UNIVERSITÉ DE GENÈVE

FACULTÉ DES SCIENCES

Status of the Simulation & Optimization WG

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"Neutrino Near Detectors based on gas TPCs", JPARC

Target detector simulation

• We started working on the simulation and response of the realistic target in the ND280 upgrade framework --> finally everything is implemented

• Plan is to simulated all the proposed target detectors and make a simplified event reconstruction --> make first skim based on mainly PID and momentum resolution performances

• Probably patter recognition studies will be needed at a certain point --> do it on a sub-sample of preselected targets

• Aim to a full ND280 upgrade + realistic target simulation --> propagate to Near and Far detector sensitivity studies

Neutrino event selection

• We have a stable version of the highland framework for the NumuCC-4pi selection

- efficiency and purity studies performed

- study of impact of ToF detectors

• We start to have enough informations at least for the choice of the ND280 upgrade configuration (two horizontal targets or current tracker + 1 horizontal target)

• We could now

• We started looking at the nue selection

- also preliminary ToF studies for e^+/proton separation

- we will start looking at OOFV bkg: both for gamma background and ToF performances

• Dave Hadley kindly provided prod7 particle guns of ECal

- very useful for nue studies

- aim to study ECal performances in ND280 upgrade

Manpower

• This working group has to provide all the studies to take the final decisions

- ND280 configuration

- target detector technology (maybe full reconstruction for final choice)

- ToF detector performances (e.g. Out-of-FV, PID)

- ECal performance (P0DECal performance is enough?)

• A few people for so many tasks

• Good news: George Christodolou and Ko Iwamoto has joined the group

• But more help is needed!

BACKUP