

# FD2 PDS

## Decisions Timeline for ProtoDUNE2-VD

30 September 2022  
DUNE PDS Consortium  
Ryan Rivera - FD2 PDS L2

# Introduction

- Where and When do we need decisions and coordination for the FD2 PDS Module-0 at ProtoDUNE2-VD

# Meetings for Decisions

CDT	CEST	<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>
9:00	16:00		Photo-Collector - Carla C		Analog Readout - Dave C / Bias Generation - Mike M	ProtoDUNE-VD PDS Planning - Anselmo/Franciole
10:00	17:00	Mechanical - Vishnu Z	Photo-Sensor - Francesco, Ines and Vishnu			
11:00	18:00			Cold Electronics - Flavio C		
12:00	19:00					Power-over-Fiber - David M

# Mechanical - decisions

- More details to come from Vishnu
- Need to converge on one mechanical XA frame design
  - Electrical Shielding
  - Light-leakage Protection
  - Mounting to cathode
  - Mounting to membrane suspension cables

# Photo-Collector - decisions

- More details to come from Carla
- Need to decide how WLS will be machined/laser cut
- Need to decide for dichroic filters:
  - Dimension
  - Achievable timeline

# Photo-Sensor - decisions

- More details to come from Francesco and Ines
- Need to decide operational SiPM bias voltage assuming fixed SiPM bias from installation through operations
  - For FBK and HPK

# Cold Electronics - decisions

- By end of next week 07-Oct...
  - Need to identify available PCB layout personnel
- Need to take input from Analog Readout, DC-DC, and PoF breakout meetings
- Need to decide membrane motherboard topology
  - Does it include a cathode reference XA or mini-XA
    - With 'PoF + SoF' or 'copper-power + SoF'?
- Need to decide cathode motherboard topology
  - Does it include attempts at monitoring SiPM bias voltage or PoF delivered voltage?

# Analog Readout - decisions

- By Wednesday 05-Oct... (because we time to complete layout changes)
  - Need to identify available PCB layout personnel
- For cathode readout, need to make recommendation 'Argon2x2' or 'Simp3' topology, and any topology modifications
  - Need two BOMs: one for flooded laser and one for fully-efficient laser.
- For membrane readout, need to make recommendation 'HD amplifier' or 'cathode-style'
- Submit recommendation to Cold Electronics



# DC-DC SiPM Bias Generation - decisions

- By Wednesday 12-Oct... (slightly more time, because DC-DC daughtercards can plug-in and layout changes should be minor)
- Need to make recommendation for inclusion/exclusion of LBL-a, LBL-b, INFN, or PICO daughtercard, and any topology modifications
- Need input from Photo-Sensor by 05-Oct (before 06-Oct meeting)
  - Need BOMs: one for FBK and HPK operational SiPM bias voltage

# PoF - decisions

- Need decisions on topology/quantities/type:
  - Feedthroughs
  - Fibers
    - labeling
  - Conduit/tubing
    - labeling
  - OPC
- Need decision on procedure and timeline for fiber pull
  - Does fiber bundling require a pull cord?
- Need decision on procedure and timeline for fiber splice

# ProtoDUNE2-VD Planning - decisions

- Need decision on Response & Monitoring topology and timeline
- Need coordination of Personnel travel
- Need coordination of fabrication Personnel at each collaborating institution to manage delivery timelines and identify gaps

# FD2 PDS Weekly Schedule

Reviews and Deliveries	Module-0	Cold Box	Date	Week #	Month
			05-Sep	37	Sep '22
		Cold Box B++ Run	12-Sep	38	
FBK 250 SIPM Delivery		Cold Box CRP3 Install (v4)	19-Sep	39	
Spain Hamamatsu 702 SIPM Delivery		Cold Box CRP3 Run	26-Sep	40	
INFN Hamamatsu 1700 SIPM Delivery	Module-0 Orders	Cold Box CRP2b Install (v5)	03-Oct	41	Oct '22
		Cold Box CRP2b Run	10-Oct	42	
	Module-0 Production		17-Oct	43	
	Module-0 Flange & Feedthrough Install	Cold Box CRP4 Install (v6)	24-Oct	44	
	4x Module-0 non-TCO Membrane Install (v6)		31-Oct	45	
Final Design Review		Cold Box CRP4 Run	07-Nov	46	Nov '22
			14-Nov	47	
			21-Nov	48	
			28-Nov	49	
			05-Dec	50	Dec '22
			12-Dec	51	
			19-Dec	52	
			26-Dec	53	
			02-Jan	1	Jan '23
			09-Jan	2	
FBK 750 SIPM Delivery	8x Module-0 Cathode Install		16-Jan	3	
			23-Jan	4	
			30-Jan	5	
			06-Feb	6	Feb '23
			13-Feb	7	
	4x Module-0 TCO-side Membrane Install		20-Feb	8	
			27-Feb	9	
			06-Mar	10	Mar '23
CD23 Director's Review			13-Mar	11	
			20-Mar	12	
Internal PD Design Workshop	Module-0 Install milestone		27-Mar	13	
			03-Apr	14	Apr '23
			10-Apr	15	
			17-Apr	16	
			24-Apr	17	
			01-May	18	May '23
CD23 DOE Review			08-May	19	
			15-May	20	
			22-May	21	
			29-May	22	
		Cold Box D Install (v7)	05-Jun	23	Jun '23
		"Module-1"	12-Jun	24	
			19-Jun	25	
			26-Jun	26	
			03-Jul	27	Jul '23
		Cold Box D Run "Module-1"	10-Jul	28	
			17-Jul	29	
			24-Jul	30	
			31-Jul	31	
			07-Aug	32	Aug '23
			14-Aug	33	
			21-Aug	34	
			28-Aug	35	
	Module-0 Ops		04-Sep	36	Sep '23
			11-Sep	37	
			18-Sep	38	
			25-Sep	39	
Production Readiness Reviews Start			02-Oct	40	Oct '23
			09-Oct	41	



We are here

# Organizing FD2 PDS Travel

- For Cold Box, PD team entered unconfirmed/confirmed travel to help everyone plan, should we extend use for Module-0?
  - [https://docs.google.com/spreadsheets/d/1qT\\_wY5rvEtjS2t741bd8TGejxSAtKZIWIWu3m8GozzA/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1qT_wY5rvEtjS2t741bd8TGejxSAtKZIWIWu3m8GozzA/edit?usp=sharing)
- Daily 'FD2 PDS Calendar' schedule maintained here:
  - <https://calendar.google.com/calendar/u/0?cid=bjVmaGNqZ2NhMzM1MmFrbmJtYjNIODRkMmtAZ3JvdXAuY2FsZW5kYXluZ29vZ2xILmNvbQ>