

# ProtoDUNE-DP integration meeting

D. Duchesneau / S. Murphy

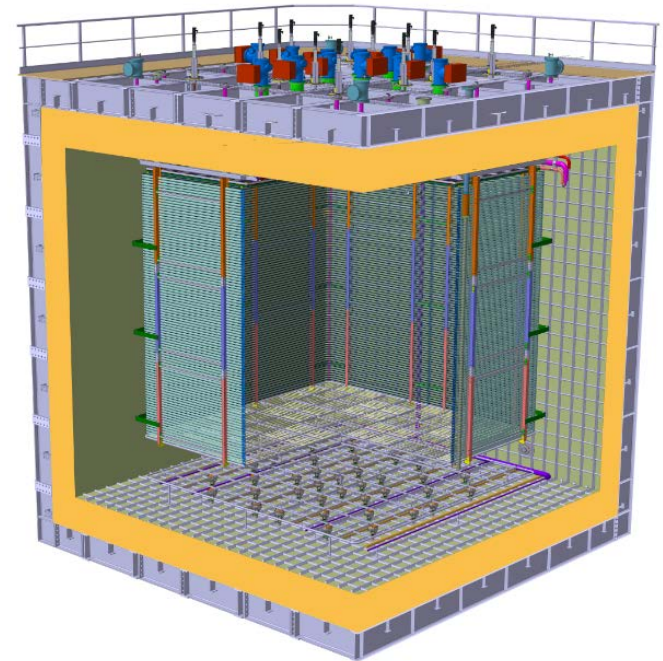
## Bi weekly protoDUNE-DP integration meeting

Tuesday, 25 July 2017 from **14:00** to **18:00** (Europe/Paris)  
at **182 ( 2-010 )**

**Description** **internet connection:** remote Vido connection can be found [here](#)  
**phone connection:** explained [here](#) use room extension: 1010644826

### Tuesday, 25 July 2017

- |               |  |
|---------------|--|
| 14:00 - 14:10 | <b>Introduction 10'</b><br>Speakers: Dominique Duchesneau (LAPP, CNRS-IN2P3), Dr. Sebastien Murphy (ETH Zurich)              |
| 14:10 - 14:25 | <b>Charge Readout schedule details 15'</b><br>Speaker: Dario Autiero (IPNL)  |
| 14:25 - 14:45 | <b>Latest news on LEM and Anode production 20'</b><br>Speakers: Dr. Edoardo Mazzucato (CEA Saclay), Dr. Alain Delbart (Irfu) |
| 14:45 - 15:05 | <b>SGFT status 20'</b><br>Speaker: Mr. Benjamin AIMARD (LAPP)  |
| 15:05 - 15:25 | <b>Some points about schedule 20'</b><br>Speaker: Dominique Duchesneau (LAPP, CNRS-IN2P3)                                    |



25/07/2017

# Integration News

## ProtoDUNE Engineering Support

- Work started for the cathode and the field cage load calculations with Vic Guarino from FNAL and Adamo.
- A future request may be done for the CRP box

## General items

- Chimney and roof interfaces with cryogenics almost final (location and design of purge connection, routing, etc...)
- Final layout design of the internal sensors and cable trays inside cryostat: to be discussed with NP
- Don't forget to follow the courses to get the access permission to EHN1.

<http://cenf-ehn1-np.web.cern.ch/basic/ehn1-access>

## Safety documentation:

Working meeting Aug 7 and 8th to finalise the document to be presented to HSE mid August.

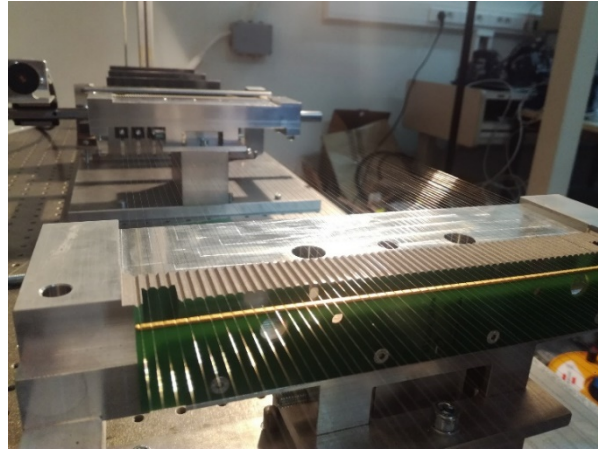
## Anode status:

- Identified with CEA 3 firms to solder the KEL connectors on the anodes:
  - Ouestronic (Britanny FR), 60 euros/cards but only start in Oct.
  - Elvia (Normandy, FR), 150 euros/cards
  - ELTOS subcontractant (Arezzo, IT), 120 euros/card available now
- All of them do optical checks of soldering
- Electrical tests will be done at reception: CEA has developped a test system to check short circuits and interrupted tracks (about 5mn / card)
- Discussion with ELTOS this morning:
  - First pre production of 6 anodes ready by end of July
  - Ship at least one to CERN asap for inspection beginning of August.
  - If Arezzo firm =>
    - First 40 anodes with connectors end of September
    - Second half end of October

# CRP production status

- CRP main structure elements are ordered:
  - ❑ G10 modules should arrive in August
  - ❑ First Invar frame should arrive end of September

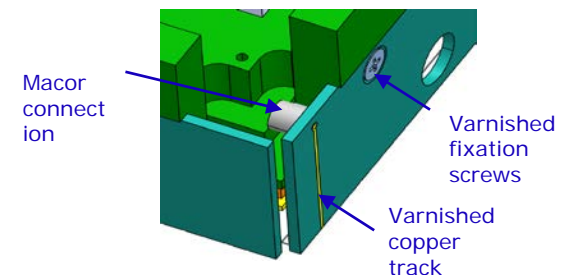
- Grid tooling: first test at LAPP in July



- => some modification of parts and optimisation of the setup should take place in August and September and production possible mid-October

- Start of assembly: October for the first CRP with all parts including LEM and anodes that should be available at that time

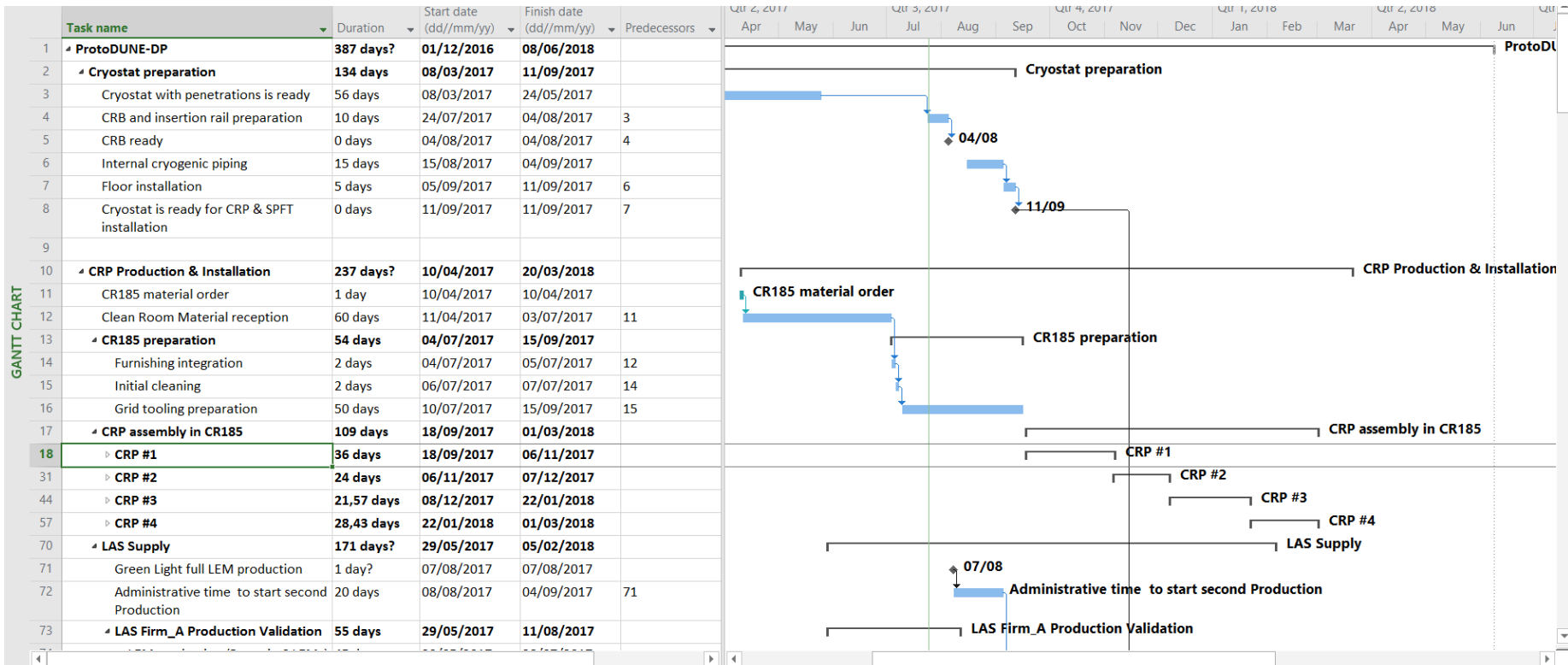
- Prepare some tests of the grid HV connection design this summer (to discuss in a future meeting)



# About ProtoDUNE-DP schedule revision

## Discussion about schedule:

- CRP construction from Oct to March 2018 => 2 months delay wrt schedule v2



- CRP #1: assembled in Bldg 185 in November 2017
- CRP #2: assembled in Bldg 185 in December 2017
- CRP #3: assembled in Bldg 185 in February 2018
- CRP #4: assembled in Bldg 185 in March 2018

# About ProtoDUNE-DP schedule revision

- SGFT and CRP\_INST feedthroughs are on the critical paths:
- Assume today that:
  - we launch the orders in September
  - we get the full parts, assembled and tested in 6 months time (Beginning of Feb 2018)

2 options:

- SGFT and CRP\_INST installed before CRP installation in cryostat  
**Drawbacks: Any delay beyond Jan 2018 will impact directly the end of detector installation**
- SGFT and CRP\_INST installed after CRP mounted: more flexibility

Under discussion: expect to freeze the v3 schedule in August

## ProtoDUNE-DP schedule and level of advancement and details:

- Infrastructures (EHN1 cryostat, CRB, CR185) ✓
- CRP mechanical frame ✓ This meeting => CR185 activities this summer
- CRP instrumentation/internal cabling ✓
- CRP LEM-Anodes ✓ This meeting => Production status and Eltos news
- Drift cage ✓
- Cathode and ground grid ✓
- Light Readout ✓
- Charge Readout ✓ This meeting => schedule status
- Feedthroughs and Chimneys
  - TANK-INST ✓ => design work underway
  - CRP-INST ✗ => design work starting
  - SGFT ✗ This meeting => design work underway
  - HVFT and extension ✗
  - CRP-SPFT ✗
  - FC-SPFT ✗
- HV systems ✗
- VHV ✗
- Beam-plug ✗
- Detector slow control ✗
- Tank instrumentation/internal cabling ✗
- Electrical distribution and grounding ✗
- External cabling and roof layout ✗
- CRT

Next ProtoDUNE-DP Integration meeting (11/08/2017) we foresee status updates about:

- Grid tooling and production setup
- Chimney interface with Cryogenic
- Internal cabling and cable tray layout
- HVFT status
- CRP electrical status