FD2 PDS
December Cold Box
Why is the December Cold Box Important?

- The downselection of PD cold electronics components for module-0 relies on this December run. The PD Final Design Review will also focus on the results of this December run. In particular, the downselection of the following:
  - DC-DC Bias generation approach
  - Analog readout amplification stage topology
  - Signal-over-Fiber laser approach

- This Cold Box is also the first demonstration of the Membrane cold electronics (HD-style packaged for the VD) planned for module-0.
Largest VD-PD team yet planned

- Here is a summary of the PD team travel in December:
  - Ajib Paudel - from FNAL: 16-Nov to 04-Dec
  - Peter Shanahan - from FNAL: 05-Dec to 10-Dec
  - Bill Pellico - from FNAL: 05-Dec to 12-Dec
  - Drew Feld - from FNAL: 05-Dec to 12-Dec
  - Carla Cattadori - from INFN-MiB: 10-Dec to 17-Dec
  - Niccolò Gallice - from INFN-MiB: 10-Dec to 17-Dec
  - John Harton - from CSU: 09-Dec to 20-Dec
  - Sam Fogarty - from CSU: 09-Dec to 20-Dec
  - Jay Jablonski - from CSU: 12-Dec to 20-Dec
  - Anselmo Cervera - from IFIC: 09-Dec to 22-Dec
  - Julio Gonzalez - from IFIC: 09-Dec to 22-Dec
  - Sabrina Sacerdoti - from APC: few undefined trips
  - Henrique Souza - from APC: few undefined trips
Plan

- CRP5 will not be available in December
  - The Cold Box lid will be available for run December 8th to 22nd
- December 5th to 8th PD install
- December 8th cathode returned to Cold Box
- December 9th start purge/fill
- December 20th Cold Box warm-up
- December 22nd CERN closed
Issues from last Cold Box

- No valid data collected from Cathode XA
  - PoF transmitter units were diagnosed after the run as damaged. 3 lasers failed.

- Noise issues from Membrane XA
  - Debugging grounding situation showed that the separate SiPM bias supply caused the issues. Working on resolution with current flange.
  - Found some pins on flange that were shorted and are now repaired.
December Cold Box Installation Plan

- New versions of LBL, INFN, and PICO DC-DC daughtercards will be available for December run
- Membrane cold electronics motherboard (HD-style)
- Low-power (single op-amp) Cathode cold electronics motherboard
- Defocused SoF lasers