

# SP PHOTON DETECTION CONSORTIUM

MARCH 3, 2021

# *Supercells production and shipment*

- We received at UNICAMP the mechanical components to build 15 supercells (from two different Companies)
- Eljen lightguides received from CSU in February (together with the screws to assemble the modules)
- We are shipping the mechanical components + lightguides + screw to assemble 2/4 single sided Supercells to CIEMAT/MiB-Milano Statale
- Two different types of Eljen lightguides: one with standard fluor concentration and one with 4x standard concentration. One/two of each type are being shipped to CIEMAT/MiB-Milano Statale
- Covid is hitting hard Brazil during these days and the Campinas area is in a semi-lockdown regime. This is slowing down all our experimental activities.



# LBNC Closeout - HD

- The last LBNC meeting happened remotely from the 3<sup>rd</sup> to 5<sup>th</sup> of March
- Preliminary closeout (HD):
  - Tests of SiPMs from 2 vendors have been performed at multiple labs with good results, and the ganging of 48 SiPM with  $S/N > 4$  has been demonstrated
  - The SiPM down-select is scheduled for later this month
  - *The LBNC would like to hear more technical details about the PDS at a future meeting, including long-term tests of the coating stability and solubility in Lar*
- **Recommendations**
  - *Use the ProtoDUNE-I setup*, currently being dismantled, *to learn as much as possible about long term effects*, including measurements of APA wire tension, inspection of HV components (particularly near the areas of localize instabilities), and analysis *of coating stability in the PDS system*

# LBNC Closeout - VD

- The committee strongly endorses the Vertical Drift concept for the second Forward Detector. VD capitalizes on the modular CRP construction of DP, making the installation of the FD easier and faster than for HD, and allowing the fabrication to be more readily shared across institutions. *The PDS system offers the possibility for extended coverage that will enhance the physics capability with sensitivity to lower energy events.*
- Significant progress is being made in addressing two outstanding design choices: 2-view versus 3-view readout in the anode design, *and the extent and location of the photon-detector system. Both issues are now well integrated into the studies and R&D*
- *The PDS system is proposed to be placed on either the field cage walls or the cryostat membrane walls, and integrated into the cathode plane design. The field cage and cathode locations require isolation for operation at up to 325 kV. The cryostat wall location will require a modification to the field cage design. R&D on optical powering of the PDS modules is progressing well. Optical readout is more challenging. Two options are proposed and will be developed in the coming months. The cryostat wall location appears feasible without needing optical isolation.*
- The committee encourages DUNE to decide or clarify the project's positions on the choices of anode and PDS as early as possible to allow clear articulation in the baseline documentation and a focused path forward for Module-0.

# *VD Organization*

- We have a new WG inside the Consortium organization which is led by Flavio and is supported by engineers from Fermilab, France and Italy
- The group is having regular meetings which will be soon extend to the Consortium
- Huge effort in the US with large involvement in the most key R&D topics: PoF, opto-link and ganging
- We also started a collaboration with the DarkSide experiment along these lines

# *Today meeting*

- Updates about the Calibration and Monitoring System (Zelimir and David)
- Status of xenon doping analysis (Niccoló)