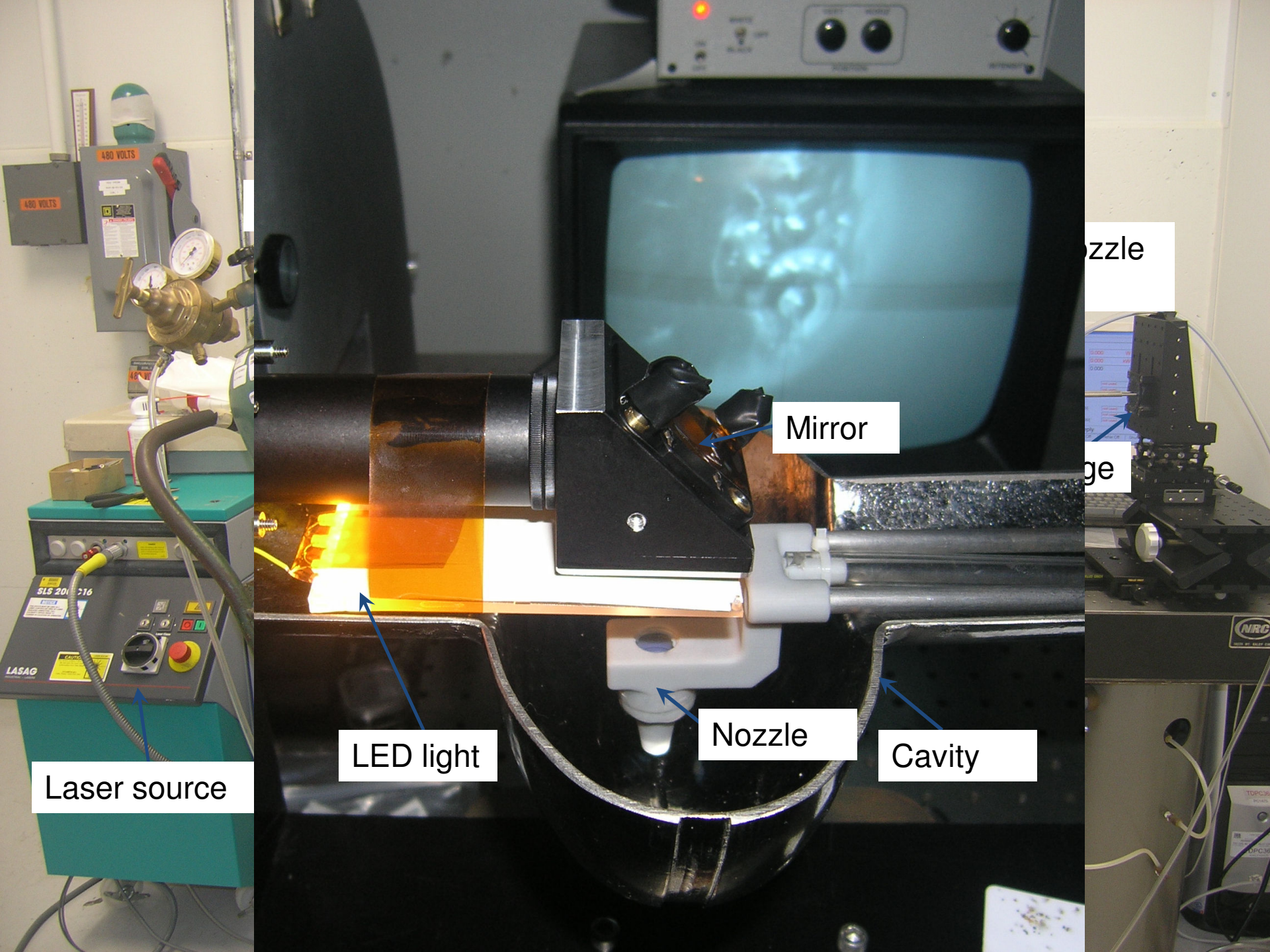


Laser re-melting pit technique for single-cell SRF cavity gradient pushing

Mingqi Ge, Genfa Wu, Jinhao Ruan,
Thomas nicol, Lance Cooley



Laser source

LED light

Mirror

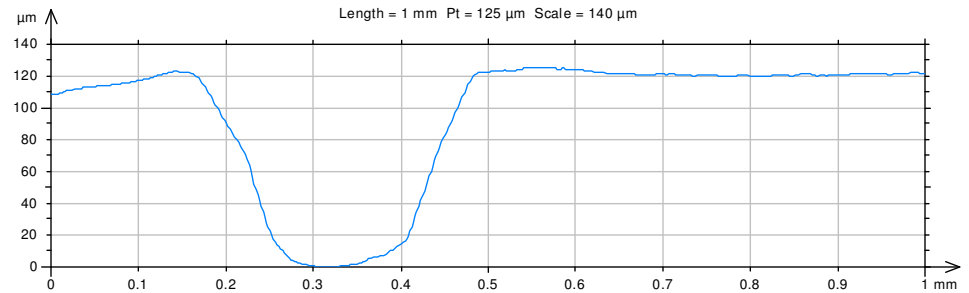
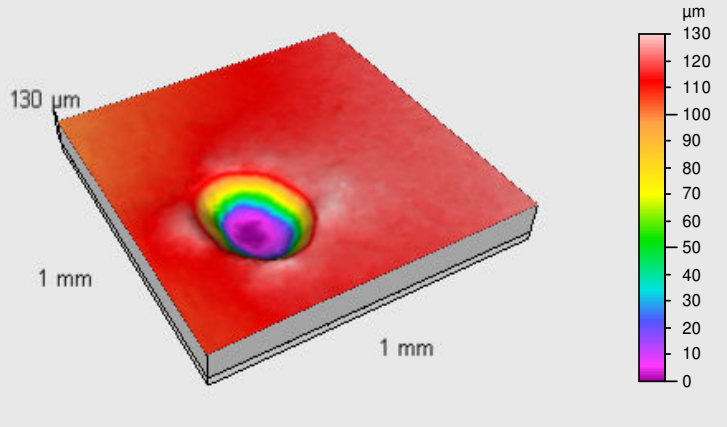
Nozzle

Cavity

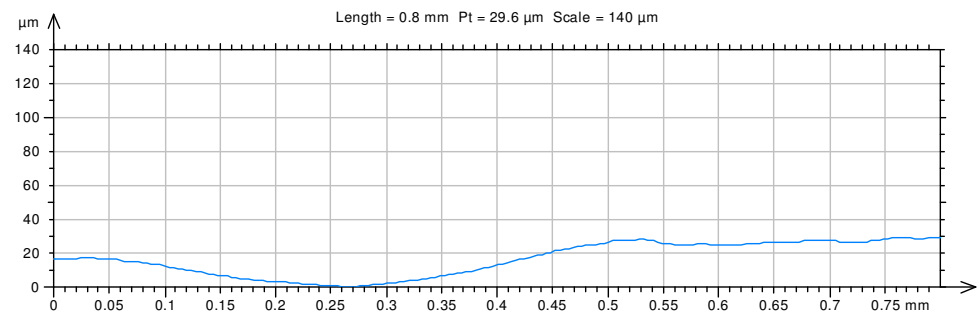
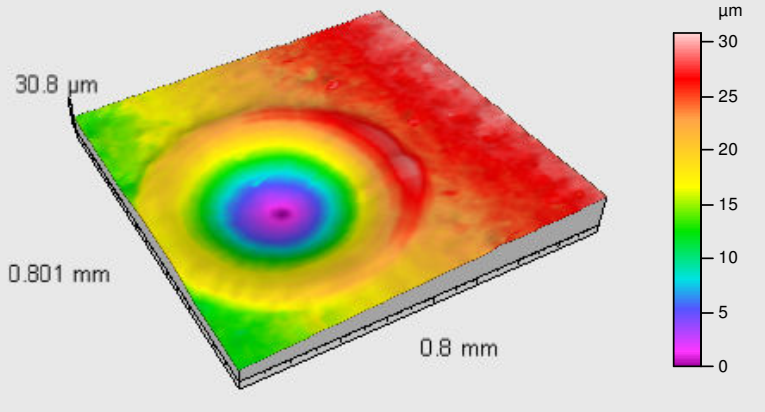
Nozzle

Cavity

Profile Comparison before and after laser re-melting

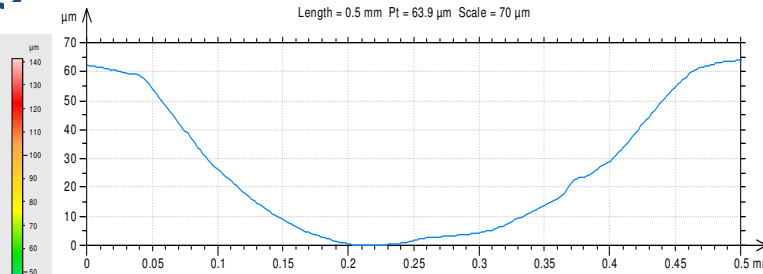
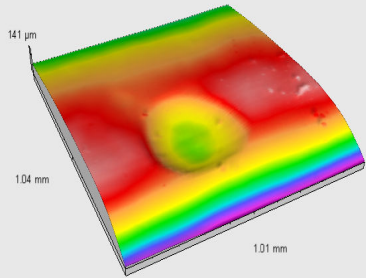


Manmade pit



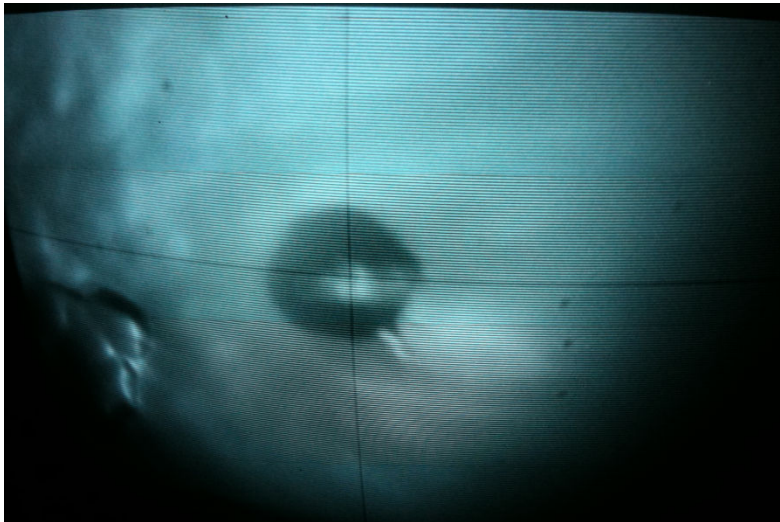
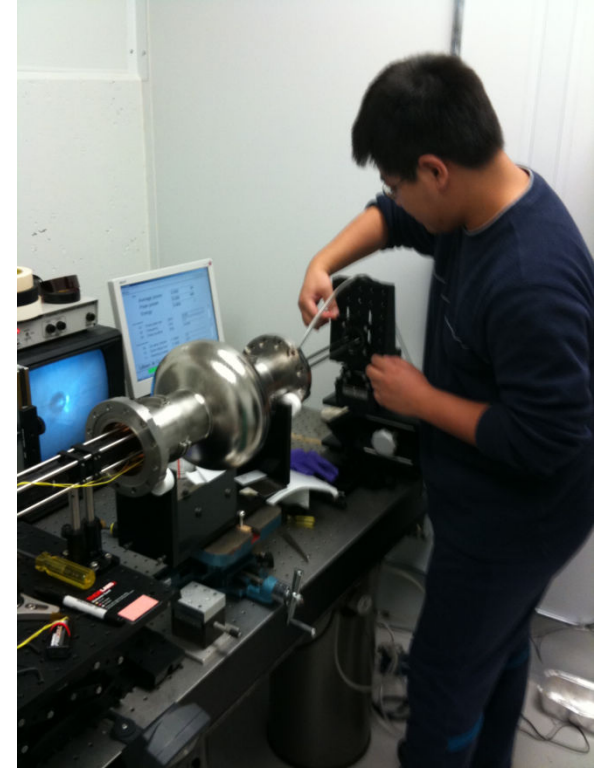
After re-melting the pit depth changed for 120μm to 30 μm

Laser processing of 1.3GHz single-cell cavity TE1ACC003

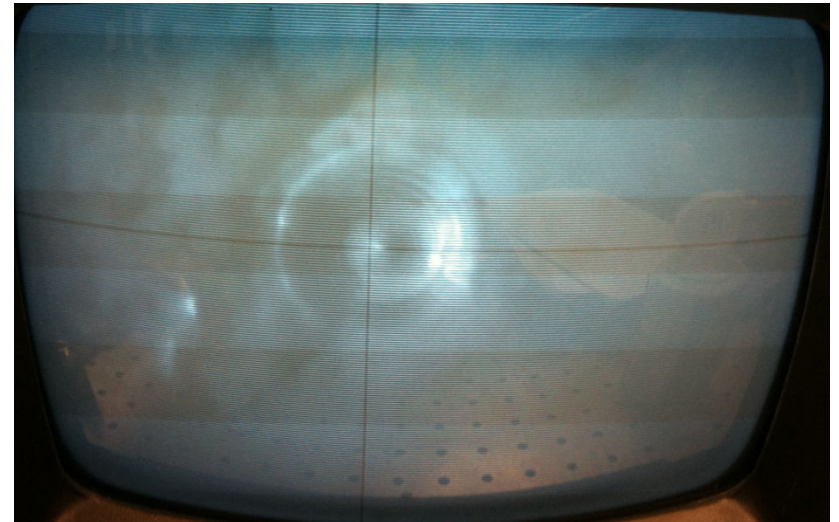


400 micron in Diameter

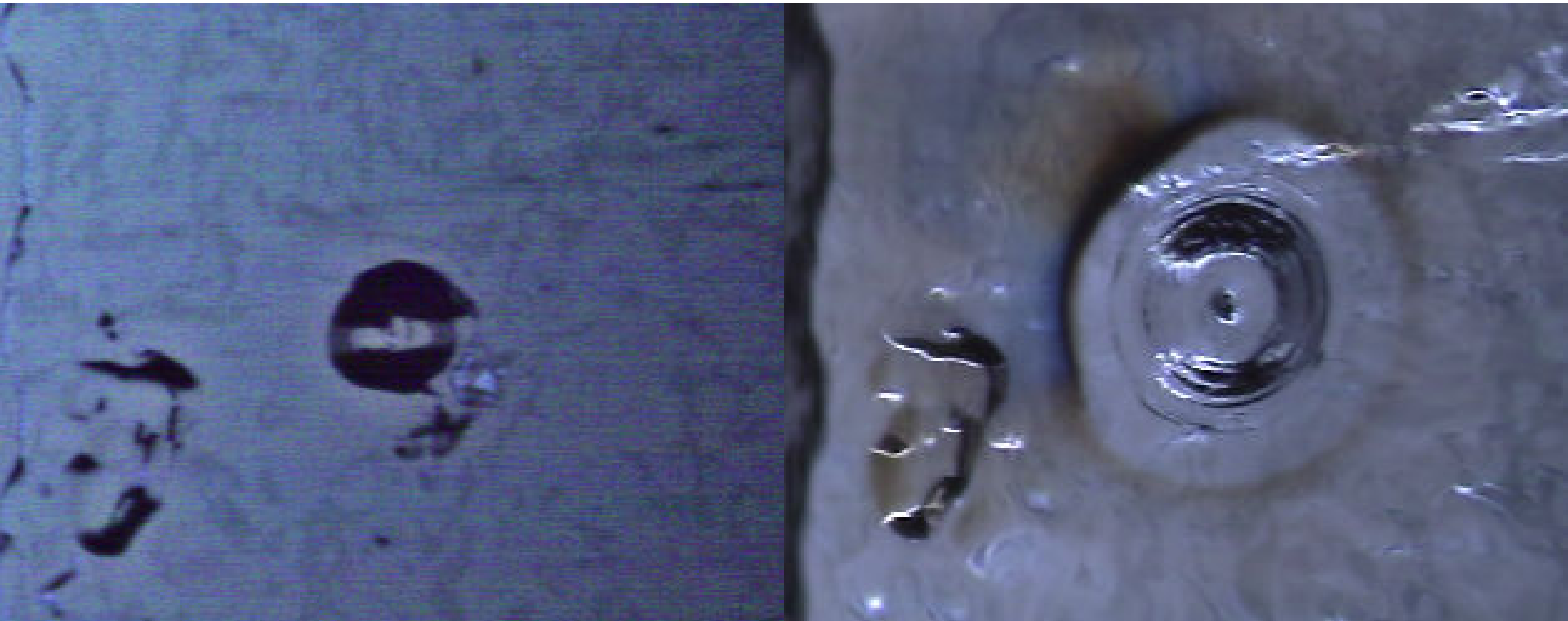
60 Micron in depth



The Pit before re-melting



After re-melting

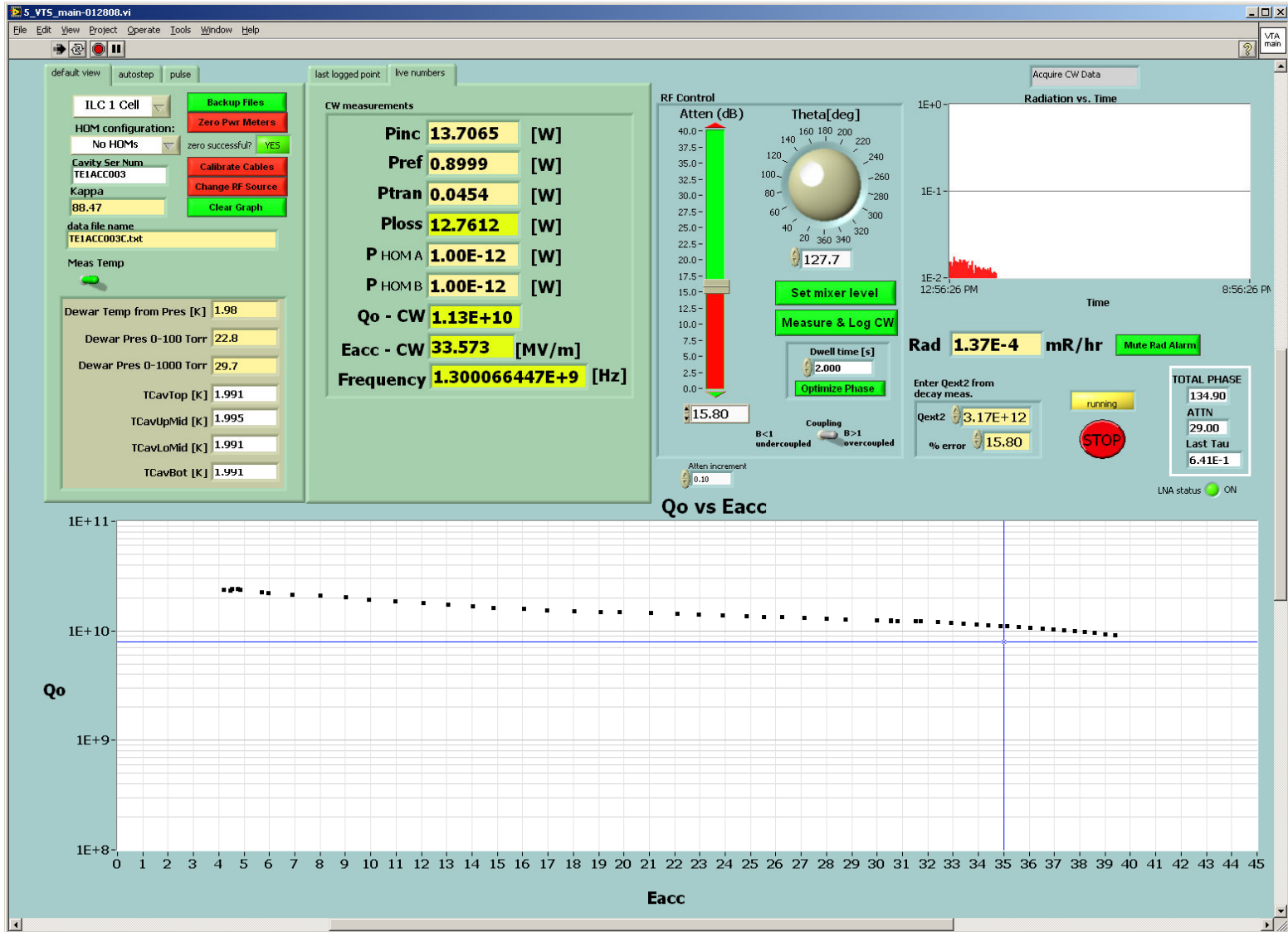


The Pit before re-melting

After re-melting

Images was taken from Kyoto Optical Inspection machine

Cavity TE1ACC003 vertical test result after laser processing ($E_{acc}=39.5\text{MV/m}$)



TE1ACC003 - Q vs E

Tested on 01/15/2010 compared to gradient before laser re-melting

