ELECTRO-CHEMICAL COMPARISONS BETWEEN BEP AND STANDARD EP OF NIOBIUM

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Introduction: Buffered Electro-Polishing (BEP) is a treatment technique developed at JLAB [1], which gives excellent results in terms on roughness on flat samples. An organic acid (lactic acid C₃H₆O₃) is used in BEP: The electrolyte is prepared mixing 4 volumes of HF 40%, 5 volumes of H₂SO₄ 95%, and 11 volumes of C₃H₆O₃ 95% (mass percents). This process is also applied to polish single-cell cavities for tests in different laboratories [2,3]. At CEA Saclay, some electrochemical studies have been carried out on samples in order to determine electrochemical mechanisms involved in BEP compared to standard Electro-Polishing of niobium (HF-H₂SO₄ mixtures).



DSM/IRFL/SACM / 14th International Conference on RF Superconductivity Berlin - Dresden