities. For the film reproducibility, a Nb thick film between 40 and 70 microns is deposited to reproduce the bulk niobium superconducting properties. On the other hand, we report the installed experimental setup to study the influence of trapped flux in 6 GHz cavities in: Nb bulk, Nb on Cu thin film and Nb on copper thick film.

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