Charged-current muon neutrino interactions
with at least one $\pi^0$ in the final state
in the T2K off-axis near detector

T2K (Tokai to Kamioka) [1]:
- a long baseline neutrino oscillation experiment located in Japan
- an muon (anti)neutrino beam produced in the accelerator complex J-PARC
- two near detectors at 280m – on-axis INGRID and 2.5° off-axis ND280 – initial flux before oscillation and neutrino interactions studies
- the Super-Kamiokande (SK) far detector - 2.5° off-axis, at 295km – $\nu_e$ disappearance and $\nu_\mu$ appearance measurement
- 2.5° off-axis beam – narrow peak at 600MeV – maximisation of oscillation probability and CCQE contribution

1. The T2K experiment

2. ND280 detector

3. Inclusive $\nu_\mu$CC$n^0$ production

4. Motivation

5. Event selection

6. Systematic errors studies

7. Future plans

References

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