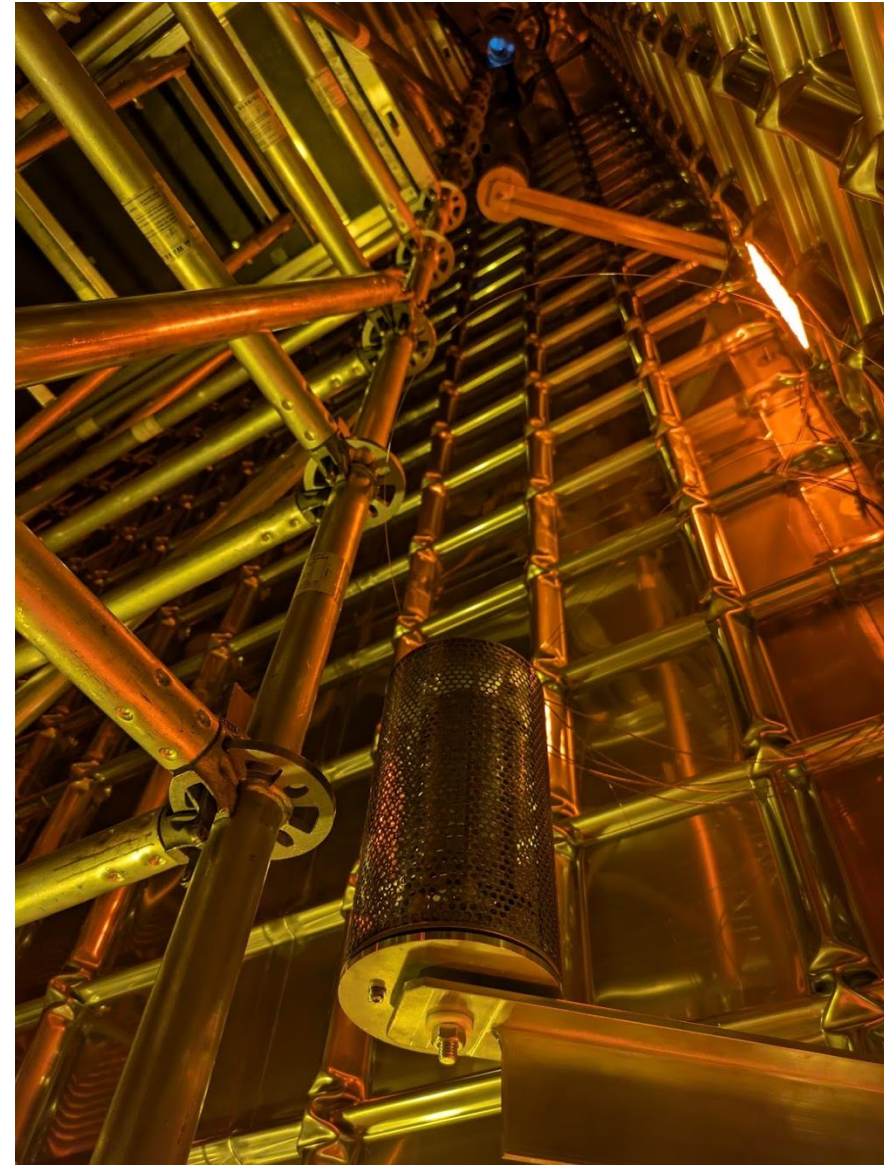


UCL Purity Monitors in NP02

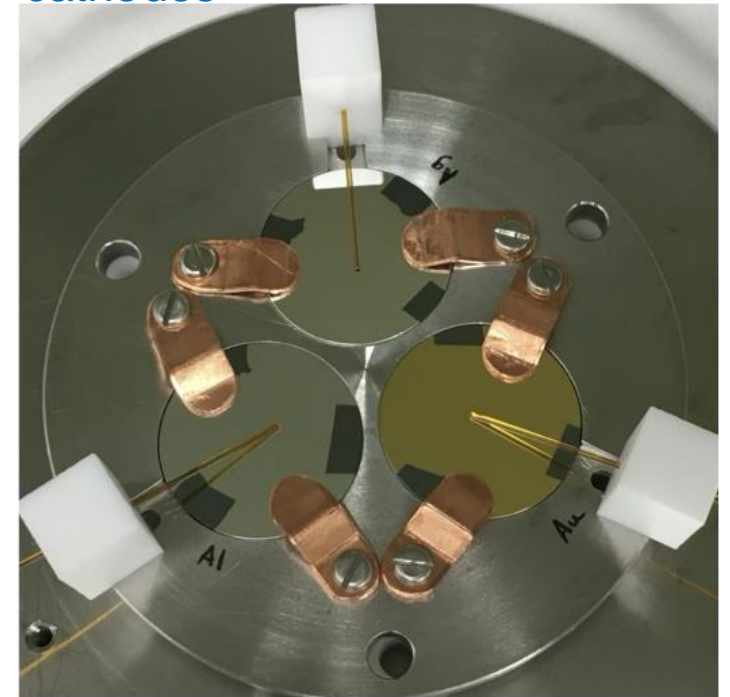
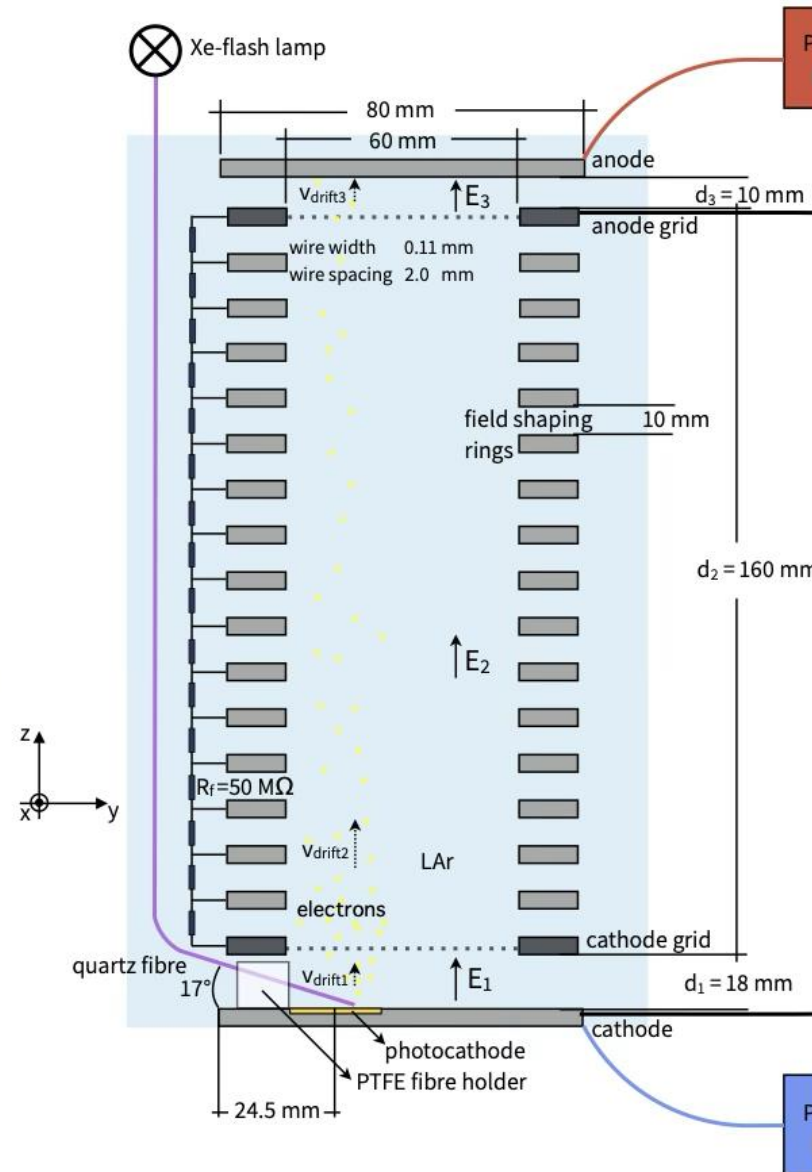
Anastasia Basharina-Freshville, Ryan Nichol,
Stefano Vergani, Connor Godden, Harry Barnett



UCL Purity Monitors

These were deployed in ProtoDUNE-DP and have been refurbished with new cathodes

Uses a multi-cathode approach with both gold and silver cathodes



Reminder: ProtoDUNE-DP Purity Monitor Control

unicosHMI_1: NP02_DCS_01

cermtsice

S: _NP02/PurityMonitor/PurityMonitorCtrl.pnl

NP02 Detector Control System

System Status monitor 10:26:26 AM 7/3/2019

0/0 0 Unack.

NP02 Purity monitor

Lamp Command

On/Off

PrM1 / MIDDLE

	V0 Set	I0 Set	VMon	IMon	On/Off	HW Flt	On/Off Set	Trip Time	OVC
A	204.00	5.00	0.00	0.00000	OFF	none	Off On	10.00	
GA	164.00	10.00	0.00	0.00000	OFF	none	Off On	10.00	
GK	164.00	10.00	0.00	0.00000	OFF	none	Off On	10.00	
Cathode	182.00	5.00	0.00	0.00000	OFF	none	Off On	10.00	

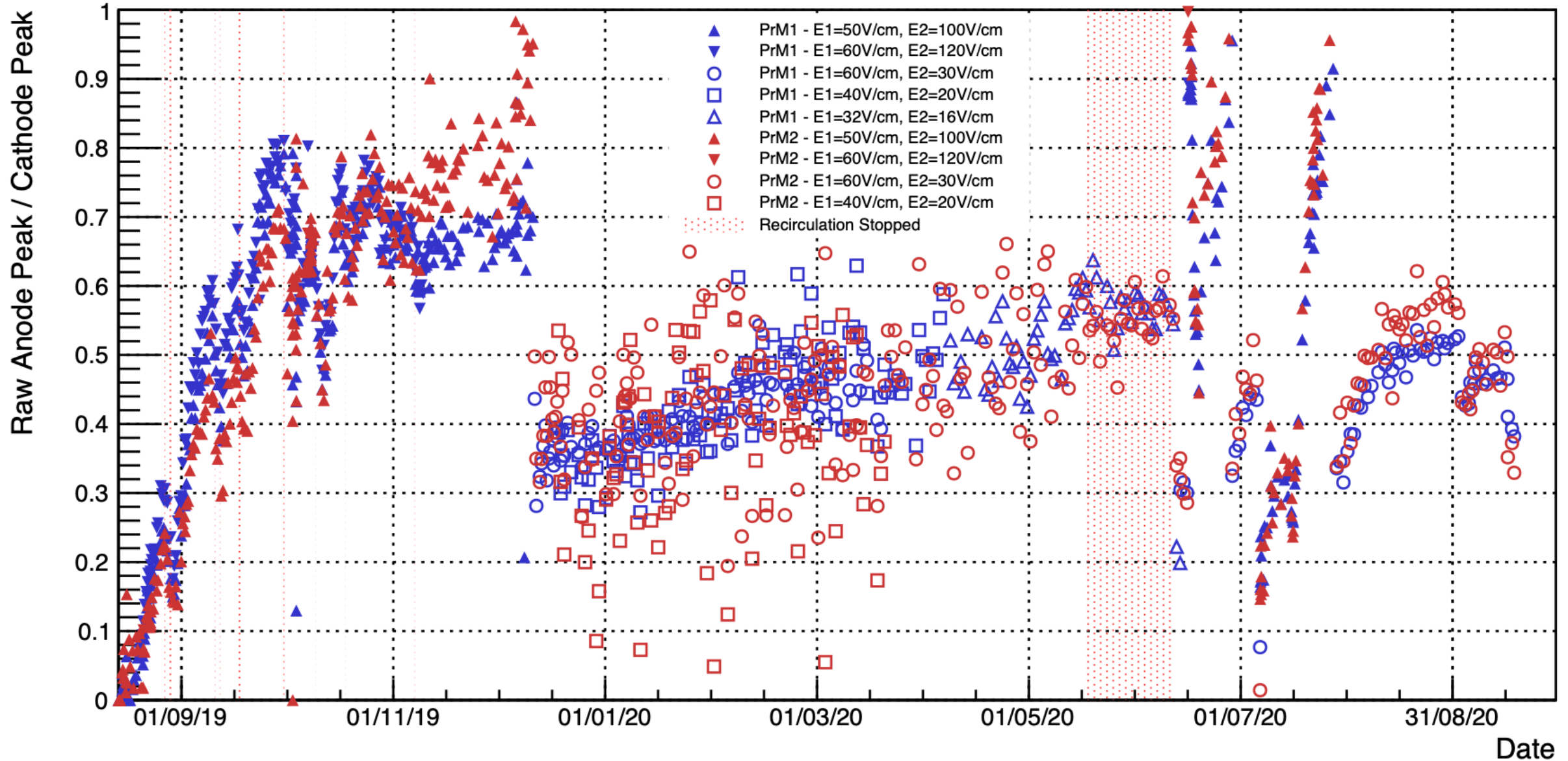
PrM2 / BOTTOM

	V0 Set	I0 Set	VMon	IMon	On/Off	HW Flt	On/Off Set	Trip Time	OVC
A	190.00	5.00	0.00	0.00000	OFF	none	Off On	10.00	
GA	150.00	10.00	0.00	0.00000	OFF	none	Off On	10.00	
GK	150.00	10.00	0.00	0.00000	OFF	none	Off On	10.00	
Cathode	168.00	5.00	0.00	0.00000	OFF	none	Off On	10.00	

PrM3 / LONG BOTTOM

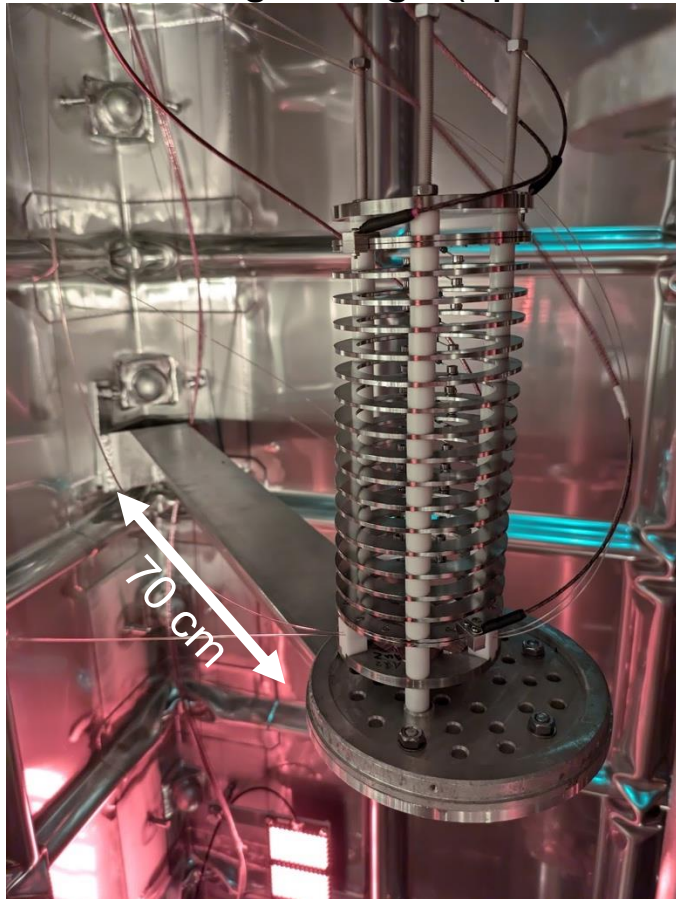
	V0 Set	I0 Set	VMon	IMon	On/Off	HW Flt	On/Off Set	Trip Time	OVC
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- There were lots of interesting features in the ProtoDUNE-DP PrM data, [see talk from 2021 if you want to know what some of these features are.](#)



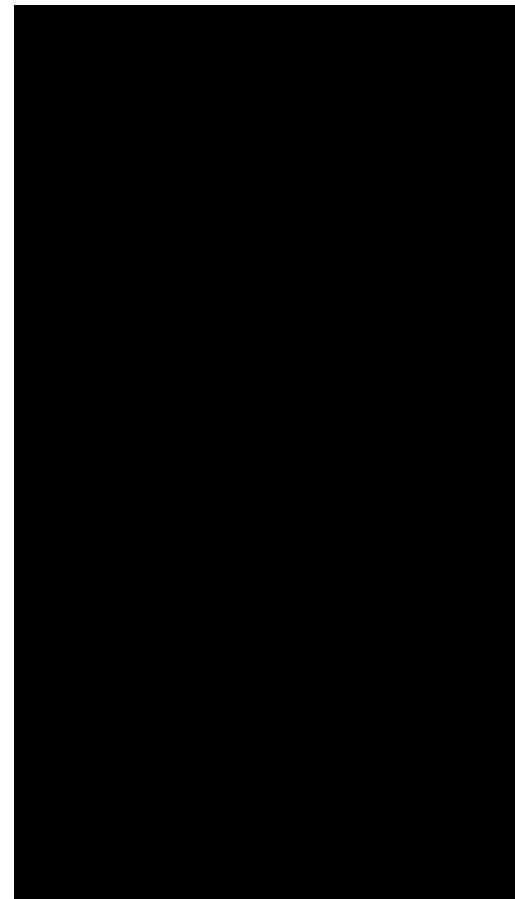
PrM 1:

- Mechanical installation complete at a height of **3.92 m** from cryostat floor
- **6 fibres** (connected to Xe flash lamp)
- Holding voltage (up to 300 V)



PrM 2:

- Mechanical installation complete at a height of **1.54 m** from cryostat floor
- **5 fibres** (connected to Xe flash lamp)
- Holding voltage (up to 300 V)



- The **DAQ** has been **tested** on the NP02 roof (Xe flash lamp and trigger, preamps, digitizer)
- Outstanding:
 - HV supply for PrMs (8 channels: 4 +ve, 4 -ve)
 - HV cables (for the roof)
 - Small NIM crate (2-4 slots) for trigger (tested using full NIM crate)
 - Testing during gas filling and liquid filling:
 - Fully powered PrMs with pulsing lamp
 - Preamp calibration (requires physically switching connections on the roof)
- Questions:
 - When will the gas filling start?
 - When can we integrate the PrMs HV and xenon lamp power with the slow control?
 - Does the flash lamp interfere with any other systems that will have to be turned off when we run?
 - Can we keep the current network connection that we are using on the roof?