AIDA++ 4.1a/b

November 2019

Deliverables

- 4.1a

  - 1: Development of advanced particle flow algorithms in Pandora for the DUNE Near Detector, targeting the 3DST and optical 3D readout technologies.

  - 2: Application of advanced particle flow algorithms to future DUNE Far Detector modules, targeting technology options such as dual-phase LArTPC readout.

  - 3: Development of the Pandora reconstruction for the Fermilab short baseline neutrino programme, including deep-learning approaches, and the linear collider experiments.

- 4.1b

  - 1. Support for integration of new Higgs-factory PFA algorithms in Pandora, such as for the dual-readout calorimeter and the semi-digital Hcal and integration of PandoraPFA into the Turnkey Software Stack.

A lot to deliver over 3 years and very difficult over the 2 years proposed…

some hard descoping decisions must be made….

The Cambridge Team

Dr Melissa Uchida
(Lecturer and Cambridge PI for DUNE, MicroBooNE and ProtoDUNE)...

Dr Leigh Whitehead
(Primary focus Pandora and deep learning for DUNE and ProtoDUNE)...

- New postdoc joining soon (primary focus Pandora for DUNE and ProtoDUNE)…

- Other group members:
  - Alex Moor (PhD student, DUNE and MicroBooNE)

The Warwick Team

- ## Dr John Marshall (PI)
  Author of Pandora SDK, author of Pandora ILC/CLIC algorithms (with M Thomson), author of Pandora LArTPC algorithms (with A Blake et al.)

- ## Postdoc: Dr Andrew Chappell
  Primary focus: Pandora for DUNE, Background: T2K

- ## Postdoc: Dr Maria Brigida Brunetti
  Primary focus: Pandora for DUNE, Background: NA62

- ## DUNE PhD students with Pandora projects:
  James Pillow, Jhanzeb Ahmed, Mousam Rai, Isobel Mawby

The Lancaster Team

- ## Dr Andrew Blake (PI)

- Author of Pandora LArTPC algorithms (with J Marshall et al.). Significant analysis and pattern-recognition experience at MINOS and DUNE.

- ## Postdoc: Dr Dominic Brailsford
  Primary focus: Pandora for DUNE, Background: T2K, SBND

- ## DUNE PhD student, working on Pandora: Ryan Cross

Funding

- **A lot of unknowns…**

- What funding could actually be available 36/24 months and

  - How could/should it be divided?

- 456k costs how does this break down?

  - How does the matched funding work?

  - How are overheads included?

- All three departments are in discussions as to what manpower could be available.