

# Modular Cavity update

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# History of high power runs

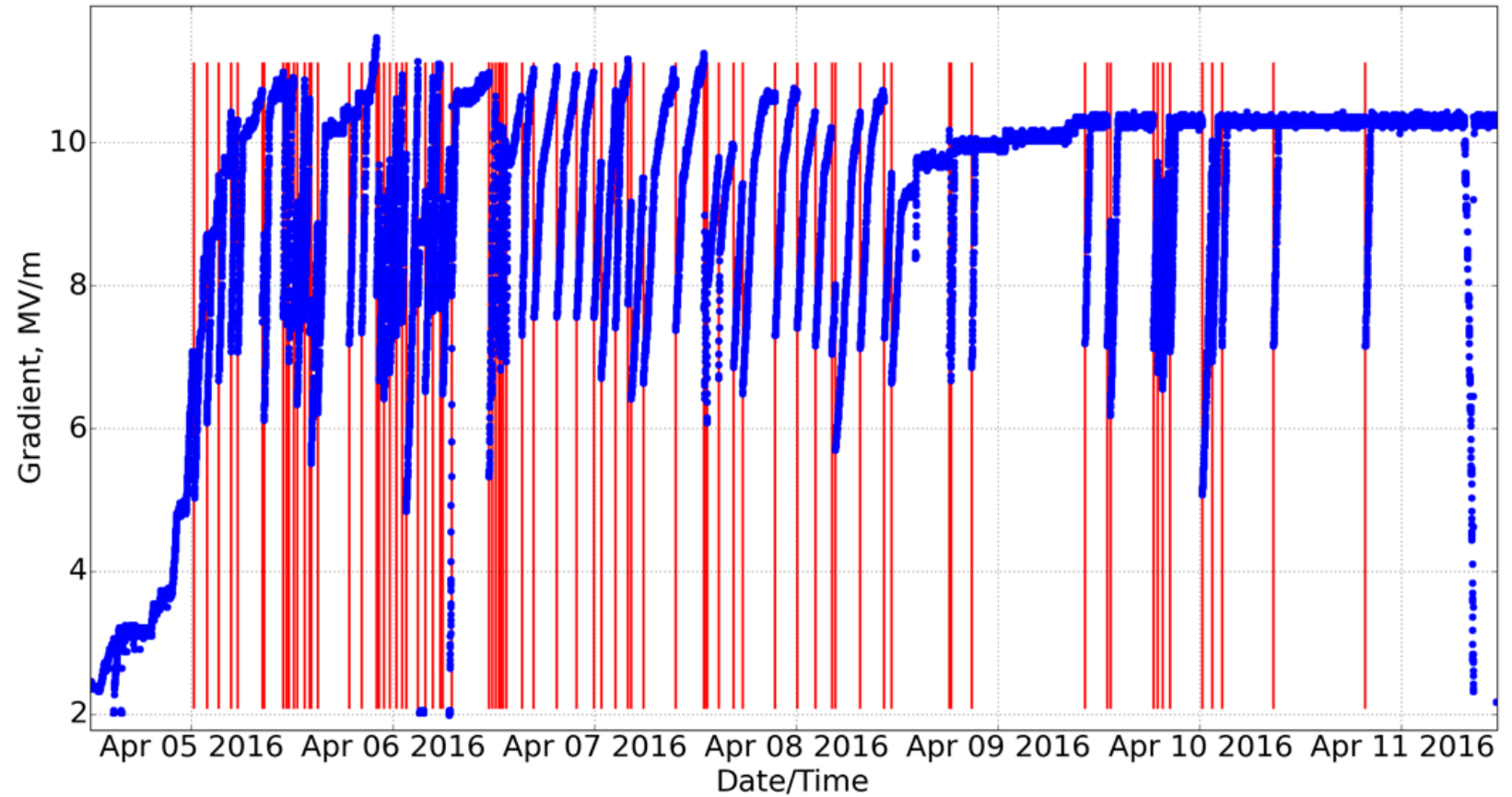


- Oct'15: B=0T run, Safe Operating Gradient (SOG) of  $\sim 45$  MV/m
- Dec'15: B=3T run, stable operation below 12 MV/m
- Feb'16: B=0T “conditioning” run, reached gradient 20 MV/m
- April 4<sup>th</sup> – 11<sup>th</sup> : second B=3T run

# Second B=3T: run history

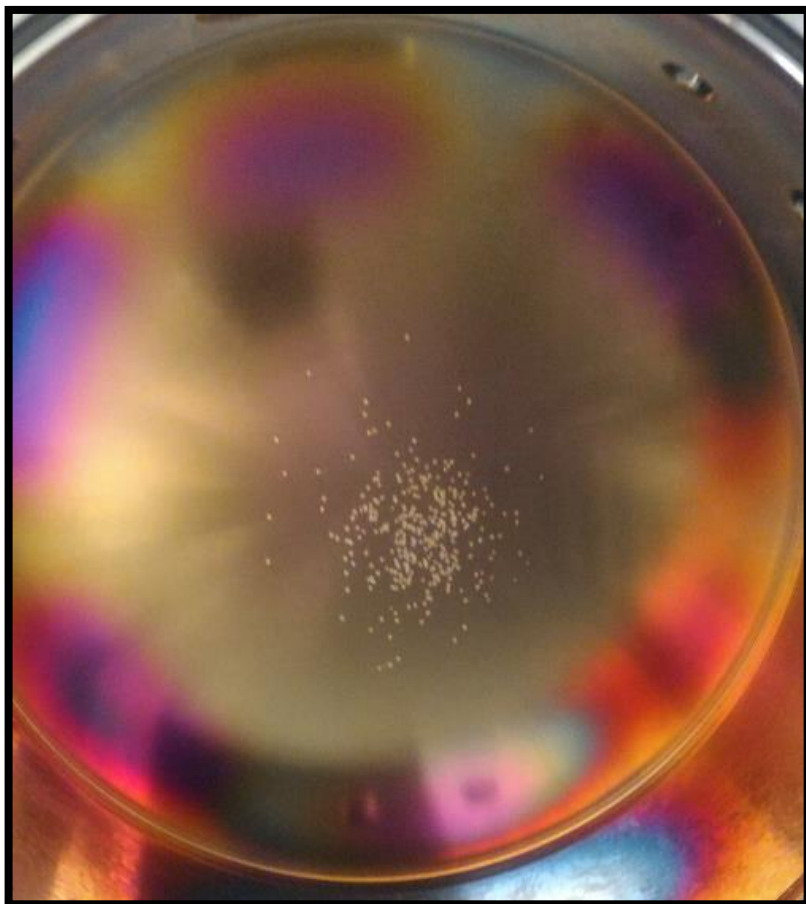
- Established SOG around 10MV/m
- 81 sparks detected
- No real effect from B=0T “conditioning” run
- Inspection is currently in progress

Gradient history graph

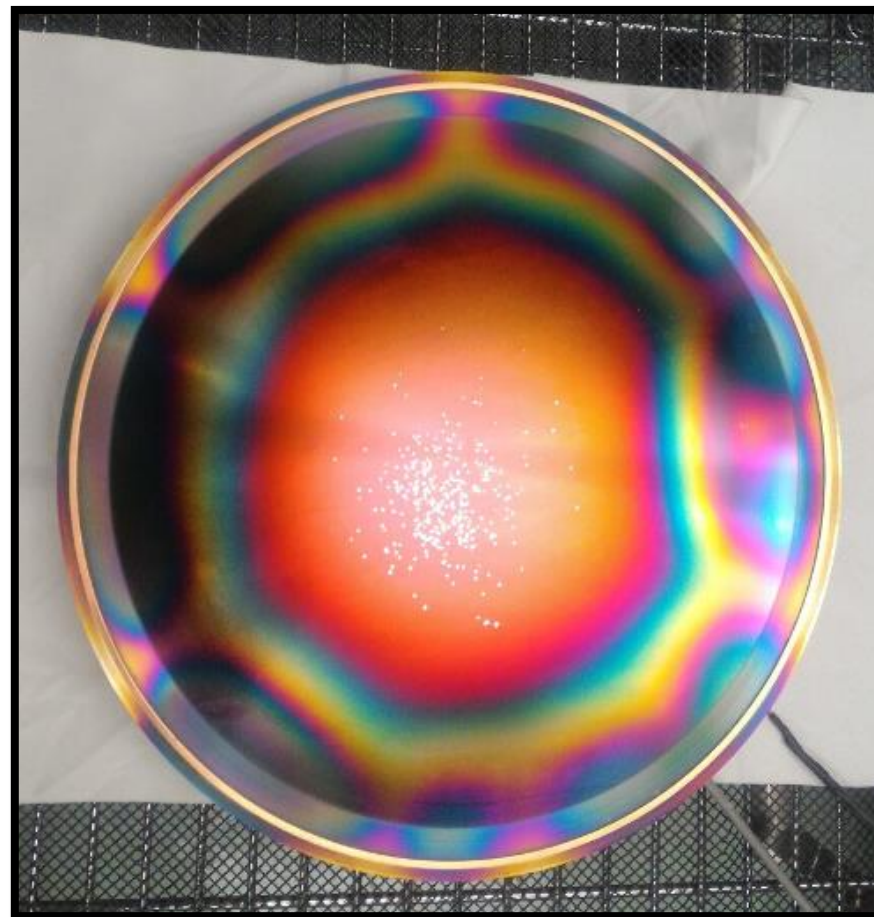


# Inspection after second B=3T run (in progress)

Upstream endplate



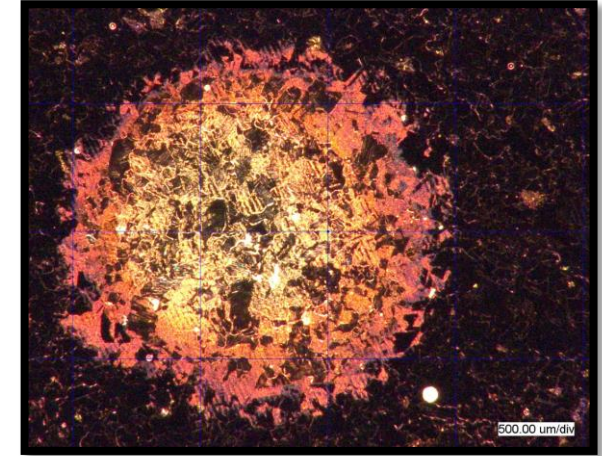
Downstream endplate



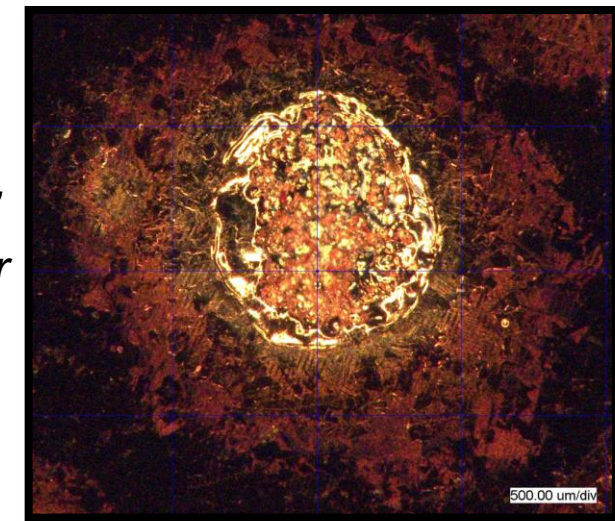
# Inspection after second B=3T run

- Similar to previous inspection after B=3T run
- BD pits – “volcanos”, about 1mm in size, some have a melted core in the middle – “crater”. Also, splashing.
- Matching patterns on opposing endplates
- Number of pits observed (~250) exceeds number of sparks detected (81)

*Flat  
“volcano”*



*“Volcano”  
with crater*

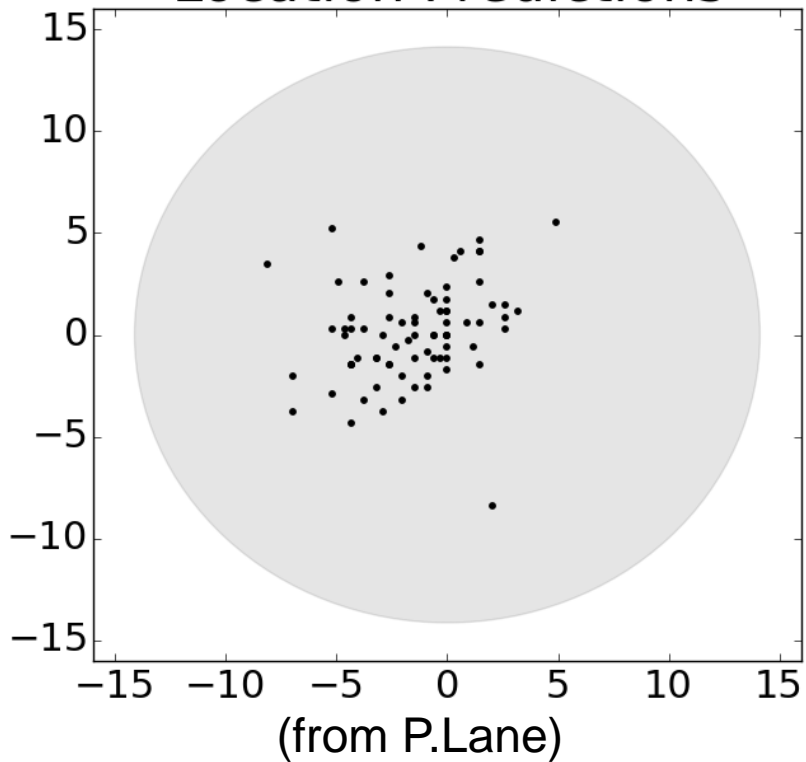


2mm

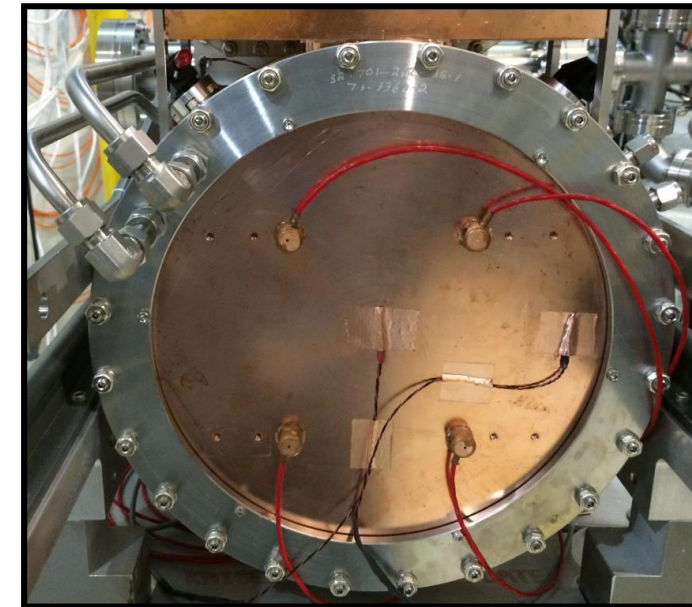
# Acoustic damage localization

*Can we correlate the observed damage to predictions from acoustic localization?*

## Modular Cavity Upstream Location Predictions



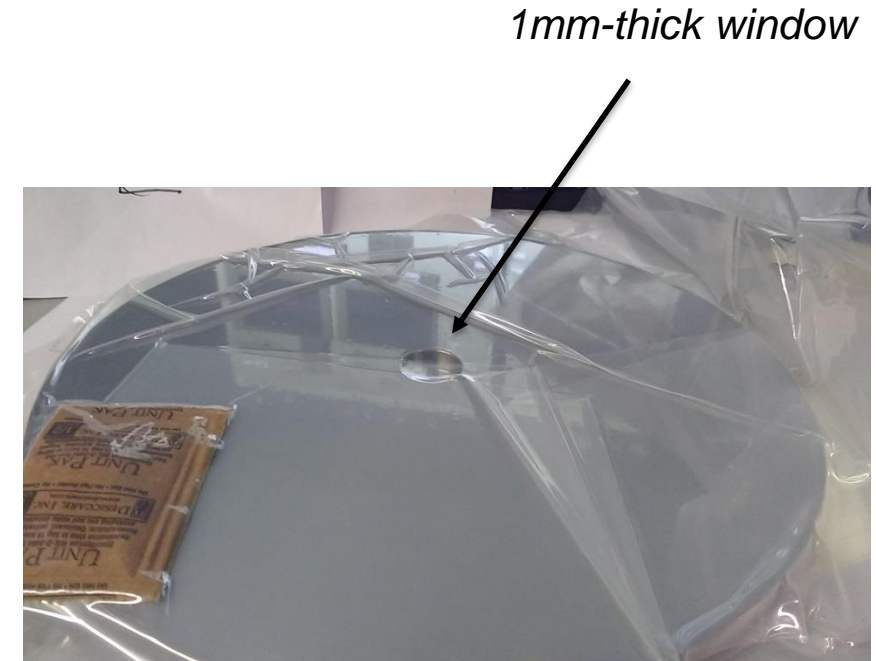
- Does not show error bars of ~2cm
- Needs to be recalculated for changed configuration of microphones



*Microphones on copper endplate*

# The next high power run will happen with Beryllium endplates

- We have set of 3 new Be endplates
- Plates are at LBNL ready for TiN coating
- Will proceed as soon as funding mechanisms are worked out
- Be endplates will enable us to do direct dark current measurements (photo film, faraday cup)



*Beryllium endplate in a sealed bag*