

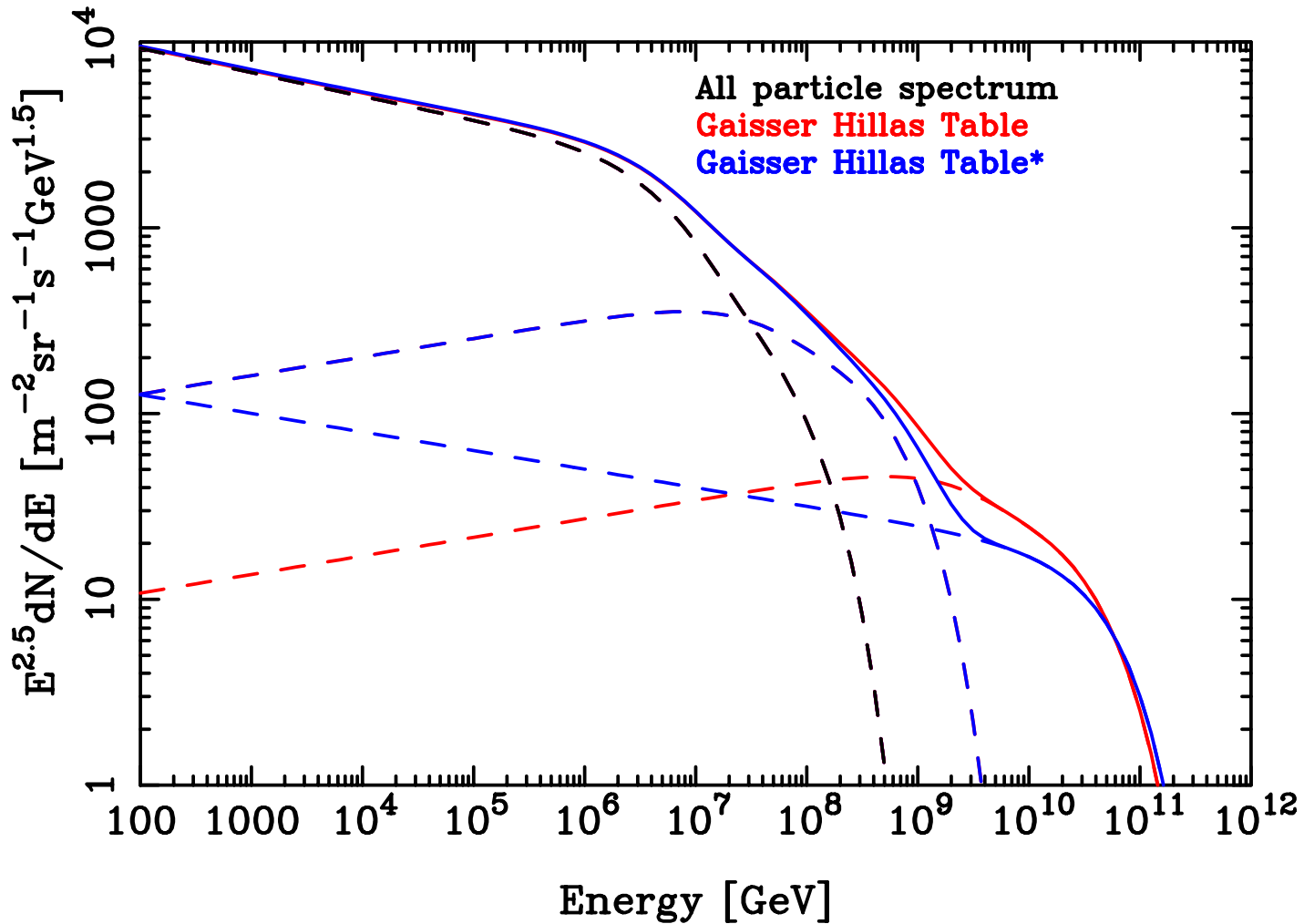
Charm decays and IceCube data: atmospheric charm

Hallsie Reno ; University of Iowa

Work with I. Sarcevic, A. Bhattacharya, R.
Enberg, Y. S. Jeong, C. S. Kim, A. Stasto

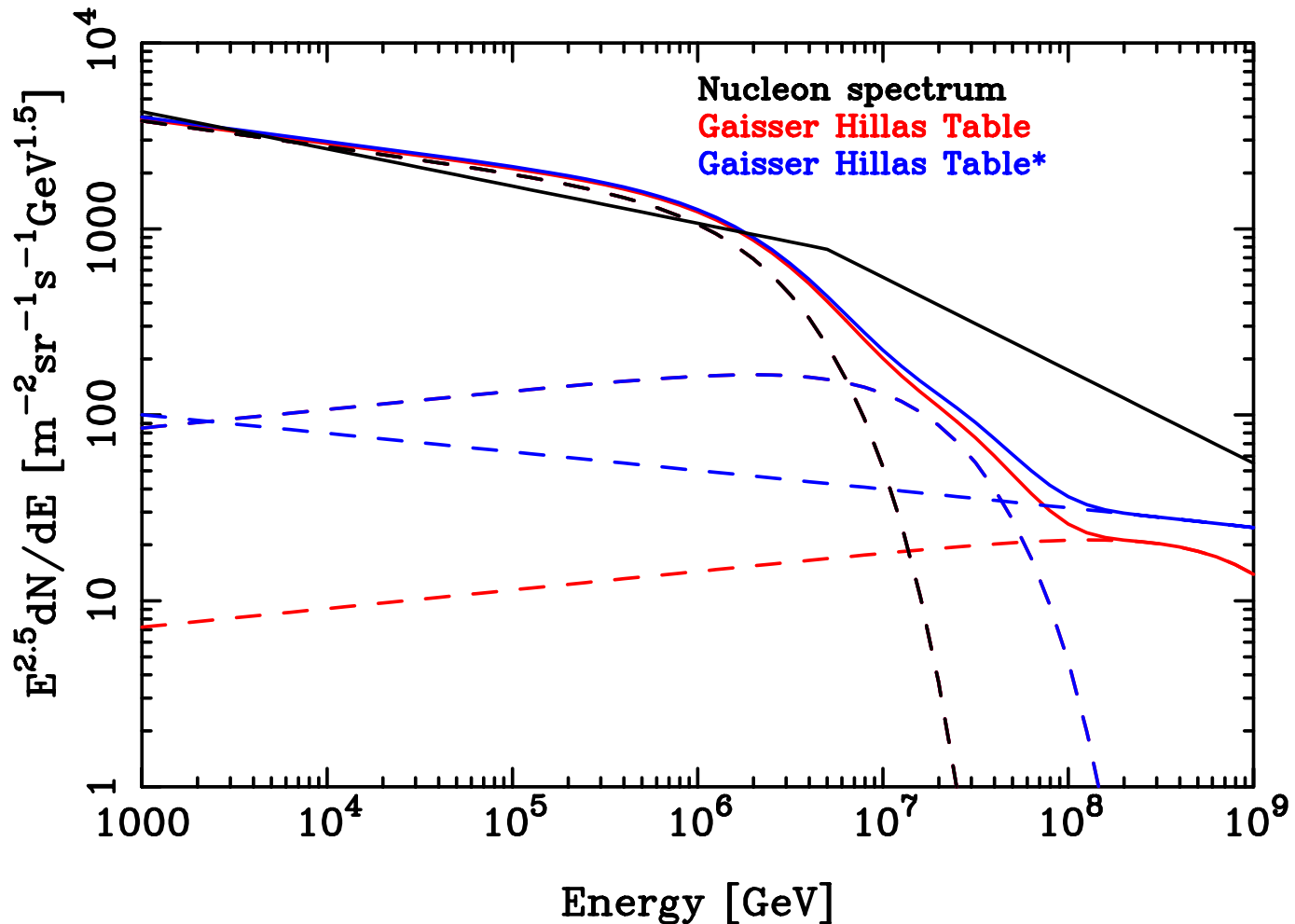
KITP, October 29, 2014

CR all particle spectrum



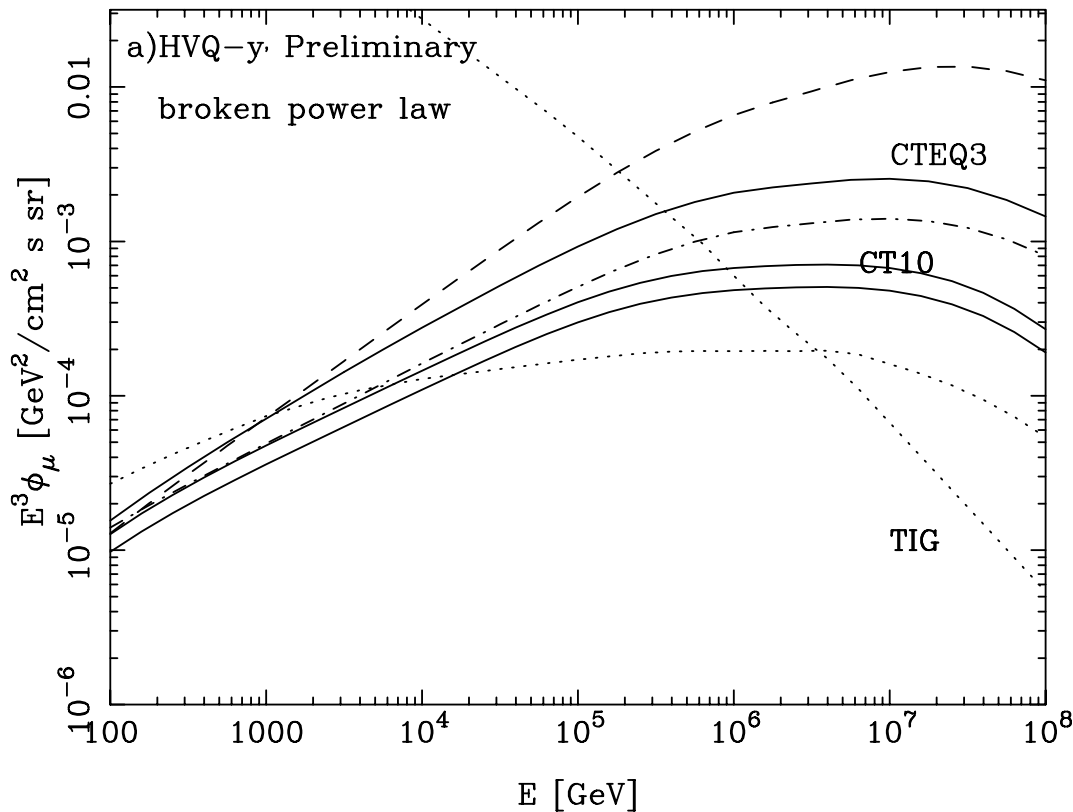
From Table 1, Gaisser, Astropart. Phys. 35 (2012) 801

CR nucleon spectrum



From Table 1, Gaisser, Astropart. Phys. 35 (2012) 801

NLO plus fragmentation (lower solid line) (preliminary)

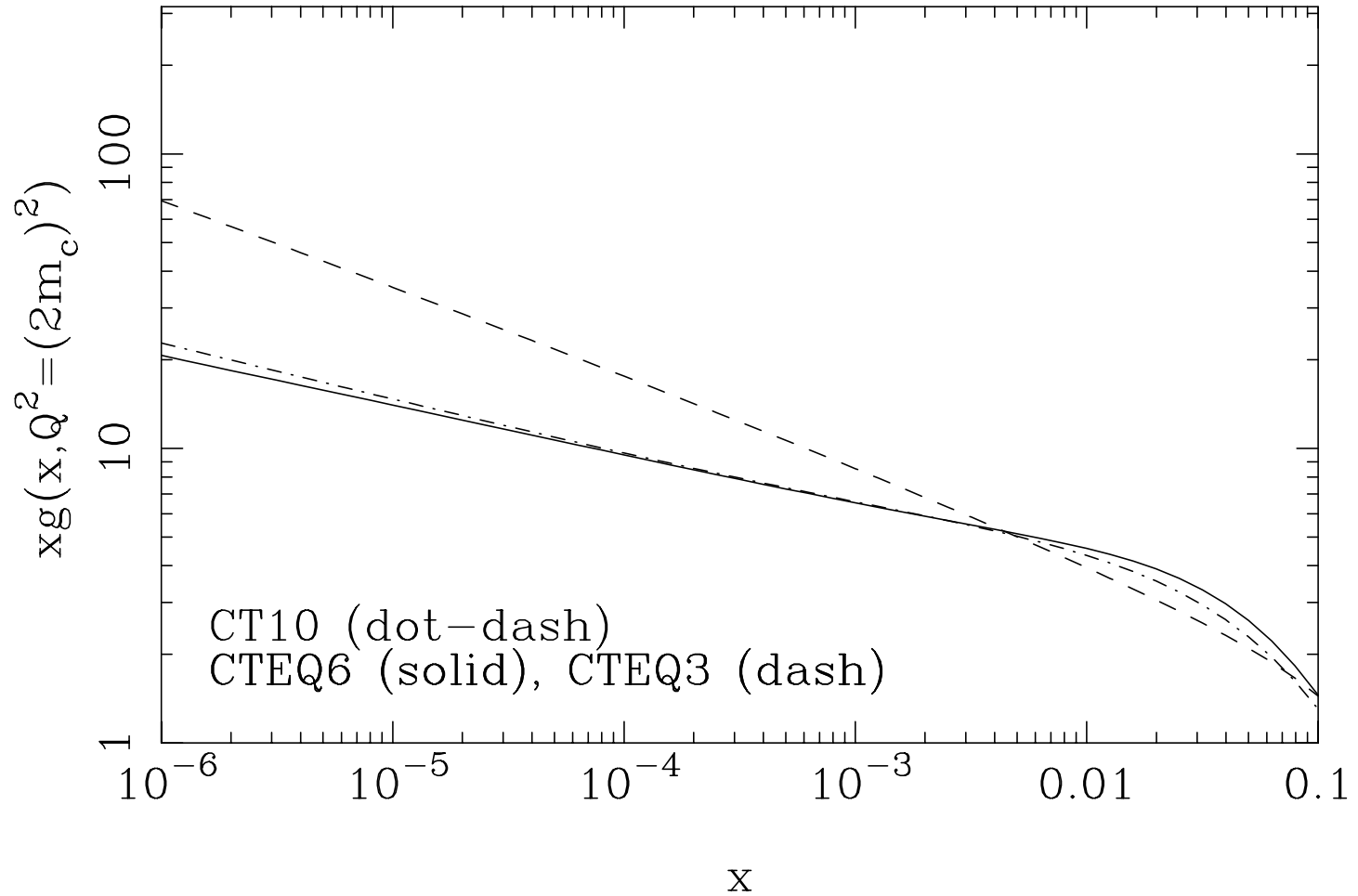


Steep dotted curve:
vertical muons from
pions, kaons.

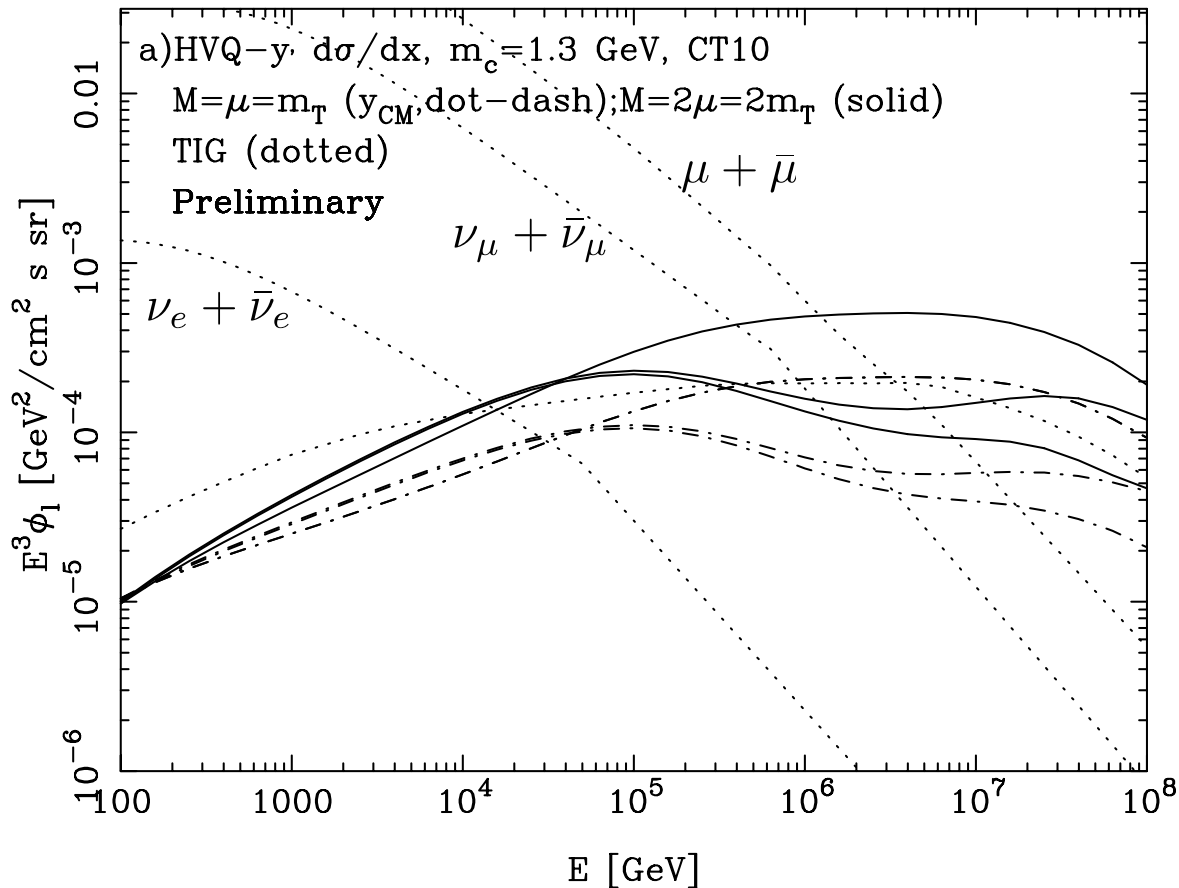
Other curves: prompt
flux where

$$\nu_e + \bar{\nu}_e = \nu_\mu + \bar{\nu}_\mu = \mu + \bar{\mu}$$

PDF comparison



NLO plus fragmentation plus CR model (preliminary)

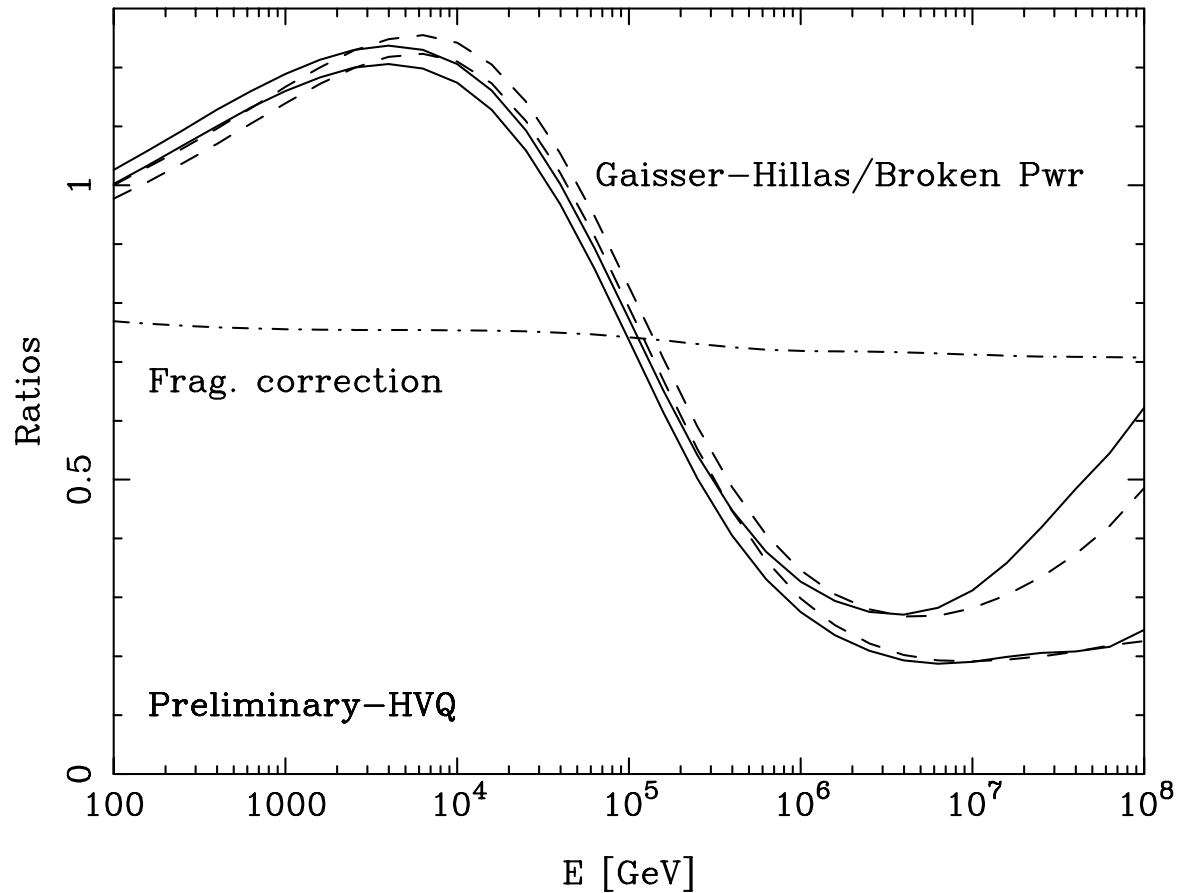


Caution! Normalization
subject to change!
Preliminary!

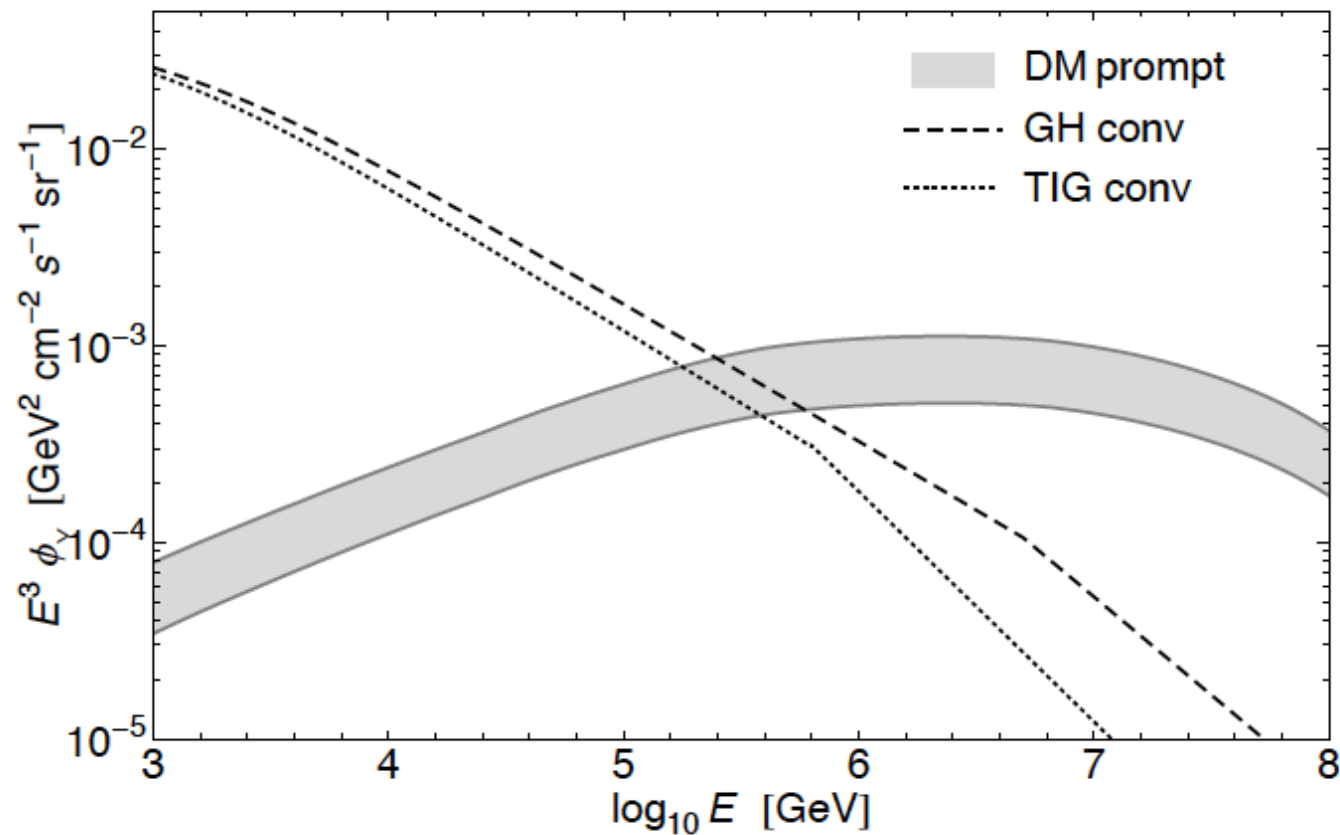
Lower wavy curves are
using the Gaisser-Hillas
parameters.

TIG (vertical lepton fluxes)

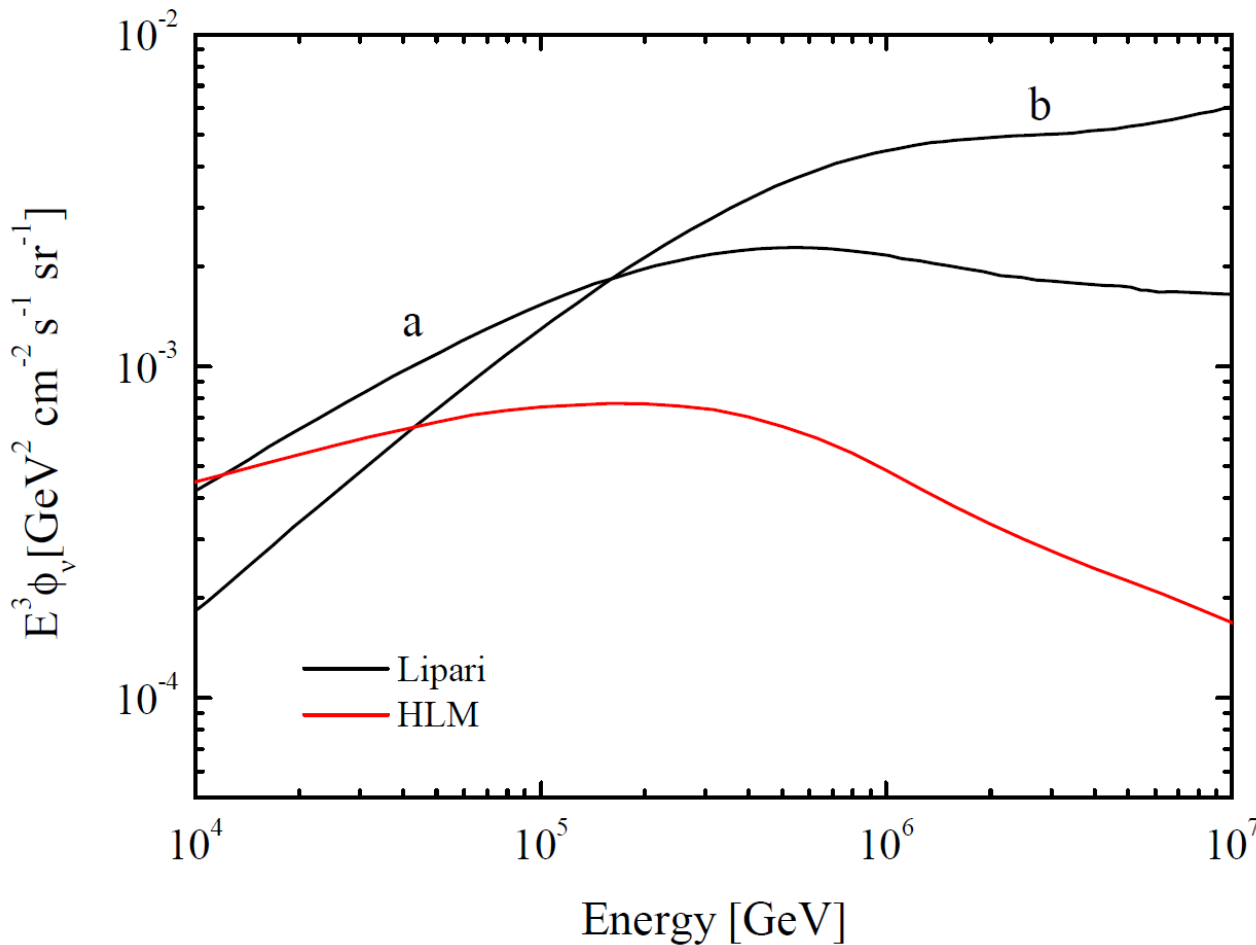
Ratios with input fluxes



Dipole calculation with broken power law



Intrinsic charm? (Preliminary)



a,b) Lipari, arXiv:
1308.2086

HLM: Hobbs,
Londergan &
Melnitchouk, PRD
89 (2014) 074008
a la Meson Baryon
Models.