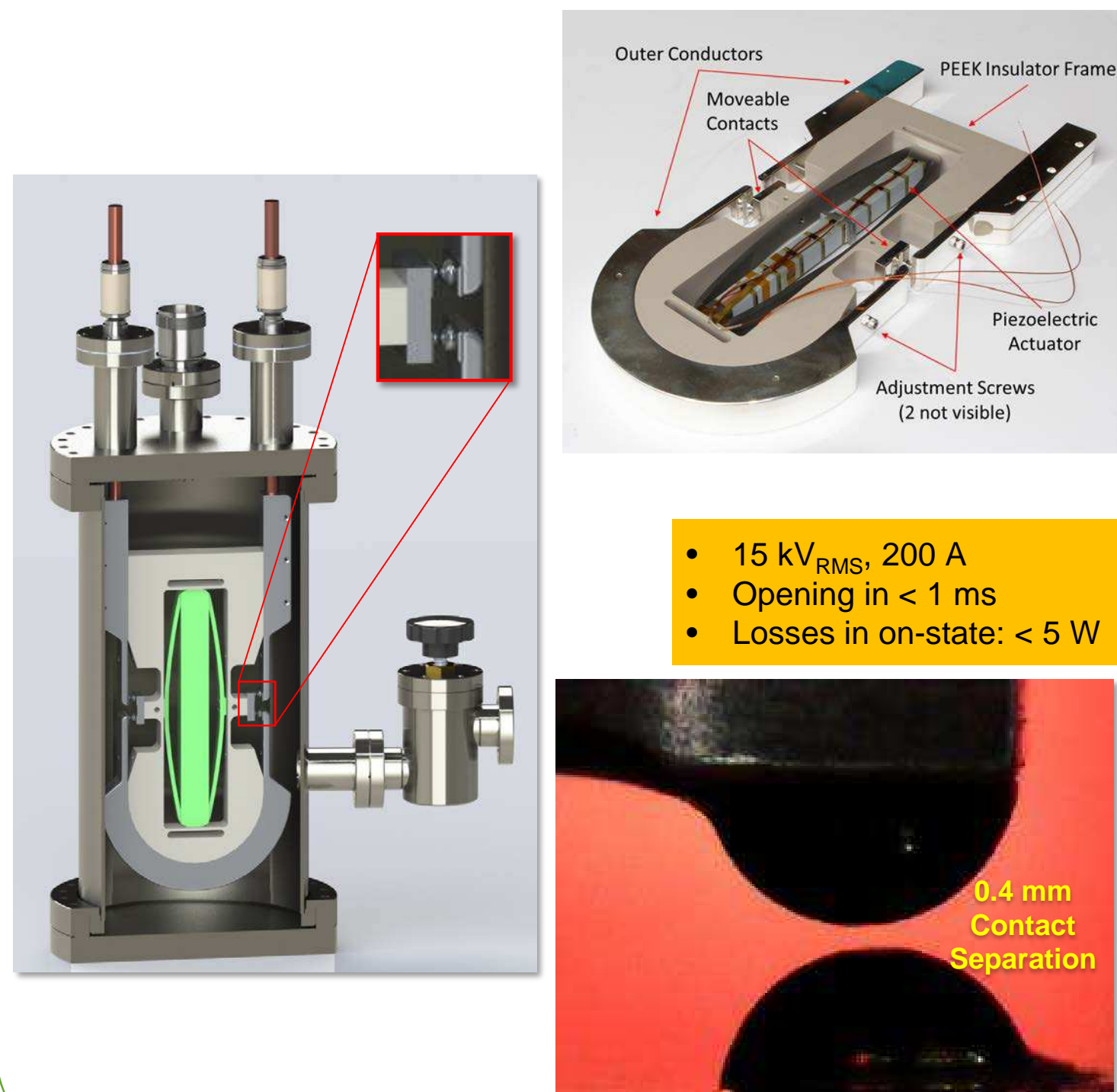
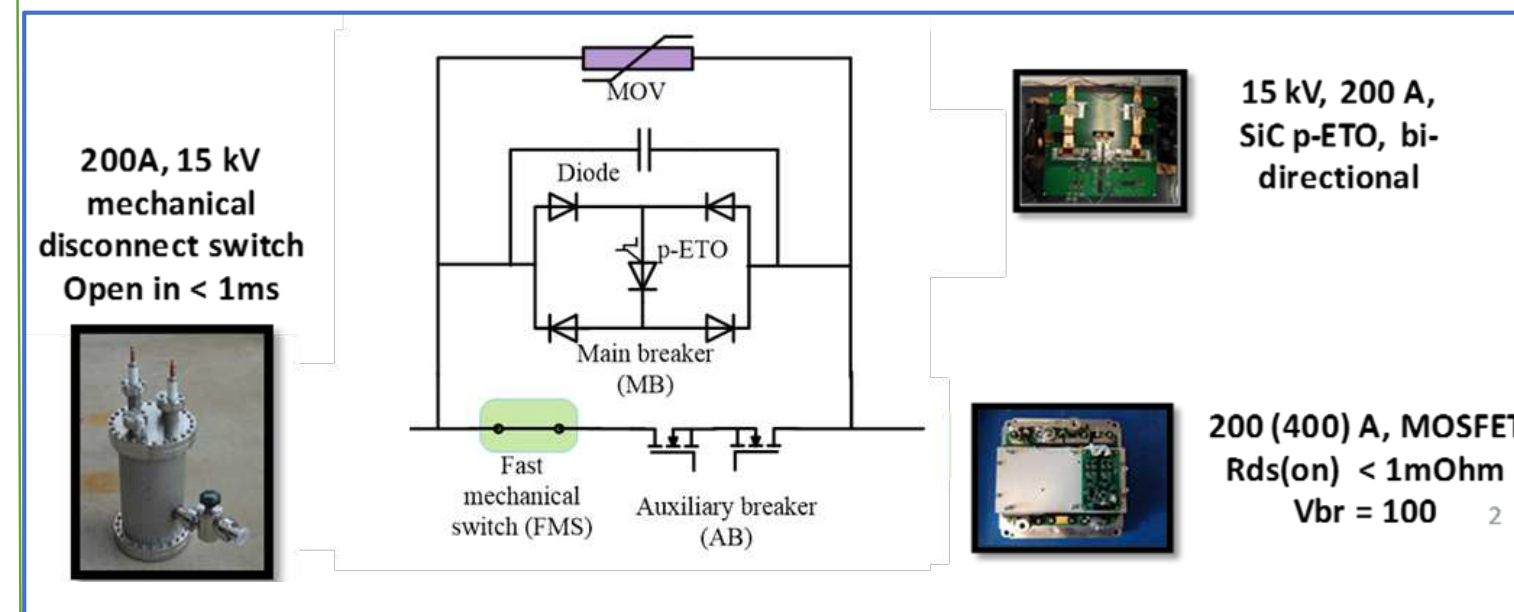


Overview

Development of SiC based solid state FID and hybrid FID are critical to meet the center's strategic vision.

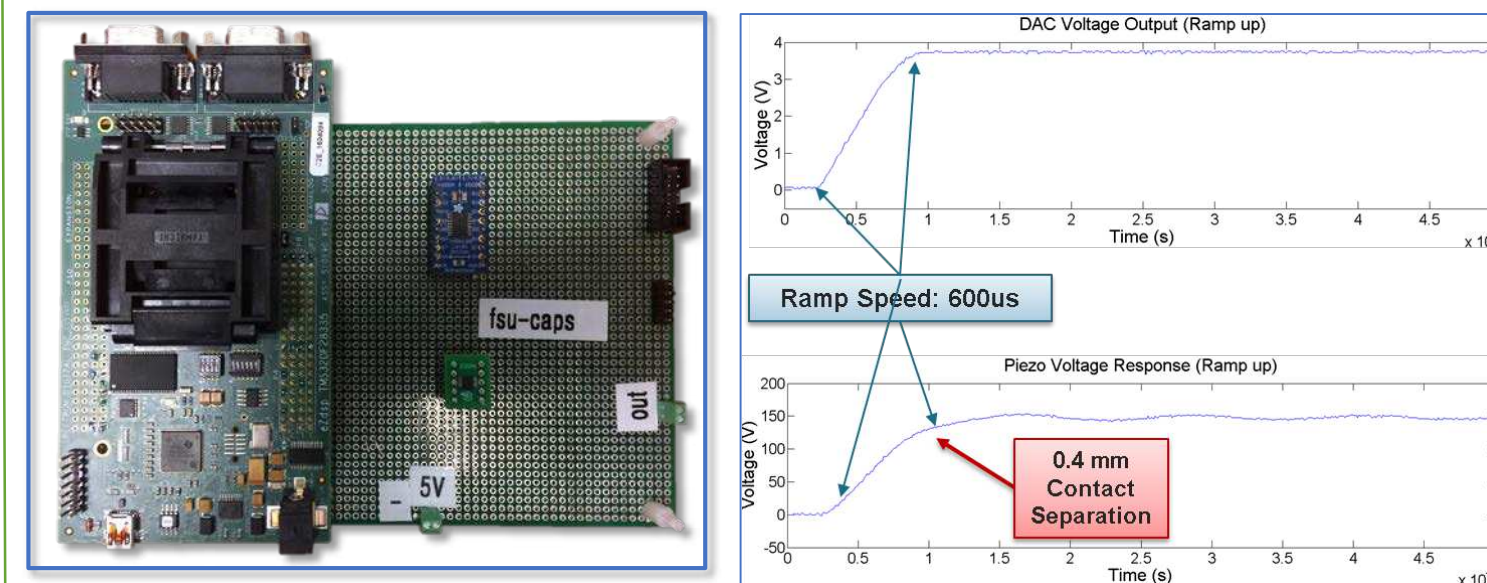
PA-FMS

- Series connected (0.4 mm) gaps increase voltage withstand
- 24 kV_{ac} withstand possible (1 nBar)
- AC and DC testing in vacuum
- Completion of controller board
- Integration with solid-state main breaker

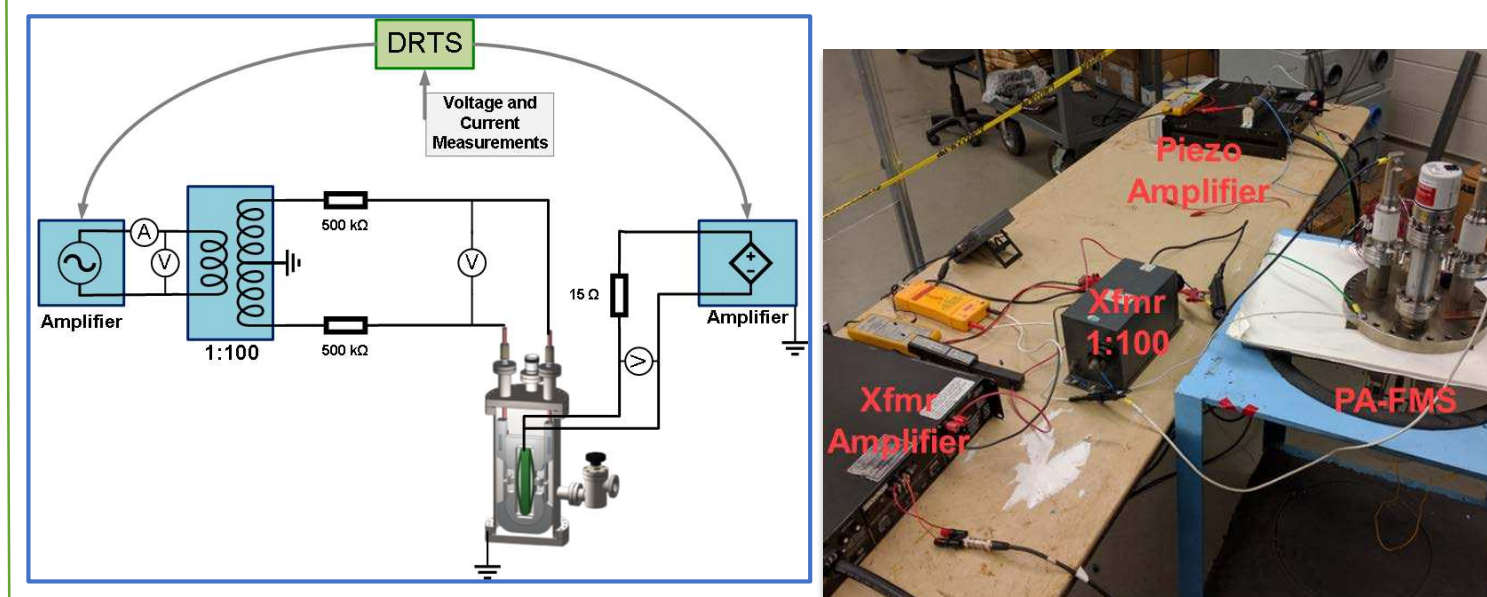


Methodology / Development

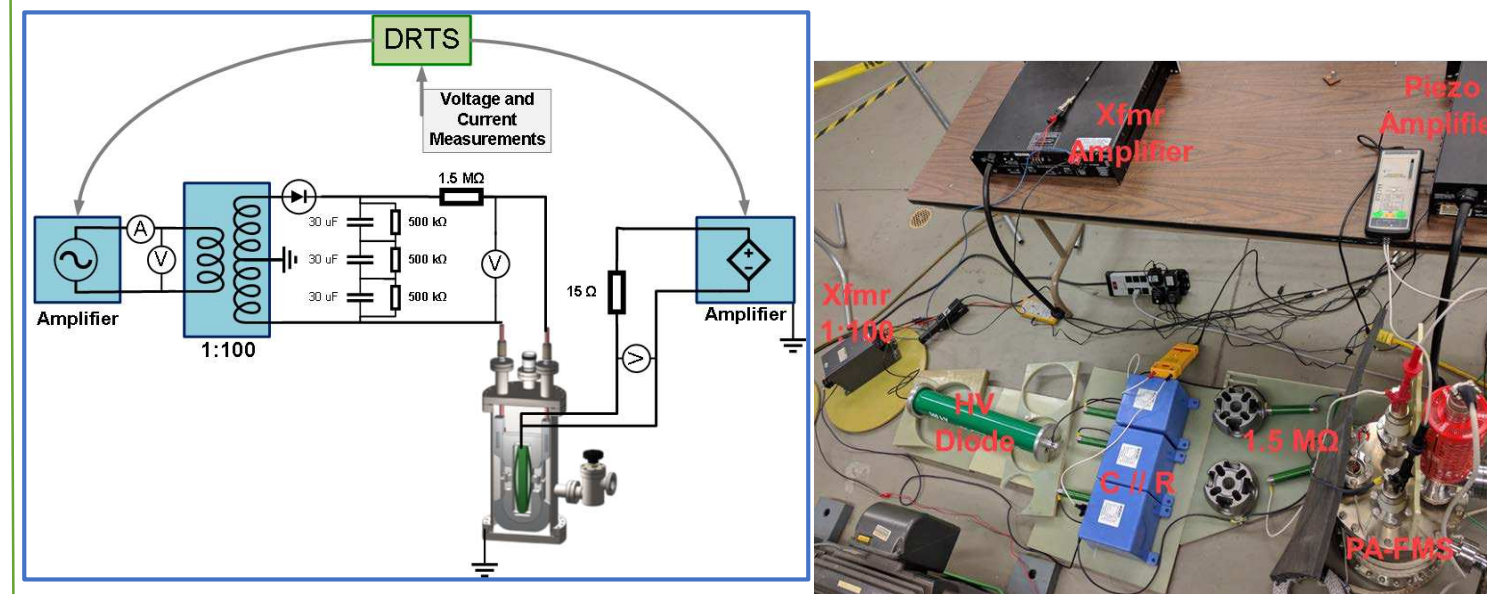
PA-FMS Controller Board



AC Voltage Withstand Tests (1 nBar Vacuum)



Quasi-DC Withstand Tests (1 nBar Vacuum)



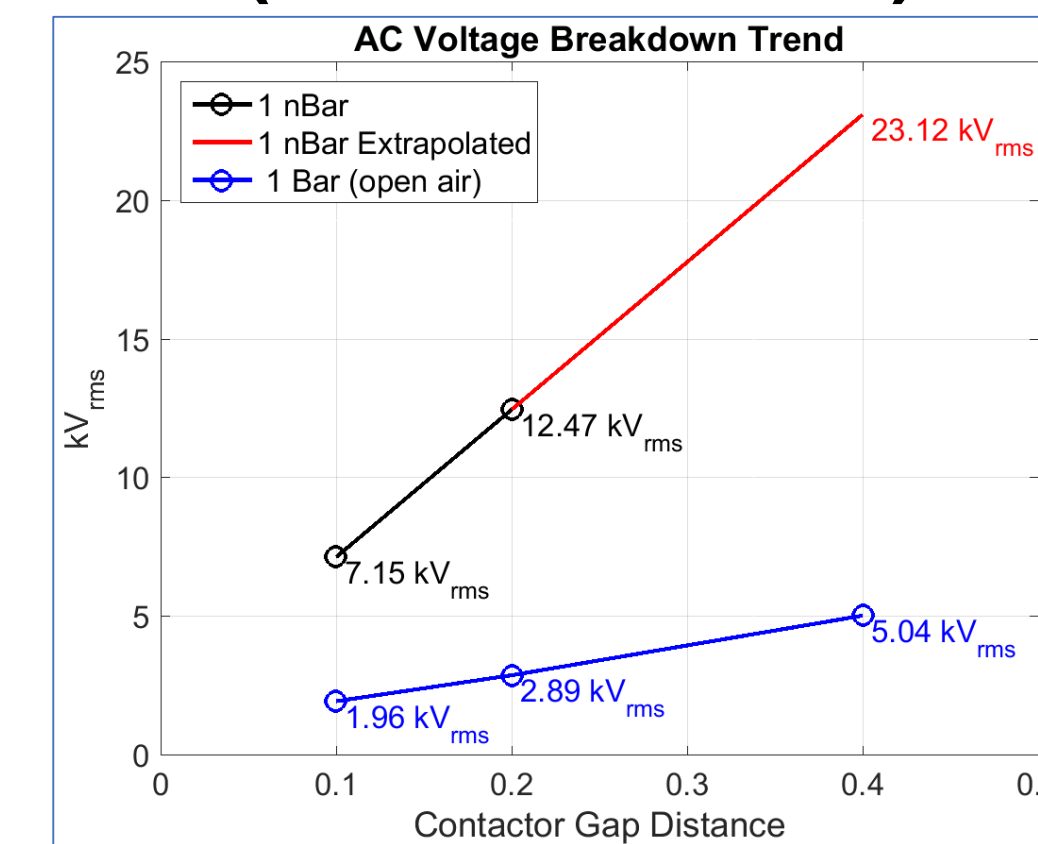
FID- Gen III Integration at NCSU

- Lessons Learned:
- Measurement
 - Testing Safety
 - Noise Impacts

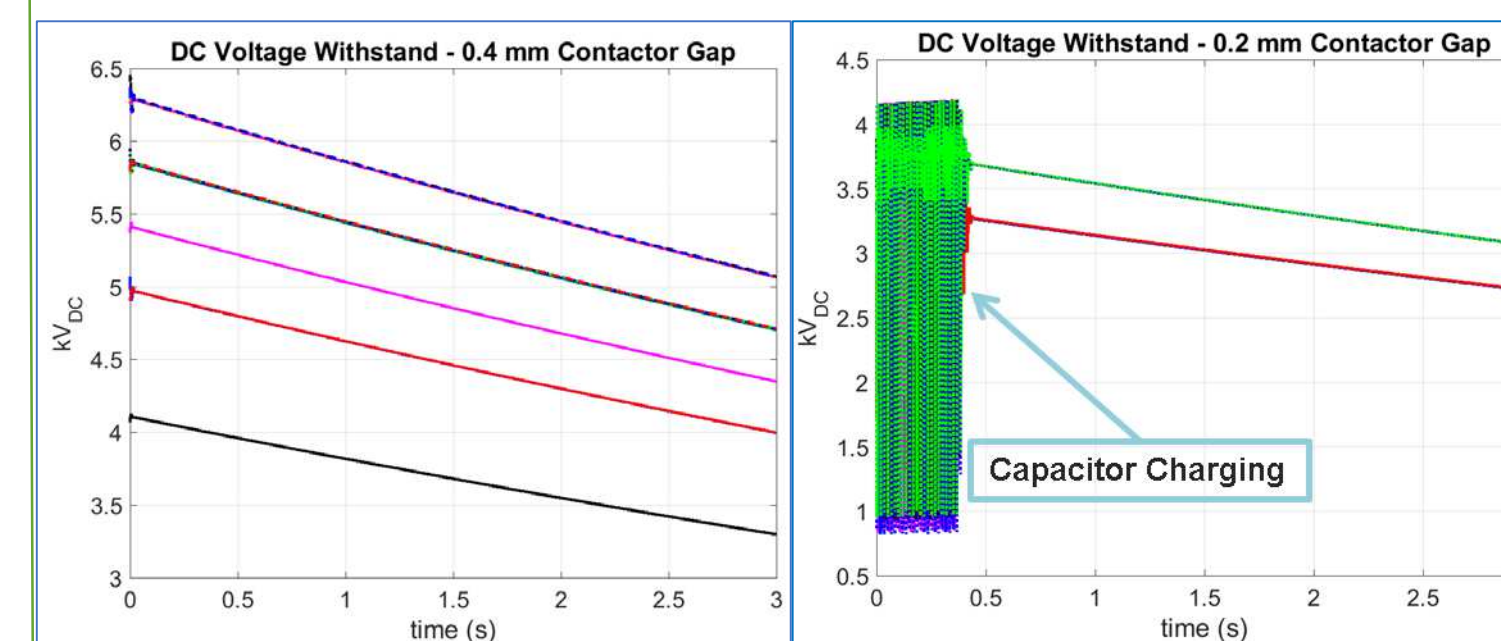


Results / Outcomes

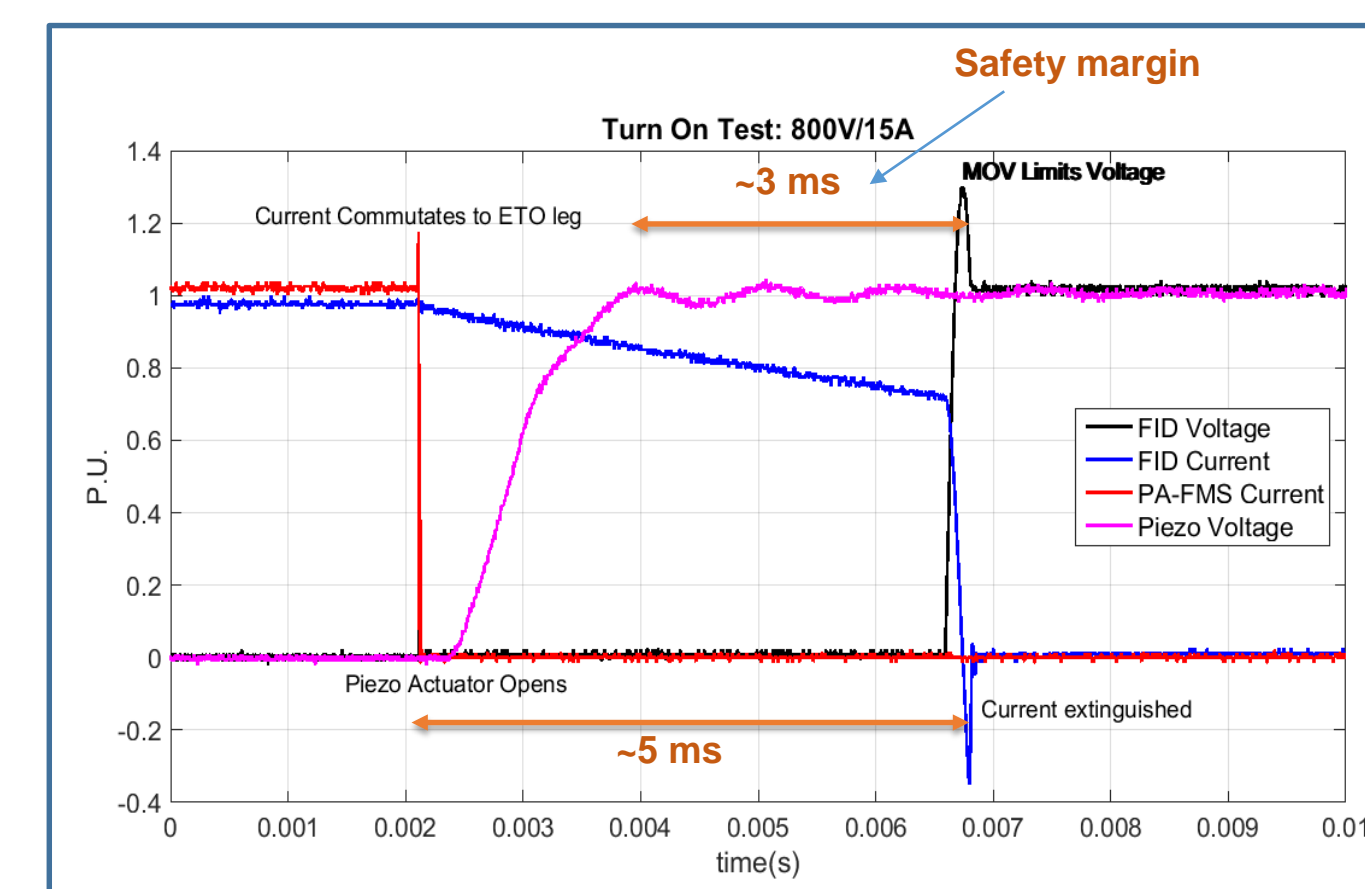
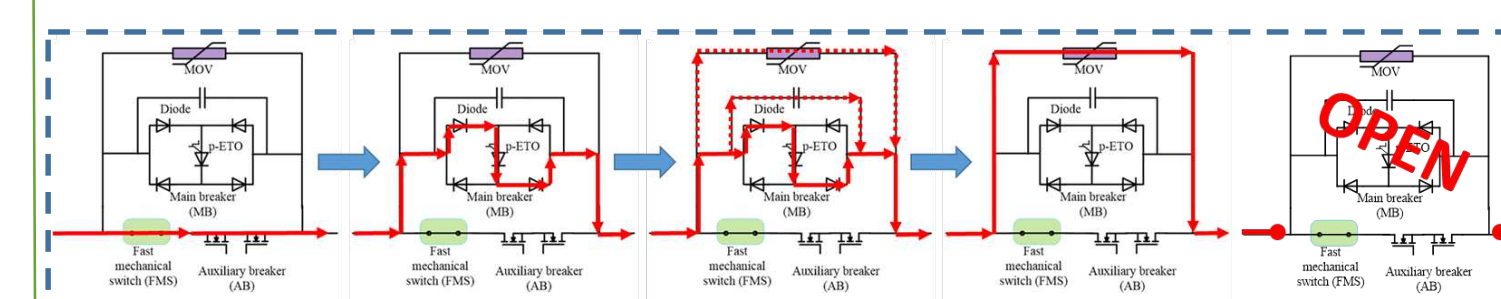
AC Voltage Withstand Tests (1 nBar Vacuum)



Quasi-DC Withstand Tests (1 nBar Vacuum)



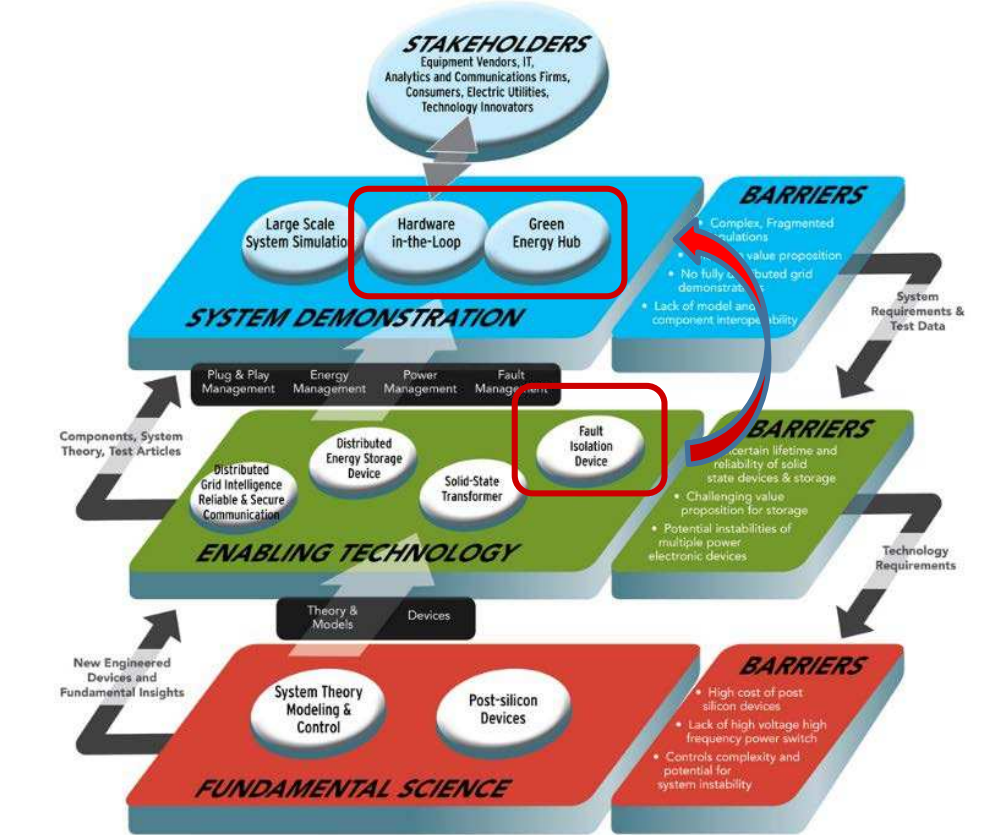
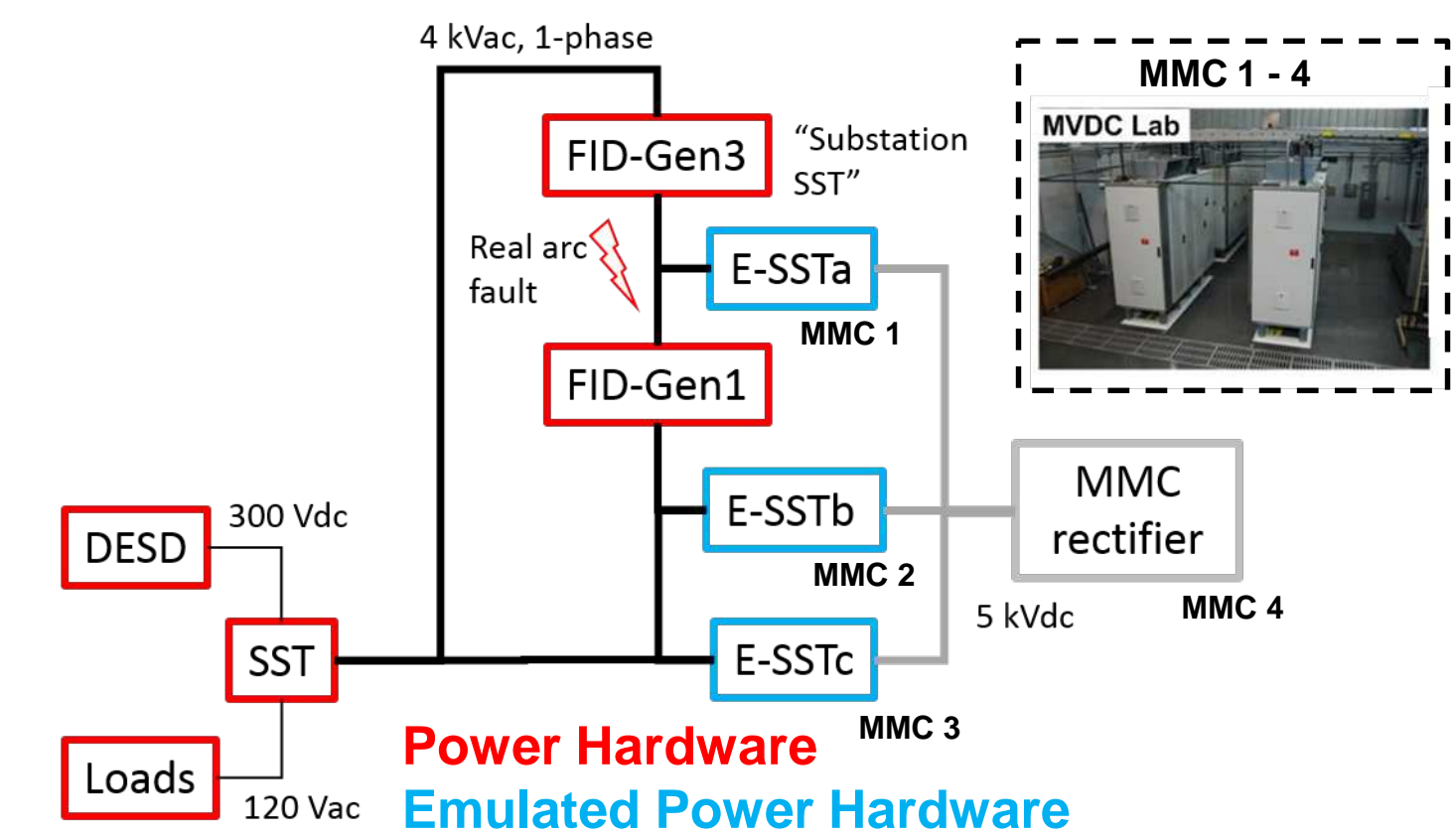
FID- Gen III Integration at NCSU



*Testing range: 800 V, 15 A to 1.2 kV, 25 A

Future Work

1. Final Integration of SS and FMS portions of Gen-III FID at NCSU
2. Prepare for
 - PHIL Demo of Gen-I and Gen-III FID within HILTB and
 - Demonstration of full functionality of FREEDM protection concept (including pilot protection) in Y10
3. Interaction with NCSU and MS&T for integration of FID within DGI



Partners



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- Hulgize Kassa, Len White and Xiaoging Song from NCSU.
- Lukas Graber from Georgia Tech.