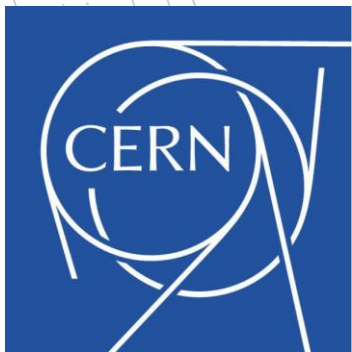


# protoDUNE analysis workshop

CERN 27/01/2018

Georgios Christodoulou



# Purpose of the workshop

- Help new analyzers to choose an analysis topic and develop an analysis
- An introduction to new analyzers aiming to develop an analysis for detector characterization and performance (cosmics, CRT tagged tracks, etc.)
- Provide useful information and tools to experience analyzers to continue with their analysis

# ProtoDUNE physics studies and measurements

- p-Ar and  $\pi$ -Ar cross-section measurements
  - Inclusive and exclusive channels
  - What about kaons?
  - How do we measure these cross-sections? We are neutrino physicists!
- Electron (and hadron) energy resolution studies
- $\pi^0$  reconstruction
- PID
  - e/gamma separation etc.
- Inputs to far detector analysis and design
- Detector characterization and calibration studies
  - dQ/dx, SCE, etc
- Inputs to TDR and first DUNE publications

# Agenda

09:00 - 12:00

## ProtoDUNE analysis tools - I

09:00 **Introduction 10'**

Speakers: Dr. Georgios Christodoulou (CERN), Georgios Christodoulou (CERN)

09:10 **From raw data to reconstruction 30'**

Speaker: Tingjun Yang (Fermilab)

09:40 **Pandora reconstruction toolkit 45'**

Speakers: Dr. John Marshall (University of Cambridge), John s. Marshall

10:25 **ProtoDUNE analysis utils 15'**

Speaker: Dr. Leigh Whitehead (CERN)

10:40 **Coffee Break 20'**

11:00 **Beam composition and particle identification 30'**

Speaker: Mr. Alexander Booth (University of Sussex)

11:30 **Accessing data for analysis 20'**

Speaker: Heidi Schellman (Oregon state)

12:00 - 13:15

Lunch

Location:

13:15 - 16:15

## ProtoDUNE analysis tools - II

13:15 **Experience from LArIAT 45'**

Speaker: Jennifer Raaf (Fermilab)

14:00 **HighLAND analysis framework 45'**

Speakers: Anselmo Cervera, Dr. Anselmo Cervera (IFIC-Valencia), Dr. Alexander Izmaylov (IFIC CSIC), Pablo Fernandez Menendez

14:45 **Coffee Break 15'**

15:00 **Pandora tutorial 45'**

Speakers: Dr. Lorena Escudero (University of Cambridge), Lorena Escudero sanchez

# DRA meetings

- Regular DRA meetings every Wednesday at 09:00 CDT / 16:00 CET
- Subscribe to the DRA mailing list **dune-proto-sp-dra** and to the protodune slack channels
- At the January 2019 DUNE CM
  - 2 plenary talks
  - 3 DRA parallel sessions, 1 on Tuesday and 2 on Wednesday
    - 15 talks!
    - Updates on calibration and reconstruction efforts
    - Preliminary analysis results
  - 1 additional joint DRA – APA parallel session on Thursday
    - Opportunity to contribute to new analyses
  - Other protoDUNE parallel meetings
    - 2019 run plan discussion, beam instrumentation

# New protoDUNE analysis meeting

- Plans to schedule a weekly or biweekly less formal analysis meeting
- Allow for more discussion on analysis topics
- Friendly platform for new analysers
- Relax the agenda from the weekly DRA meeting
- Announcement for day and time soon