



## Poster session 4 – Friday 8 July

### P4.022 Physics sensitivity of a possible extended T2K Run -- T2K phase 2

C Bronner<sup>1</sup>, S Cao<sup>2</sup> and M Friend<sup>3</sup>

<sup>1</sup>University of Tokyo, Japan, <sup>2</sup>Kyoto University, Japan, <sup>3</sup>High Energy Accelerator Research Organization (KEK), Japan  
*on behalf of T2K Collaboration*

With recent suggestive physics results, compelling future physics opportunities, and the continued improvement of the J-PARC proton beam power, the T2K collaboration is proposing an extension of the T2K run from the currently approved full statistics of  $7.8 \times 10^{21}$  Protons-on-Target (POT) (expected by 2021) to  $20 \times 10^{21}$  POT (expected by 2027). The T2K collaboration also plans to increase the “effective” T2K Phase 2 statistics by improved analysis techniques and neutrino beamline hardware upgrades. The physics sensitivity of this extended run will be shown, including the possibility of excluding  $\sin \delta_{CP} = 0$  to  $3\sigma$  or better in the case of maximal CP violation in the lepton sector. Improvements on the atmospheric neutrino oscillation parameter constraints will also be made by T2K Phase 2, where the final sensitivities depend on the true values of the oscillation parameters.