

The Beams and Applications Seminar Series

Investigation of niobium cavity quench at Fermilab

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**Bldg. 401, Room B2100
Tuesday Oct. 26, 11:00 AM**

Host: Ali Nassiri

Abstract: Fermilab developed highly successful processing techniques for 1-cell cavities. Field emission in 1-cell cavity was completely under control. Magnetic field quench became dominant niobium cavity performance limitation. Optical inspection and surface replication of cavity equators revealed large number of surface defects in both 1-cell and 9-cell ILC cavities. The analysis indicated the surface topology and roughness played secondary role in cavity performance limitations in modern niobium cavity processing. Never the less, a laser system is developed to smoothen the surface features. 1-cell cavity test showed the laser technology improved one cavity gradient to 41 MV/m.

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