

ProtoDUNE-SP operation updates

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Xe-doping

- Fifth and the last Xe-injection was performed on
 - 15/05/20 15.00 - 16/06/20 01:00 (10h * 40g/h) = 400 g = 0.6 ppm
 - 18/05/20 14.30 - 20/05/20 10.30 (44h * 36g/h) = 1584 g = 2.2 ppm
- The first 0.6ppm is from the usual Xe bottle

- 2.2 ppm is from the new Xe bottle!
 - Slight reduction in the lifetime
 - 17ppb of SF6 mentioned in the spec sheet



Summary of Xe injections in ProtoDUNE-SP

- 1- 13/02/20 15:30 - 14/02/20 12:00 ($16.5 \text{ h} * 36 \text{ g/h} + 4 \text{ h} * 45.6 \text{ g/h}$) = 776 g = 1.1 ppm
- 2- 26/02/20 16:00 - 28/02/20 17:00 ($49 \text{ h} * 45.6 \text{ g/h}$) = 2234 g = 3.1 ppm
- 3- 03/04/20 12:30 - 08/04/20 09:30 ($117 \text{ h} * 45.6 \text{ g/h}$) = 5335 g = 7.4 ppm
- 4- 27/04/20 11.30 - 30/04/20 09.30 ($70 \text{ h} * 45.6 \text{ g/h}$) = 3192 g = 4.4 ppm
- 5- 15/05/20 15.00 - 16/06/20 01:00 ($10\text{h} * 40\text{g/h}$) = 400 g = 0.6 ppm
- 6- 18/05/20 14.30 - 20/05/20 10.30 ($44\text{h} * 36\text{g/h}$) = 1584 g = 2.2 ppm

The ppm in the list assumes 720 tons of argon in NP04
and it is in mass of Xenon over Mass of Argon.

Up to now we have injected about **13.5 kg** of xenon in
total: **18.8** ppm in mass.

This week

- HV is at 180kV on the cathode since Tuesday
- APA3 charge-up runs
 - Almost continuous data taking once the HV is on
 - We'll continue to have ~30 min runs in every 6/12h
 - Results from D.Adams today in the meeting
- Continue to take data with PDs to monitor injected Xe inside the cryosta

Next week

- DAQ tests
 - Felix hit finding studies: 1-2 days
 - Hit finding with SSPs
- Usual PD runs to monitor the stability and uniformity of Xe
- Time to time cosmics with APA3

Near future

- PD runs for Xe monitoring
- DAQ development and hit finding
- CRT specific runs ?
- Higher HV runs:
 - mid June: Preperate hardware for HV tests and increase the HV at the end of June
- Neutron generator runs
- Manu FPGA tests
- End of July → end of ProtoDUNE-SP operations