

First meeting of the CENF-ND forum, agenda available here: <https://indico.cern.ch/event/652260/>

1) Introduction (S. Bordoni)

https://indico.cern.ch/event/652260/contributions/2657977/attachments/1491207/2318179/CENF-NDintrometing_part1.pdf

Context and motivation of the CENF-ND forum.

Near detectors play a crucial role in LBN experiments. Both current (e.g. T2K-II) and new (DUNE, Hyper-K) need to address the design of a near detector not only to measure the un-oscillated flux but also to address at the best the control of systematics uncertainties

Strong and consolidated expertise in Europe in Neutrino detectors in general but also in LBN Near Detectors

CERN wish to catalyze the European contribution in support to the activities already on-going in both American and Japanese experiments

discussion :

- (A. Blondel) synergies NA61 ?

yes sure but need to determine how this can be done

- (A. Blondel) advertise the NA61 workshop in Geneva 26-28 July

<https://indico.cern.ch/event/629968/registrations/35101/>

- (T. Ekelof) advertise NuFACT in Sweden 25-30 September

- (C.K. Jung) Is the CENF-ND open also to Americans

Yes, the forum is open to both American and Japanese collaborators. The time for the meetings is and will be arranged to allow their participation

2) The DUNE Near Detector Concept (A. Weber)

https://indico.cern.ch/event/652260/contributions/2657978/attachments/1491309/2318228/DUNE_CENF_ND_1.pdf

Overview of the on-going activities towards a design of a Near Detector

Three traditional options (Fine Grained Tracker, ArgonCube, HPTPC) but options now enlarged with the possibility of hybrid detector

Current status: have one Pixelated LAr detector + one multi-Purpose tracker to measure neutrino interactions in details

The ND design is under evaluation, a task force, several workshops have been organised since September 2015. Need now to narrow-down the options

Review of the DUNE timescale for the Near Detector :

general concept by January followed by a CDR type document by the end of 2018. TDR in 2019.

- large discussion on the aggressive schedule of DUNE to determine the ND. Not reported here (no conclusion and no decision can be taken outside the DUNE collaboration)

- Are there ideas to use ND design à la NuPRISM?
yes, discussion and evaluations on-going in DUNE as well

3) The ND280 Upgrade (M.Zito)

<https://indico.cern.ch/event/652260/contributions/2657980/attachments/1491258/2318111/T2K-july11-2017.pdf>

Short review of the T2K ND280 near detector design, contribution and limitation
The ND280Upgrade project propose to renew the ND280 detector to allow a better acceptance coverage and increase the mass of water targets to better measure neutrino interaction in Water as in SK.

The new design will have horizontal TPCs, scintillator based detector currently with 2D or 3D design currently under study, ToF done with scintillator plates all around the detector

The project is already advanced, several step already be done and a proposal will be submitted to both T2K and CERN by the end of 2017. Construction foreseen for 2019

- design of ND280 defined by the time? Mainly time and costs: the idea is to provide solutions to the current limits with limited changes (i.d. costs)

- ND for HK ?

the idea so far is to have ND280Upgrade + intermediate Cherenkov Detector (NuPRIMS + Titus – currently named E61)

4) The CENF-ND forum organisation (P. Sala)

https://indico.cern.ch/event/652260/contributions/2657984/attachments/1491208/2318176/CENF-NDintrometing_part2_v2.pdf

Presentation of the organisation of the CENF-ND forum in 5 Working Groups (WG): WGs 1 to 4 will collect perform physics studies and derive detector requirements to be discussed with WG5 which is dedicated to R&D activities. Small R&D activities can be performed already at today within the PLAFOND framework https://edms.cern.ch/ui/file/1405498/1/Addendum_No_1-PLAFOND-FINAL-031214.pdf

WGs will auto-organise the work and meet regularly. CENF-ND general meeting will be organised

The work done by the WGs will be done in collaboration with the existing DUNE and T2K efforts

Twiki pages has been created for each WG. All CENF-ND members can access edit and post material there.

Next steps : conveners for each WG defined in by the end of July, a next general CENF-ND meeting foreseen in September (TBD)

5) Discussion/ suggestions:

- How the CENF-ND will deal with existing efforts (DUNE ND design concept, ND280Upgrade, NuSTEC...)

The CENF-ND will support the European contribution. The idea is not to double the efforts but to strength and possibly attract more institutions not involved yet in the current activities

- (A.Blondel) Test beam measurements are important during the preparation of the detector but also as supporting measurements during the experiment data taking. Test beam measurement topics can be added to WG3

- For matter of clarity, add MC generators in the title of WG2 and add theory in the list of topics