EOI-15 Discussion

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Discussion items

- WP structure
- Plan
- Request to CERN
- ITN
- AOB

Interest expressed by institutes

- WP1 Mechanical design and integration: groups CERN(?), Geneva, Krakow, Liverpool, LLR(later)
- WP2 TPC field cage and gas vessel: INFN
- WP3 TPC Readout technology: Saclay CERN
- WP4 TPC electronics and DAQ: Saclay, Warsaw, LPNHE
- WP5 Gas system and calibration: Winnipeg, CERN
- WP6 Scintillator-based trackers: Japan+LLR, Sofia
- WP7 TOF system: INR, Geneva
- WP8 Test beam measurements: IFAE, CERN
- WP9 High Pressure TPC: UK, IFAE ...
- WP10 Simulation and optimization studies: many groups
- WP11 Physics studies: many groups
- WP12 DAQ: UK
- WP13 Software: UK

We welcome the participation of Swedish groups and will integrate them in the project structure

Work Packages and Contact persons

- WP1 Mechanical design and integration (Marcela, Davide)
- WP2 TPC field cage and gas vessel (Gabriella, Emilio) → (Emilio, Gianmaria Collazuol)
- WP3 TPC Readout technology (A. Delbart, CERN)
- WP4 TPC electronics and DAQ (D. Calvet, Andrzej Rychter)
- WP5 Gas system and calibration (Blair, CERN)
- WP6 Scintillator-based trackers (Japan+LLR)
- WP7 TOF system (Yury)
- WP8 Test beam measurements (Federico, Stefania)
- WP9 High Pressure TPC (Asher, Morgan)
- WP10 Simulation and optimization studies (Davide)
- WP11 Physics studies (Sara, Claudio)
- WP12 DAQ (G. Barr)
- WP13 Software(Y. Uchida)

We will set up mailing lists for the WP. If regular meeting time slot are needed let us know and we will organize this.

Next steps

- We will have the next T2K Collaboration Meeting May 22-27
- We will discuss the status of the upgrade project there
- As the magnet will be open at that time
- It might an opportunity for new people to come to Japan, visit JPARC, and visit/study the basket, ND280 detectors, etc
- To have the time to discuss the progress we could meet just before the T2K meeting, **May 20-21**
- We will check availability of rooms and confirm soon but please reserve these dates

Revised EOI, proposal, TDR

- An updated version of the EOI with an addendum (request to CERN) will be sent to referees and SPSC in ~1week (prior to SPSC meeting April 4)
- A preferred configuration and other major technical options will be presented at the October 2017 T2K Collaboration Meeting
- We aim at providing a ~50-pages proposal by January 2018 (to be ready early December 2017 to be approved by T2K) → to be sent to SPSC and JPARC PAC
- A TDR will follow in mid-2018

Preparation of the proposal

- Continue simulation/physics studies. We will set up a list of urgent tasks and studies to prepare input for big decisions like overall configuration, water or not, detector option and granularity for the target, TOF performance, ECAL completion
- Start technical design/tests on resistive micromegas, field cage, mechanical support …
- Some of these decisions have deep consequences and need to be well prepared

Prototyping and test beams

- CERN Long Shutdown 2 starting October 2018 until April 2021
- From the discussion this morning the development of the new TPCs could greatly profit from a 2-weeks beam test period of a TPC prototype on the low energy East Area in July 2018
- We should develop a plan of what can be built and what tests can be performed across several WP

Request to CERN from EOI-015

In a first step (2017) the aim is to prepare a proposal to CERN SPSC, for the development and construction of state-of-the-art near detectors based on gas TPCs, for the T2K near detector upgrade (T2K-II) and high pressure TPC prototypes for future neutrino experiments. To this effect the following is required

Work packages led by CERN:

-- Study and cost estimate of the gas system with the required calibration capabilities.

-- Study and cost estimate of the TPC readout system including the MPGC (Micromegas or GEM) devices, and the associated mechanics – in association with IRFU/Saclay

Inside a general work package on mechanical design and integration:

-- engineering (one engineer) to assist in the study and design of the mechanical integration of TPCs with the other detector elements. In the case of T2K: water or scintillator targets, time-of-flight, calorimeters inside the T2K ND280 basket, using a structure that is as light and transparent as possible. In the case of High Pressure TPC: issues related with the high pressure vessel, feed-throughs, etc. In the case of test beam projects, integration of the test beam set-up, possible magnet integration. Evaluation of the space and time required at CERN for the integration tasks and general project management.

The specific requirements for test beam at CERN will be determined in the course of the project. If possible and for the major ones they will be spelled out in the proposal.

The study towards the proposal in 2017 will lead to a better definition of the responsibilities of the various parties.

This work will be executed in collaboration with the other participants to the project.

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-- Study and cost estimate of the gas system with the required calibration capabilities (in collaboration with Aachen, Barcelona, Winnipeg).

-- Study and cost estimate of the TPC readout system including the MPGC (Micromegas or GEM) devices, and the associated mechanics (in collaboration with IRFU/Saclay). 4

-- Study of possible test beam measurements both for detector testing and physics related quantities. (in collaboration with UniGe)

Inside a general work package on mechanical design and integration:

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Conclusions

- This has been a very successful meeting with lot of detailed presentations and a lot of preparatory work
- We will continue to meet remotely on ezuce every two weeks for general ND280 Upgrade meetings on Wednesday 14:00 CET – (CEST)
- We can devote meetings to specific WP: like WP1 (mechanics), WP6 (targets) … Please contact Masashi and myself to prepare a plan
- Simulation/physics also on Wednesday in the same time slot in the other weeks
- Let us keep this level of effort to meet our milestones and have a world class ND280 detector for T2K-II