

Upgrade of Honda atmospheric neutrino flux calculation with implementing recent hadron interaction measurement

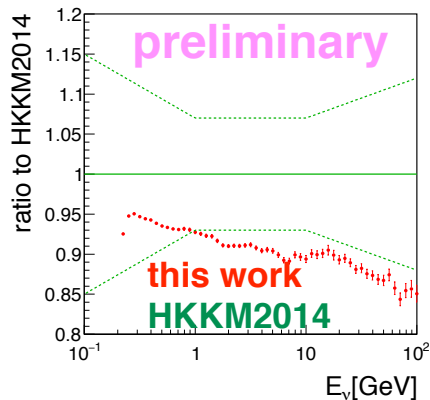
- We Nagoya Univ. group is preparing to upgrade **Honda flux MC**
 - Fortran → C++ interface, preparing doxygen manual
 - implementing **accelerator-data-driven tuning**

- incorporate **beam data** (HARP, NA61, E910, ...)
 - **parameterize** continuously in 3--450 GeV/c
- correct difference of differential cross-section between beam data and MC
 - by applying **weight**

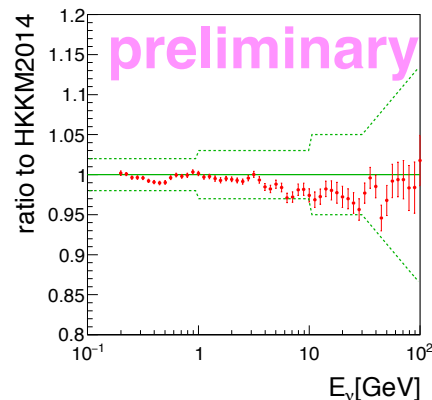
$$W = \frac{\left(E \frac{d^3 \sigma}{dp^3} \right)_{data}}{\left(E \frac{d^3 \sigma}{dp^3} \right)_{MC}}$$

→ will compensate the conventional tuning based on atm.μ observations

modification of flux



mod. of ν_μ/ν_e ratio



- preliminary result
 - modification of flux: ~5--10% smaller
 - **consistent** with the conventional flux
- future plan
 - **combined analysis of accelerator data and μ observation**
→ reduce systematic uncertainty