Motivation:
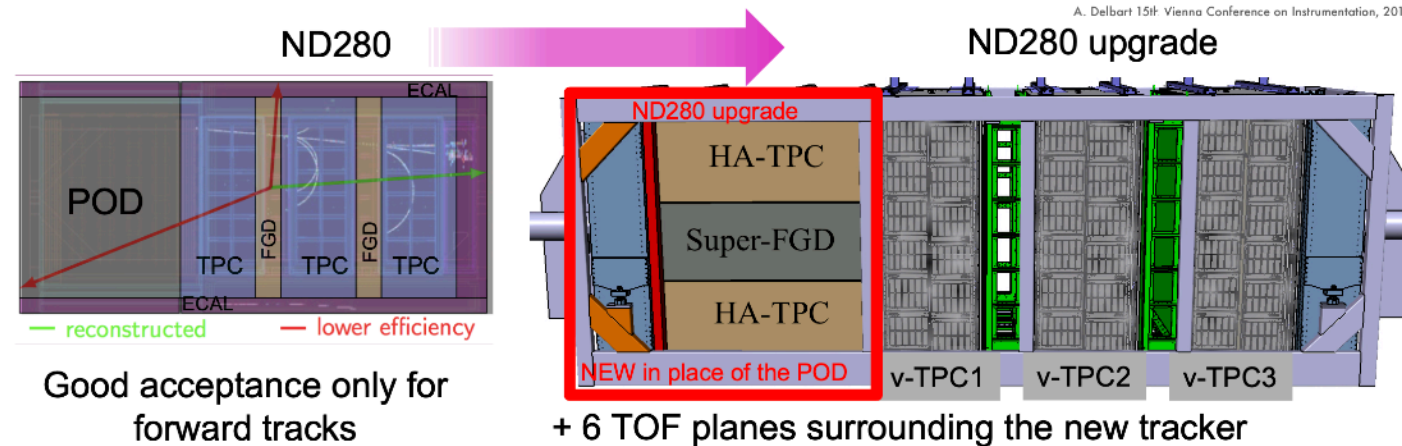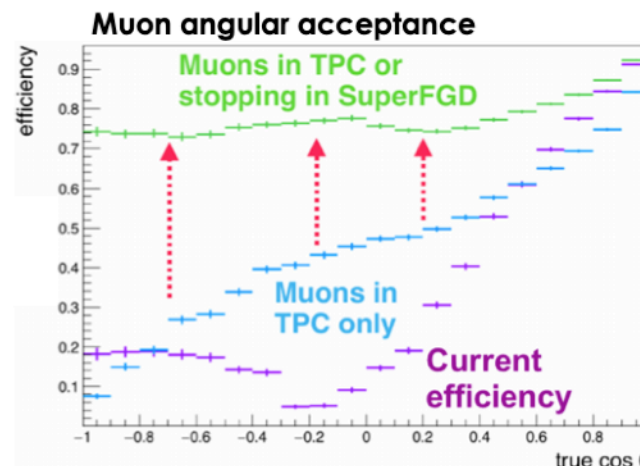
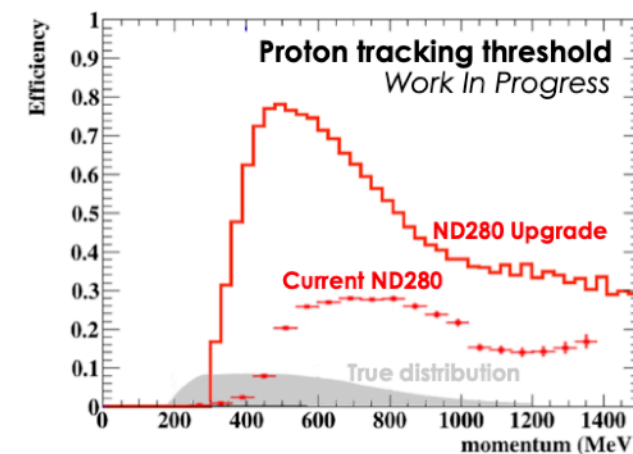➡️ ND280 has limited acceptance for tracks with high angle

➡️ Low efficiency to reconstruct the hadronic part of the interactions, therefore, only muon kinematics are accessed for T2K oscillation analysis

▸ The highly segmented target for **Super-FGD** ↠ improve the reconstruction of hadronic part and low momentum leptons

▸ 2 new **HA-TPC** ↠ improve the reconstruction of high angle leptons

▸ 6 **ToF** planes ↠ reduce background from the outside of SuperFGD

ND280

ND280 upgrade

Good acceptance only for forward tracks

— reconstructed   — lower efficiency

+ 6 TOF planes surrounding the new tracker

The upgraded configuration of ND280 is expected to reduce the overall systematic uncertainty to 4%

Muon angular acceptance

Efficiency to select CC0pi events

installation of the upgrade in the first half of 2023