

Field Emission Investigation in a SRF Cavity Contaminated with Alumina Particles,

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special SRF cavity operating at 3.6 Ghz dedicated to Field Emission studies has been successfully tested.

Before the contamination the cavity reach a maximum surface electric field of 95 MV/m with a threshold for electron emission at 40 MV/m. The cavity was

contaminated in a controlled way with alumina particles of calibrated size. Several diagnostic devices

are installed around the cavity: a rotating array of X-ray detectors for location of electron trajectories and

several optical detectors for observation of the high field area of the cavity surface through a view port.

Preliminary results with the contaminated cavity are presented, particularly the observation of luminous

radiation emitted from discrete regions of the cavity surface and its correlation with field emission.