

# PROTON DETECTOR DISCUSSION

CCFE, FIU, PPPL

## Attendance

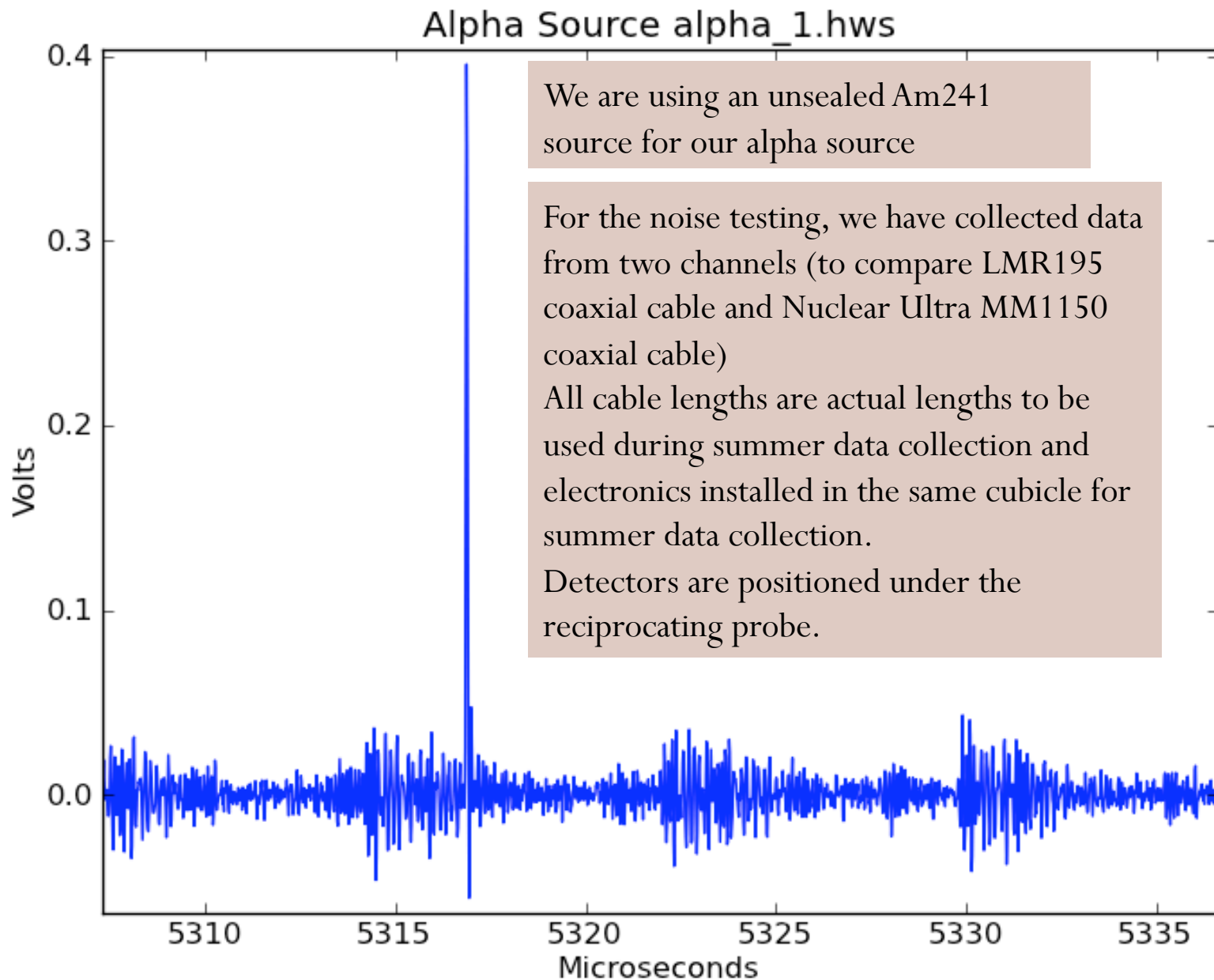
FIU: Werner Boeglin, Ramona Perez

PPPL: Douglass Darrow

CCFE: Rob Akers, Scott Allan, Vasili Kiptily, Ken McClements,  
Sergei Sharapov, Nigel Thomas-Davis

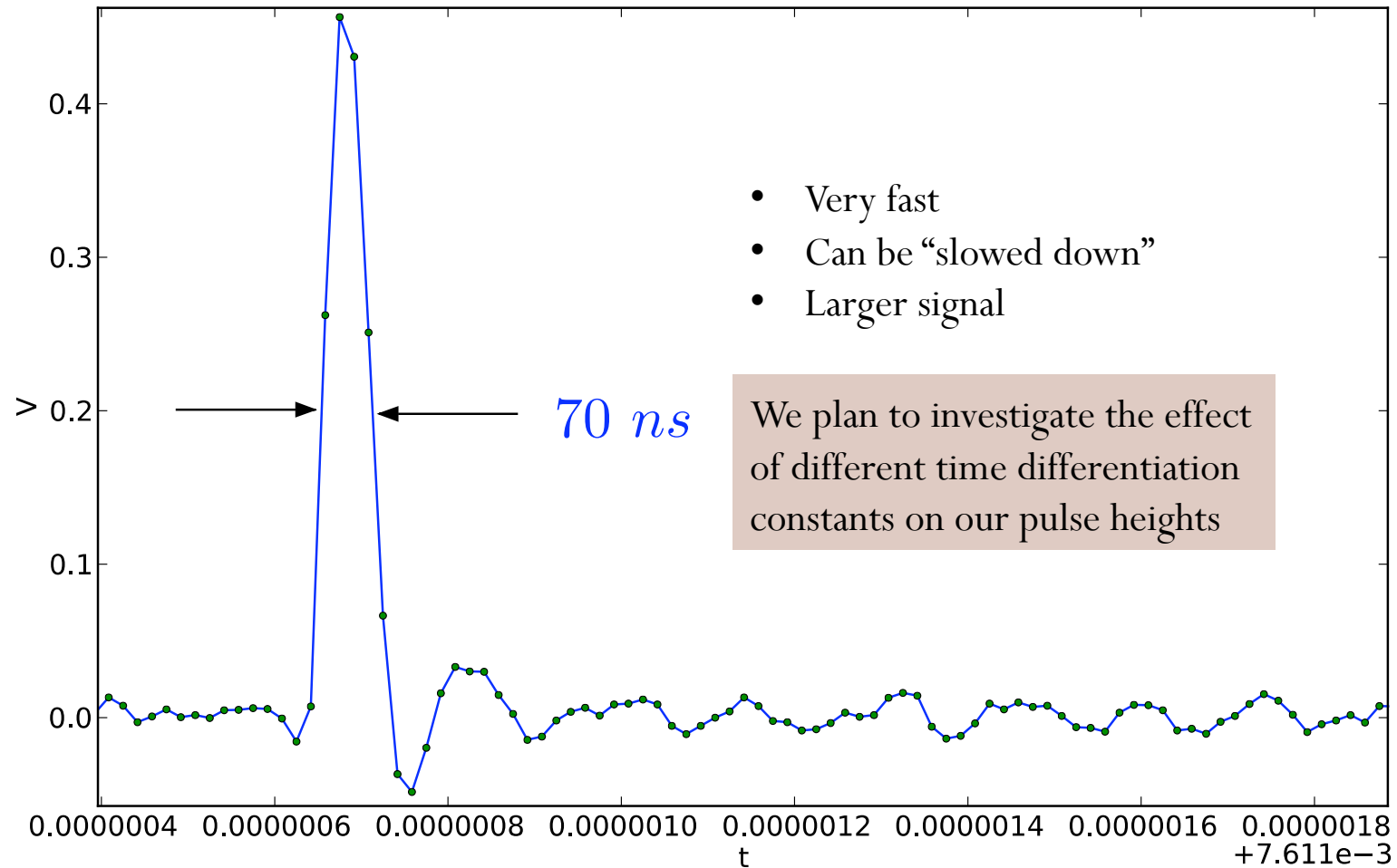
Comments in these boxes

# Alpha source – Background Noise

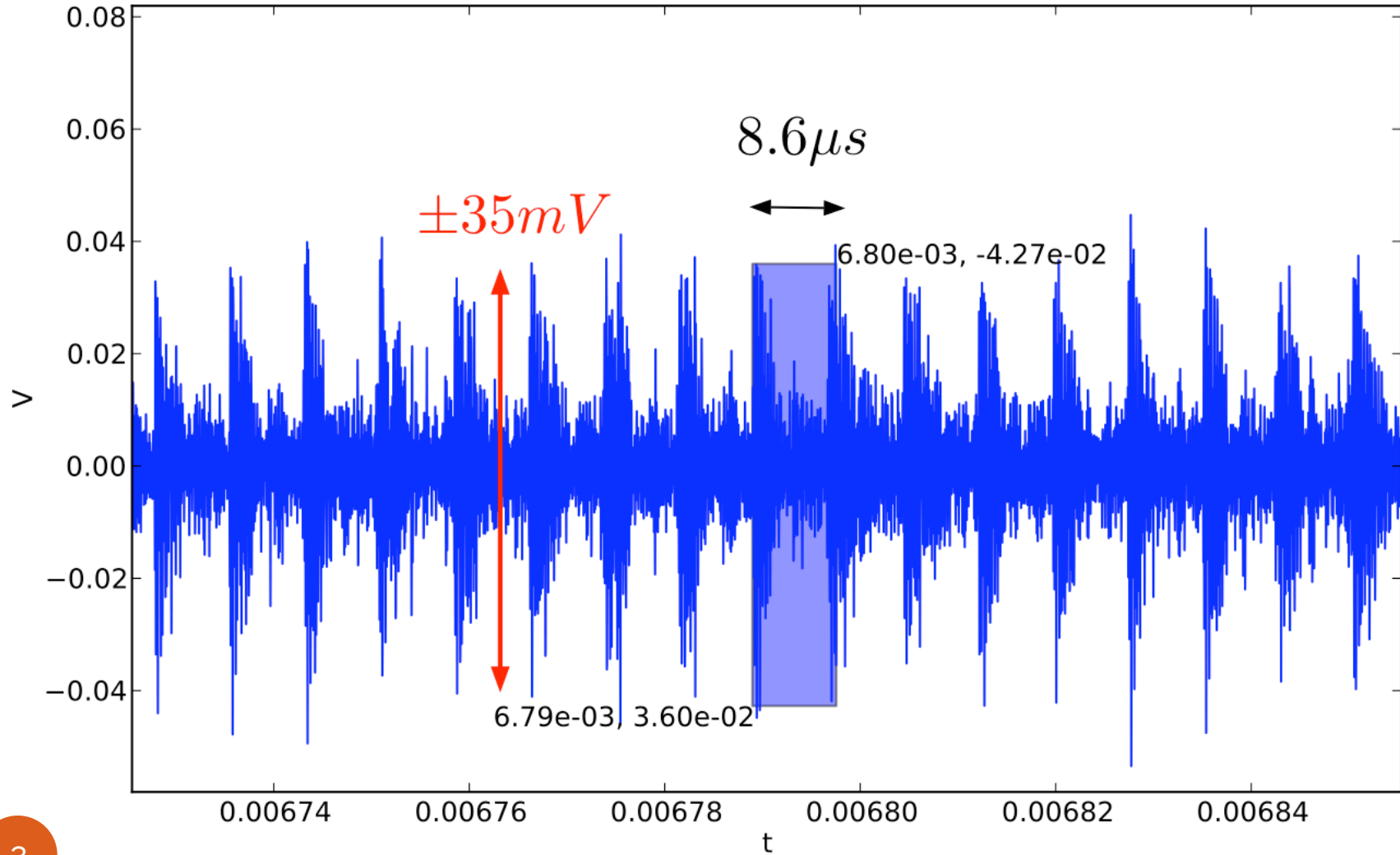


# Alpha signal pulse = 1 Event

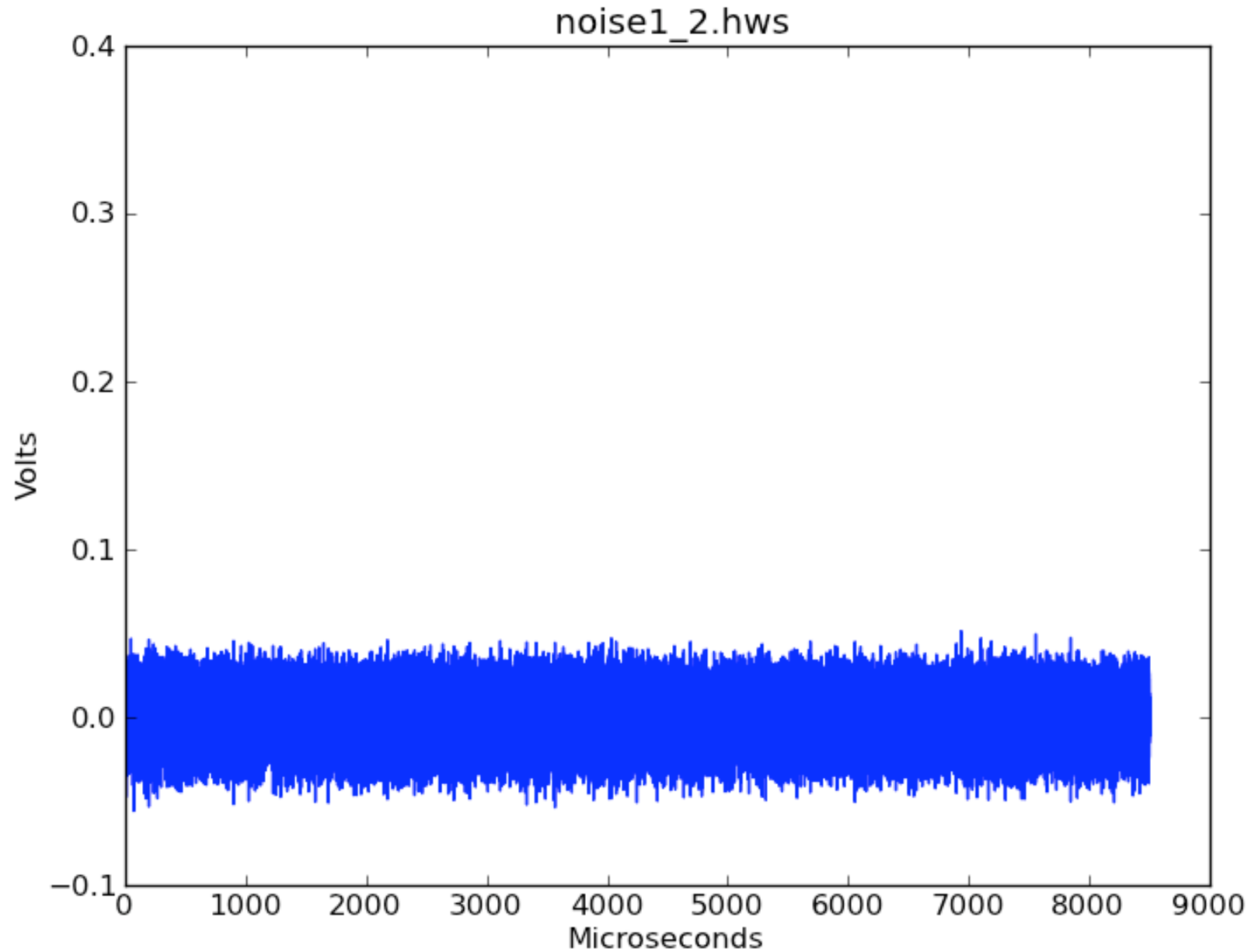
$$E_{\alpha} \approx 3 - 3.5 \text{ MeV}$$



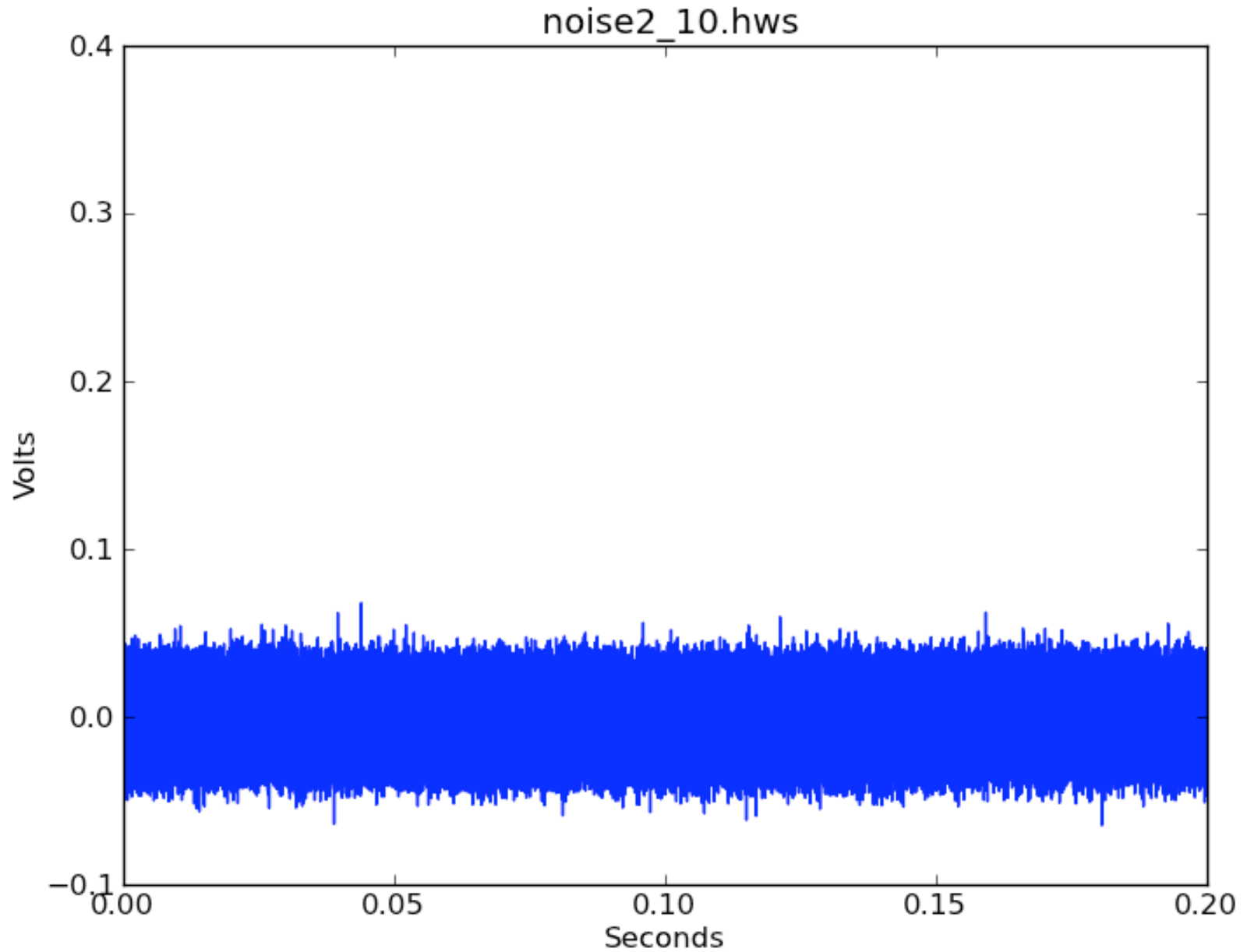
# Noise with Alpha source



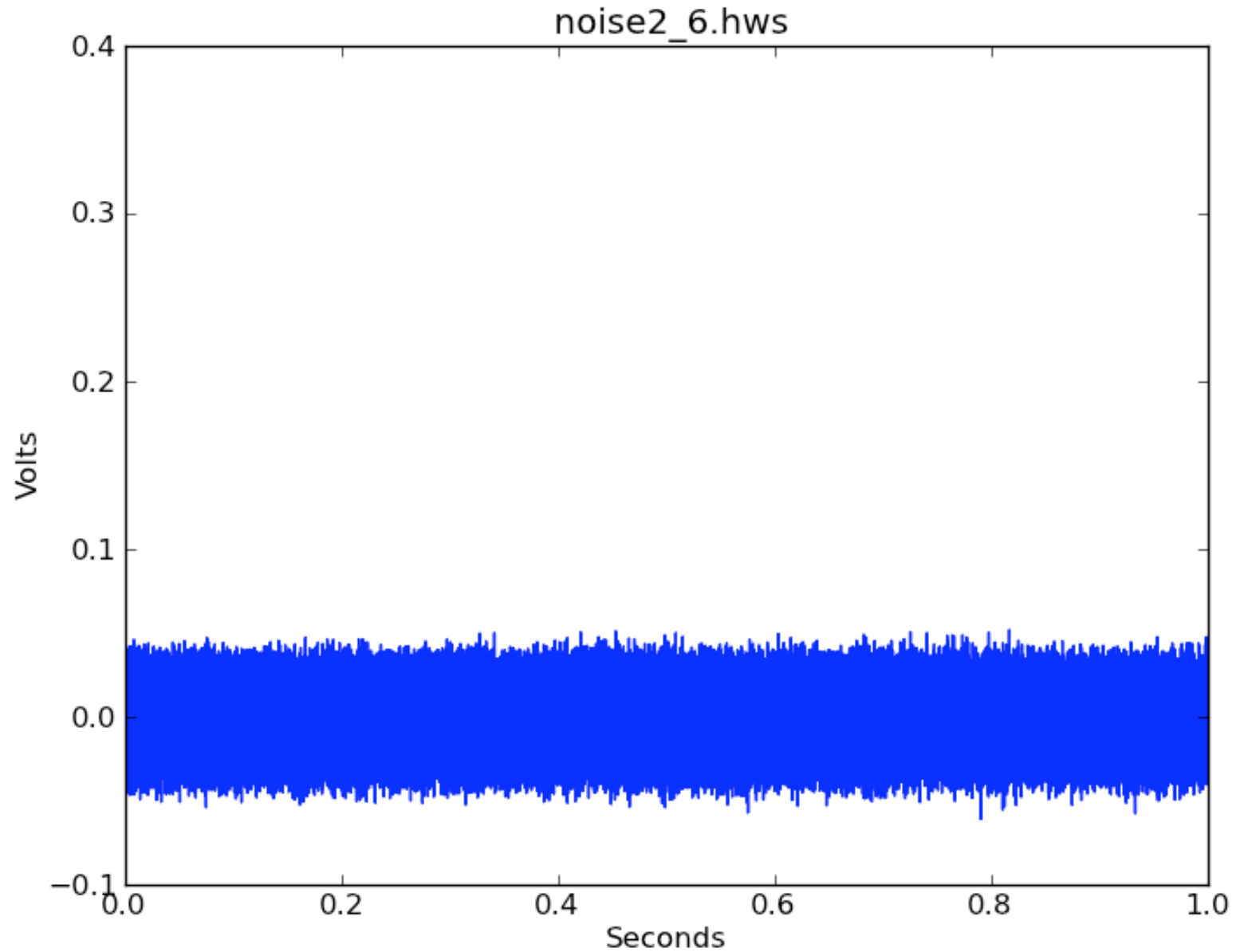
# No Alpha source – Background Noise



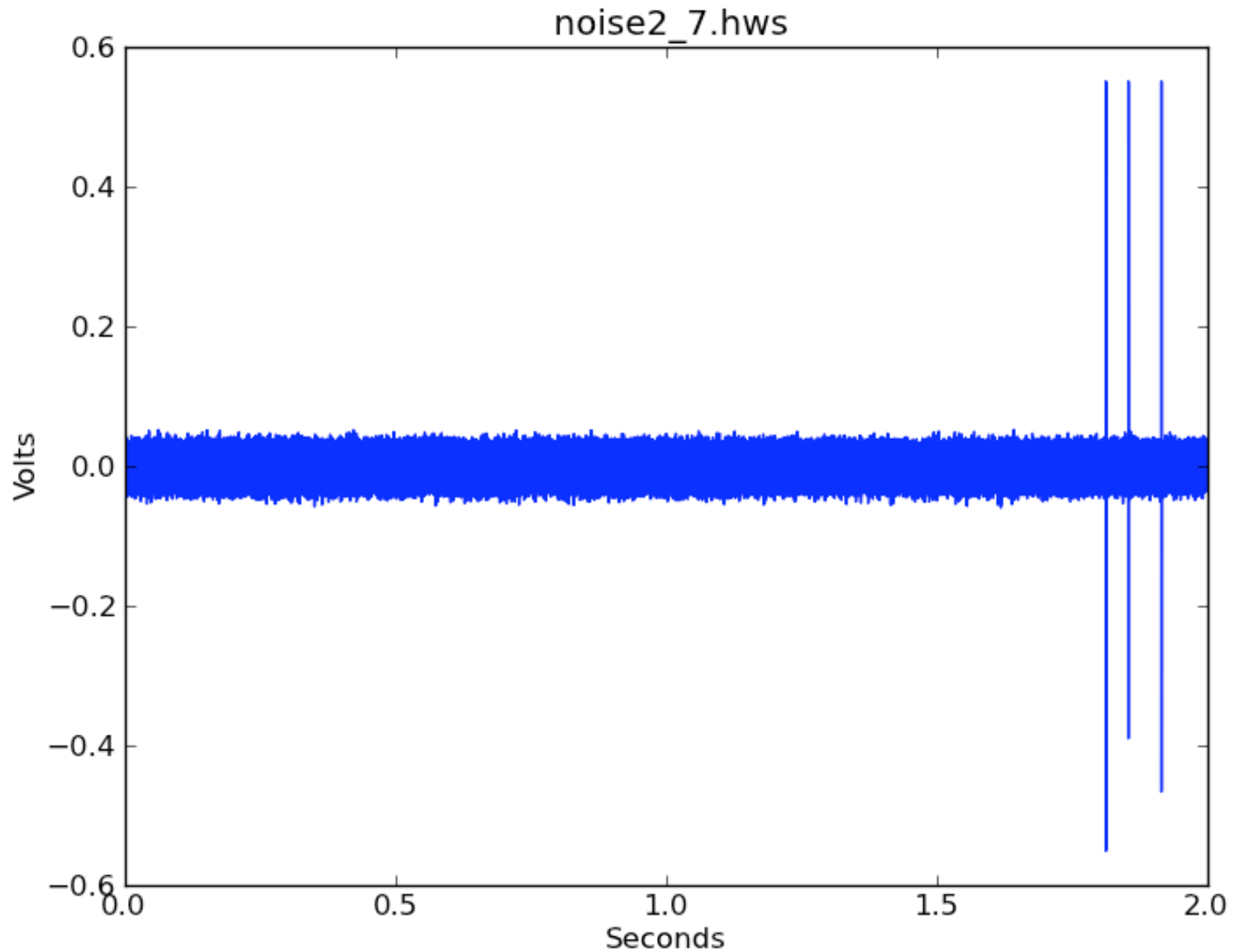
# No Alpha source – Signal during TF Trip Test



# No Alpha source – Signal during NB

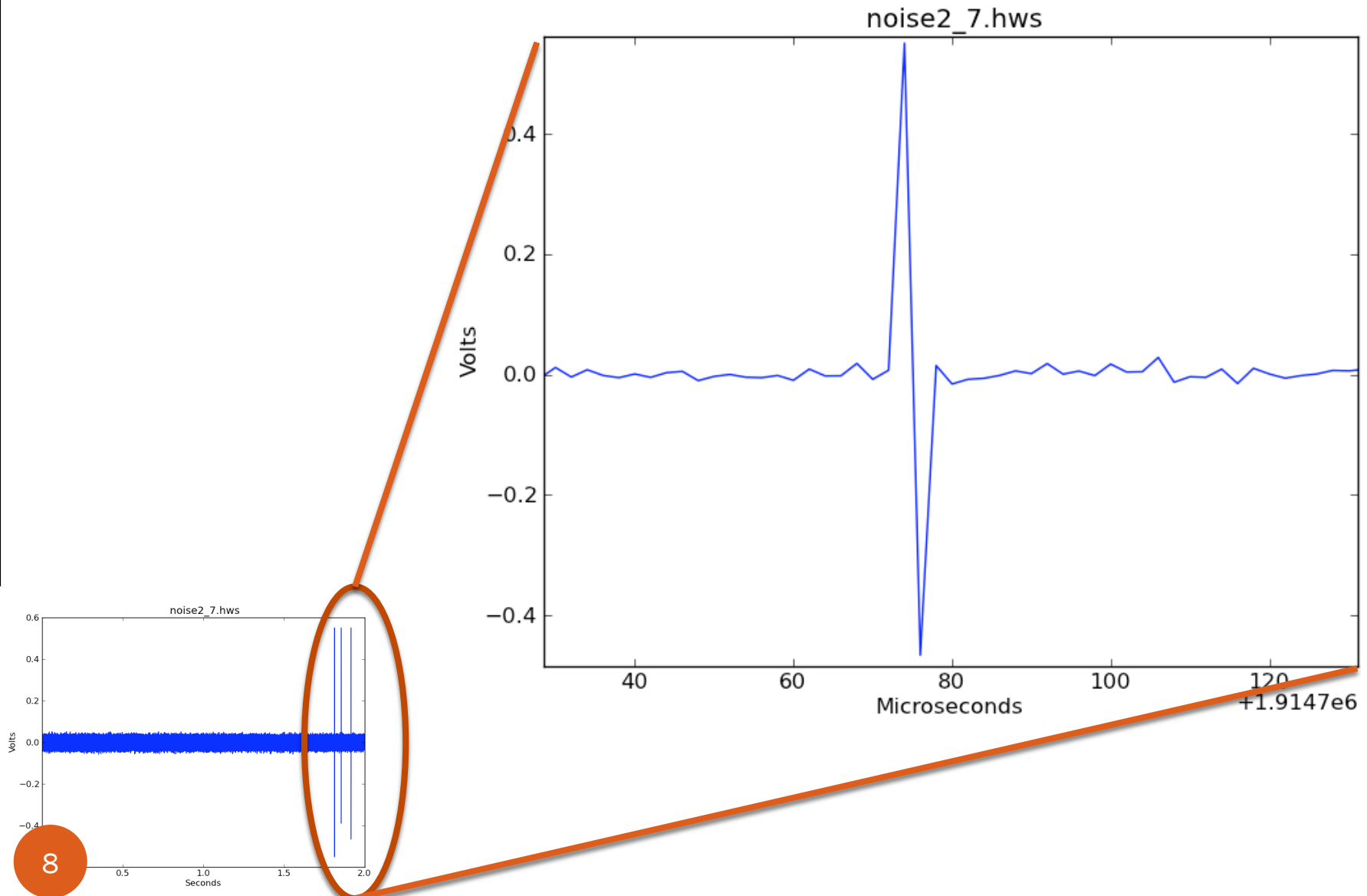


# No Alpha source - Signal during NB HV Breakdowns



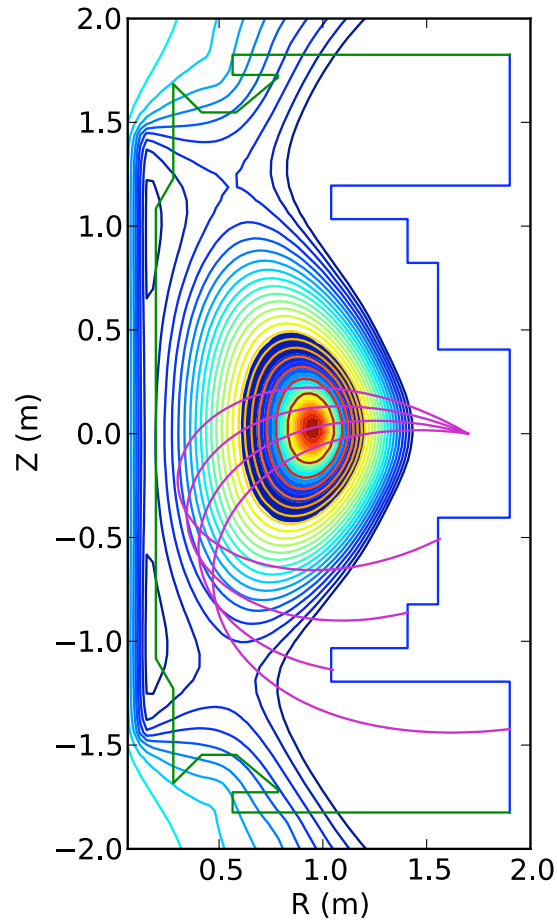


# Signal during NB HV Breakdowns

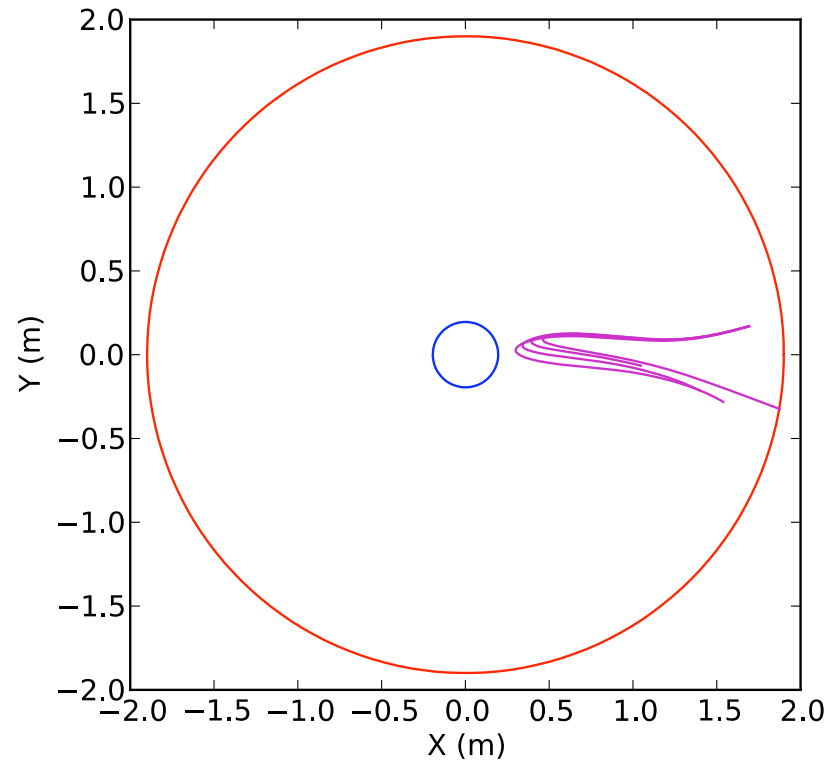


# Probe Head Orientation

./MAST\_efit/gMAST\_shot\_26887.dat



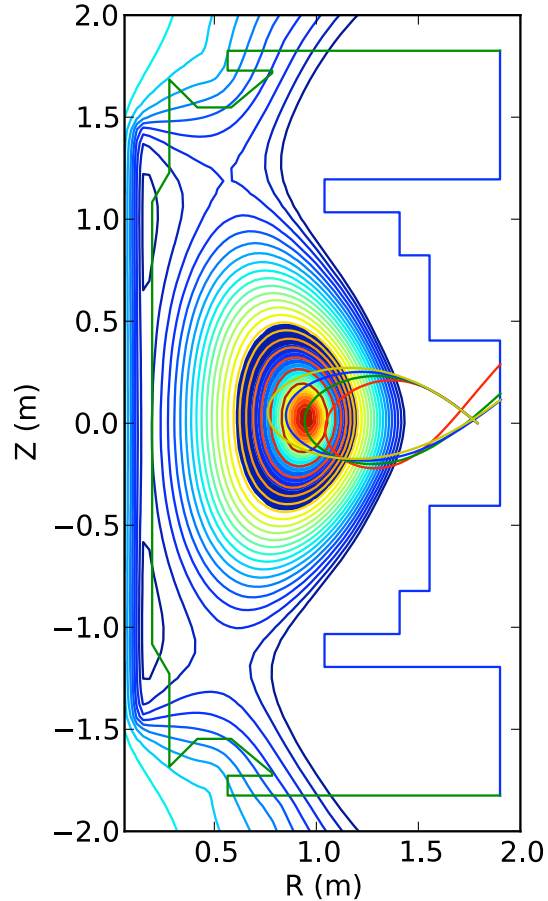
We want to compare simulations with Rob Akers



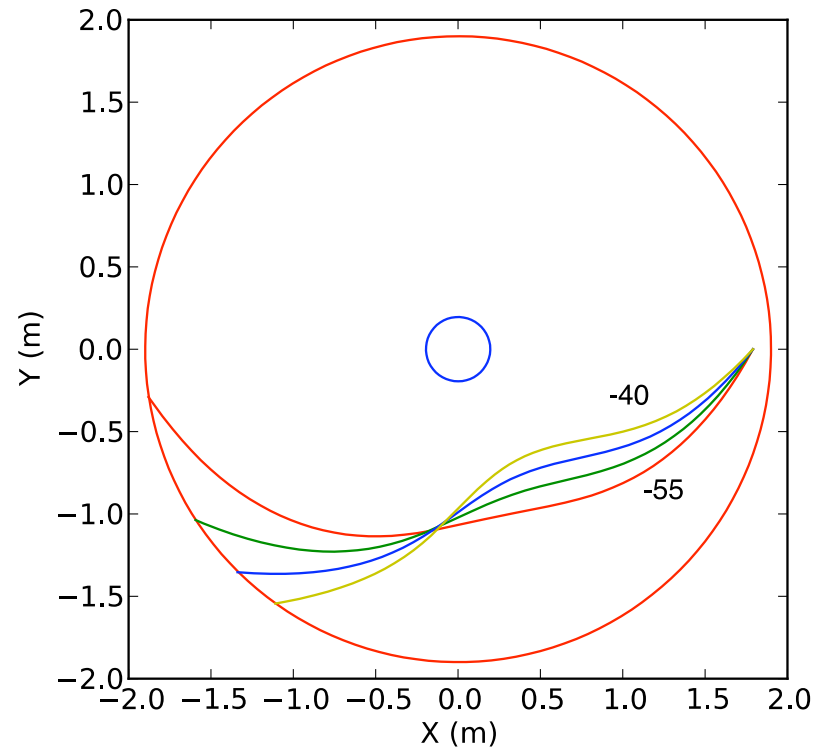
- Original orientation
- Sensitive to vertical position/ structure
- Difficult to compare with neutron camera

# Probe Head Orientation Cont'd

./MAST\_efit//gMAST\_shot\_26887.dat



We want to compare simulations with Rob Akers



- New orientation
- Sensitive to radial structure
- Closer to neutron camera views
- Need to adjust probe head design

Remote testing might continue until April 26<sup>th</sup>

# Proton Detector (PD) Timeline

DATE RANGE	GOALS
March 11 <sup>th</sup> –March 22 <sup>nd</sup>	<ul style="list-style-type: none"><li>• PD noise testing</li></ul>
March 22 <sup>nd</sup> –April 19 <sup>th</sup>	<ul style="list-style-type: none"><li>• Remote PD noise testing (FIU: Ramona, CCFE: Scott)</li></ul>
April 22 <sup>nd</sup> –April 26 <sup>th</sup>	<ul style="list-style-type: none"><li>• Uninstall PD (CCFE: Scott)</li><li>• Take all equipment to Rory Conway for return shipping by morning of April 25<sup>th</sup> (CCFE: Scott)</li></ul>
July 1 <sup>st</sup> –July 15 <sup>th</sup>	<ul style="list-style-type: none"><li>• PD installation (FIU, CCFE)</li></ul>
July 16 <sup>th</sup> –July 26 <sup>th</sup>	<ul style="list-style-type: none"><li>• PD data collection (FIU)</li></ul>
July 27 <sup>th</sup> -End of campaign	<ul style="list-style-type: none"><li>• PD remote parasitic data collection (FIU: Ramona, CCFE: Scott)</li></ul>
End of campaign	<ul style="list-style-type: none"><li>• Uninstall PD and take equipment to Rory Conway (CCFE: Scott)</li></ul>

END OF SLIDES

CCFE, FIU, PPPL

# Total Exploded View

Silicon surface barrier detectors

Detectors connected to preamplifier (3m away), and amplifier/digitizer/PC system (12m away)

Please note that for the noise testing we have simulated all of these coaxial cable lengths

