

DC Field Emission of Nb Samples prepared in TESLA Cavities, A. GÖHL, T. HABERMANN, G. MÜLLER, D. NAU, FB8 Physik, Univ. Wuppertal; D. PROCH, D. RESCHKE, DESY Hamburg - Non-resonant electron loading is still a major obstacle of the superconducting Niobium cavities at the TESLA Test Facility especially at accelerating fields above 20 MV/m, i.e. peak electric surface fields E_p above 40 MV/m. One of the reasons is that the cleaning of the actual multicell cavities is much more difficult than that of small samples which do not show field emission (FE) below $E_p = 100$ MV/m after careful surface preparation. Therefore, we have investigated Nb samples, which have been wet-chemically prepared inside TESLA cavities, by means of a dc field emission scanning microscope. The FE of such samples starts at $E_p = 20$ MV/m with a typical density of 10 emitters per cm^2 at $E_p = 80$ MV/m, which are mostly particles of about $1 \mu\text{m}$ in size. Results on FE characteristics and particle morphology and composition before and after conditioning will also be presented.