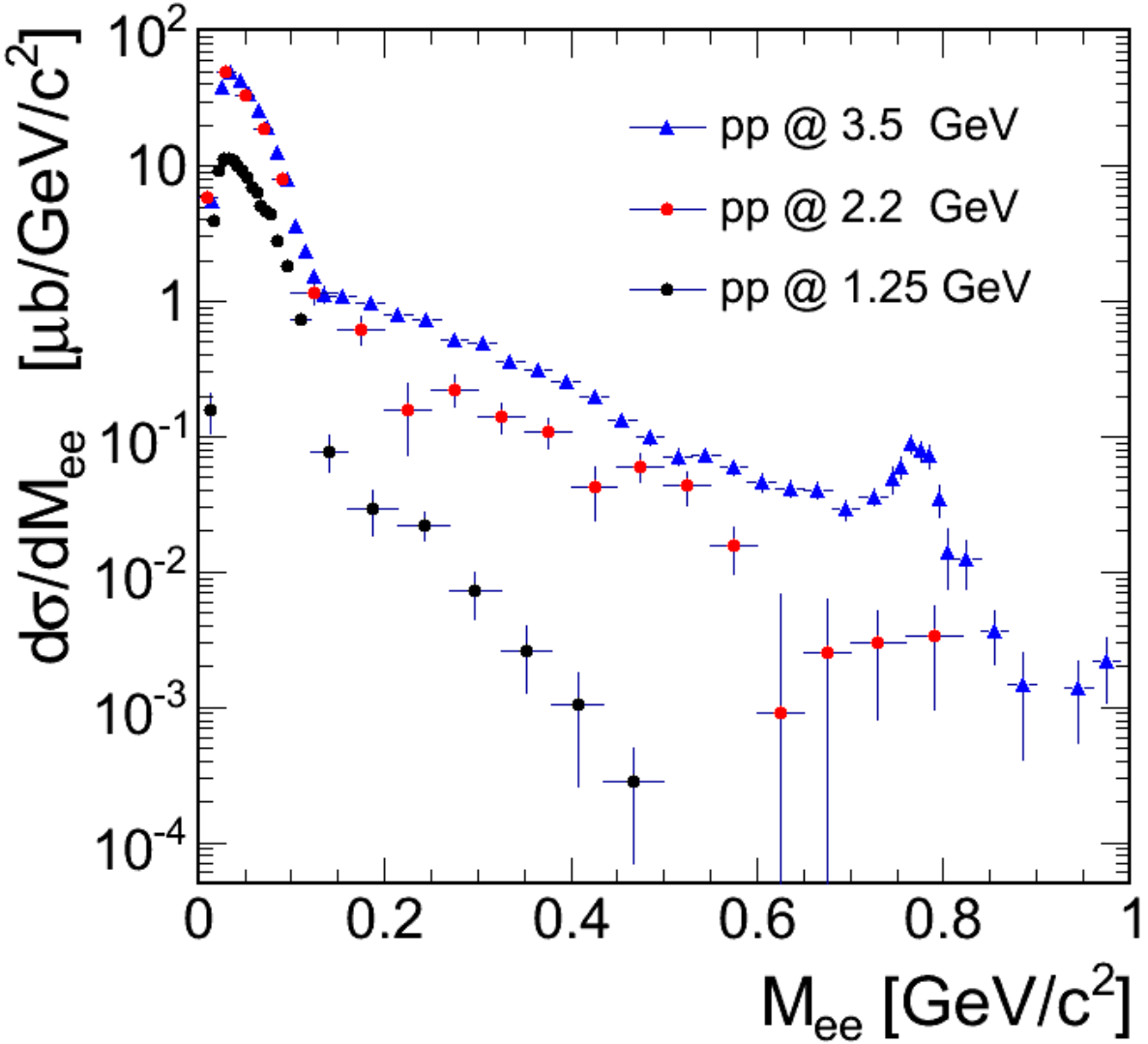
pp @ 2.2 GeV

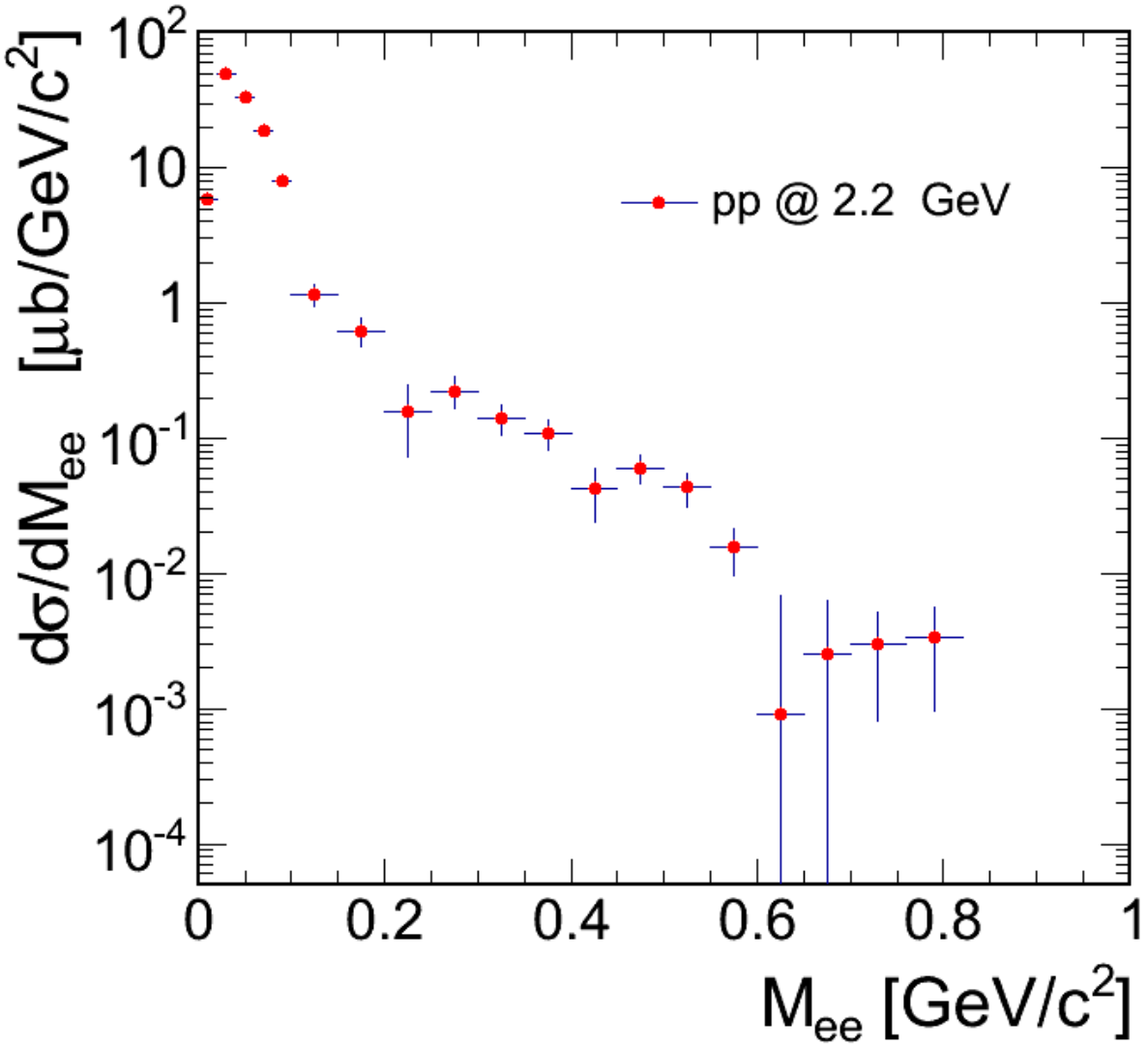
Malgorzata Gumberidze

HADES pp runs



p_e > 80 MeV/c

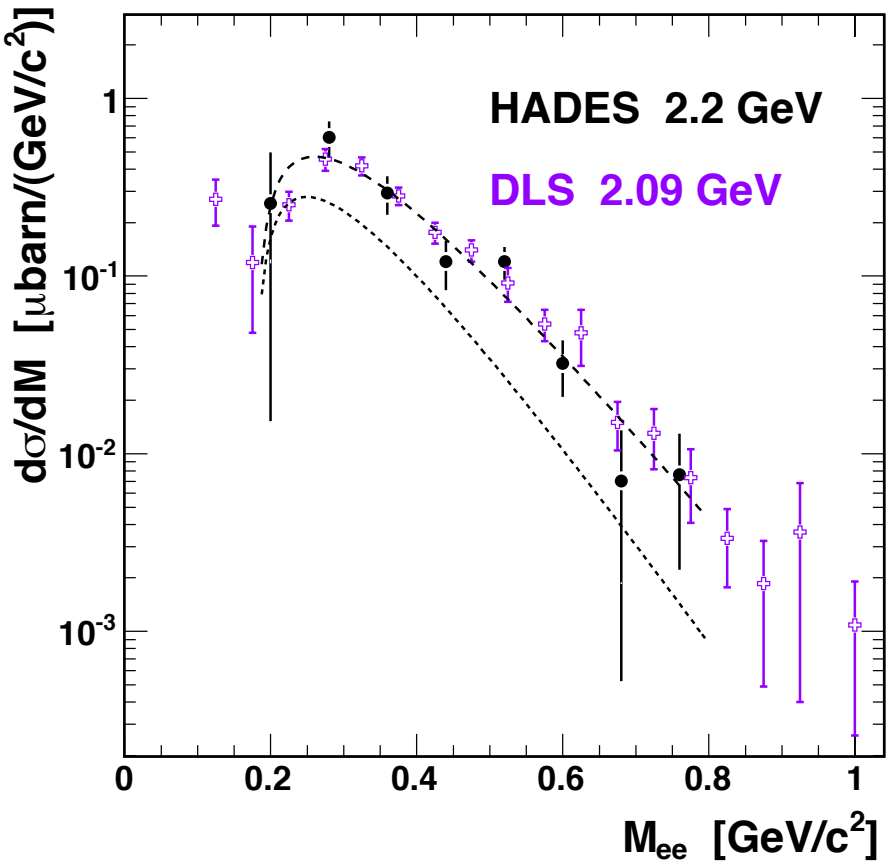
HADES pp runs

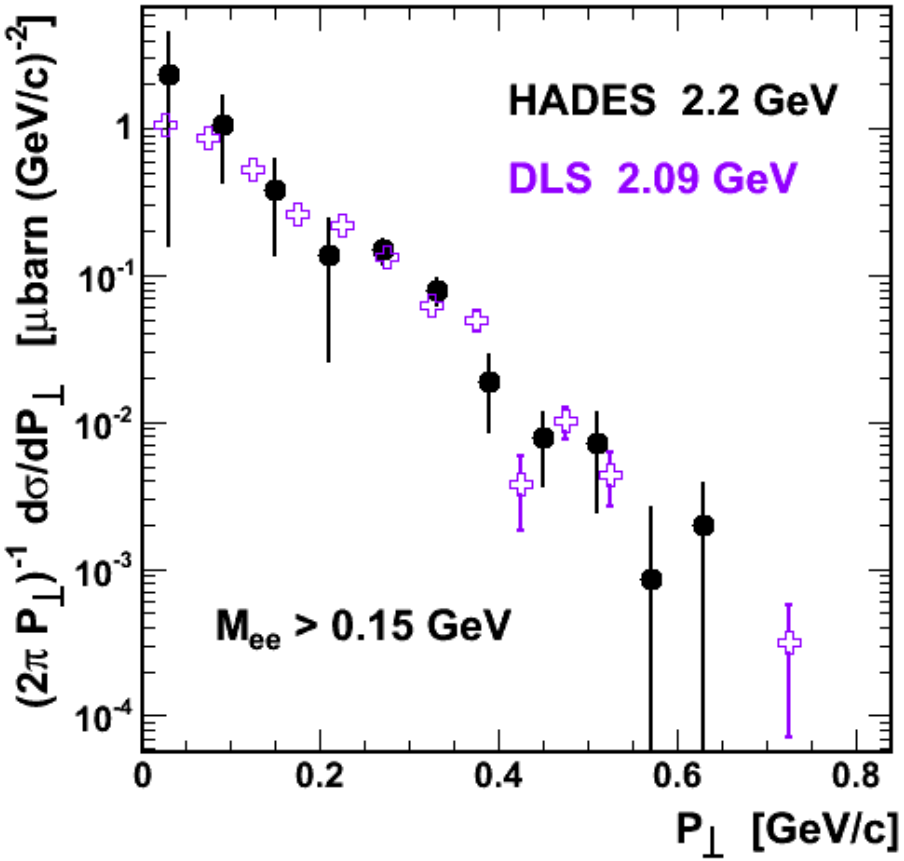


p_e > 80 MeV/c

HADES vs DLS: direct comparison

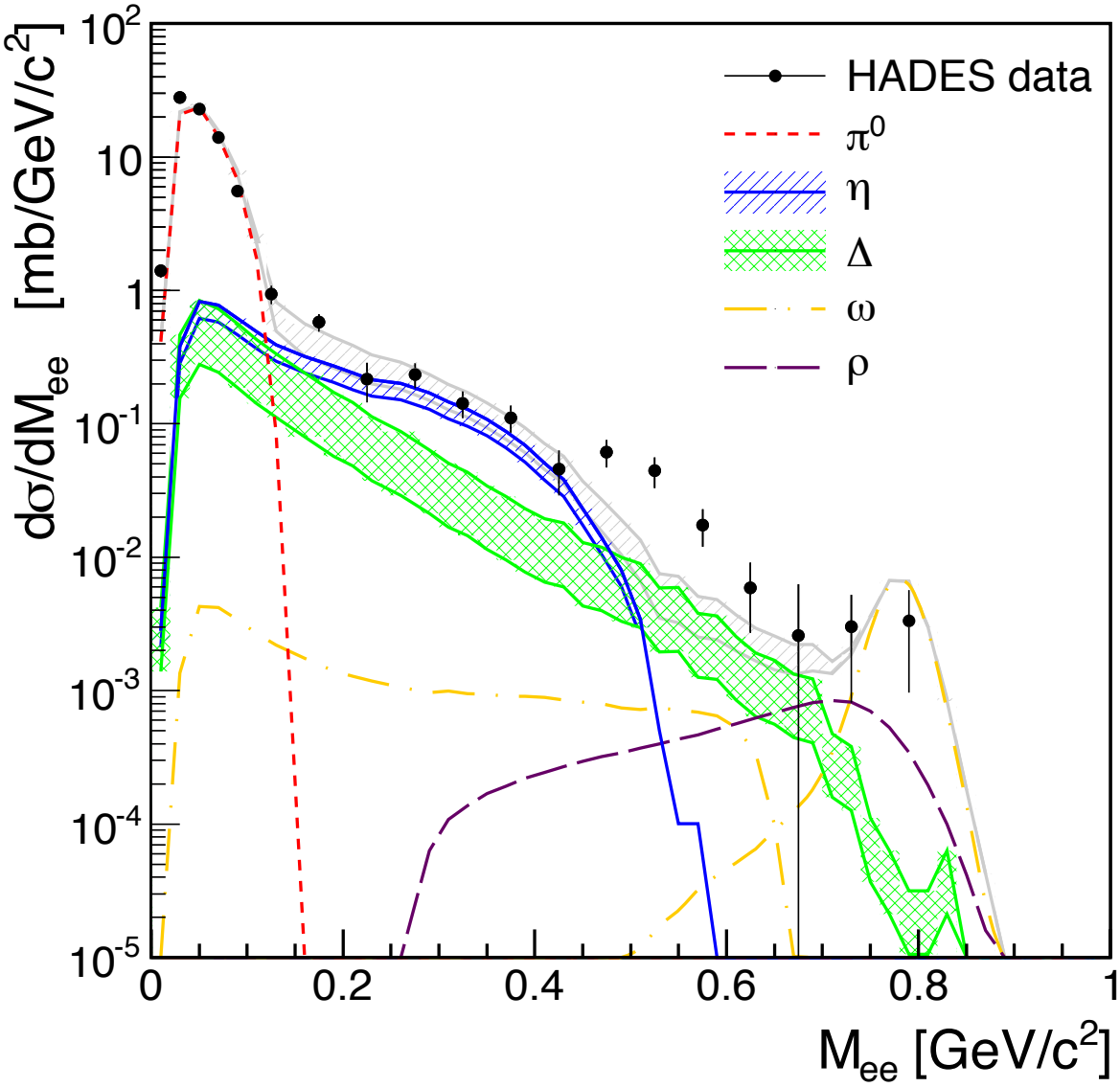
HADES projected into DLS acceptance: mass and pt





Good agreement of both experiments

Comparison with Pluto



PLUTO cross section

π⁰ 14 mb : adjusted to data

Δ (1) 22 mb : $\sigma_\Delta = 3/2\sigma_{\pi 0}$
(2) 7.5 mb : 1π (HADES) + 2π, X. Cao*

η (1) 0.2 mb ($1.5*\eta_{exc}$)
(2) 0.26 mb ($2*\eta_{exc}$)

ω 0.0112 mb (COSY**)

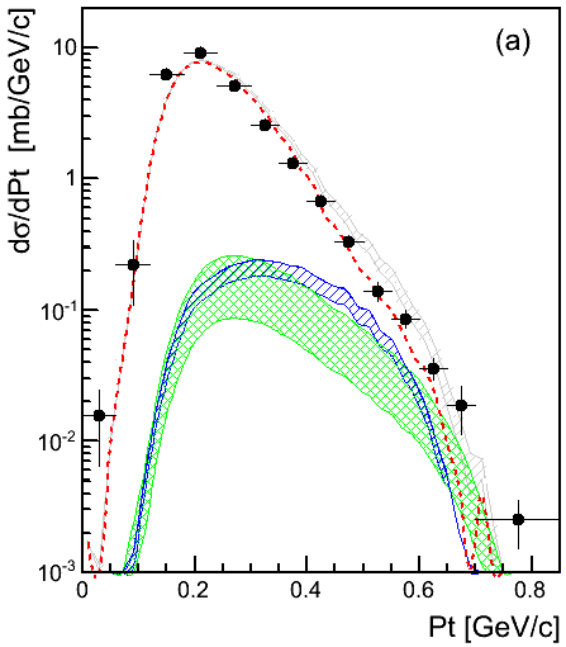
ρ 0.0112 mb (ω =ρ) ?

* Estimates for the cross section of Δ Dalitz are based on X. Cao et al., PRC 81 (2010) 065201

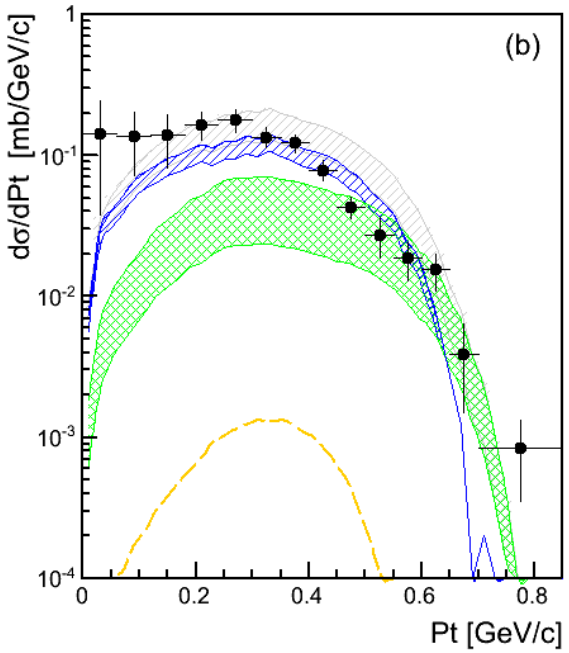
** The cross sections for ω and ρ are taken to be equal (COSY-TOF, PLB 522 (2001) 16-21)

Pt distribution

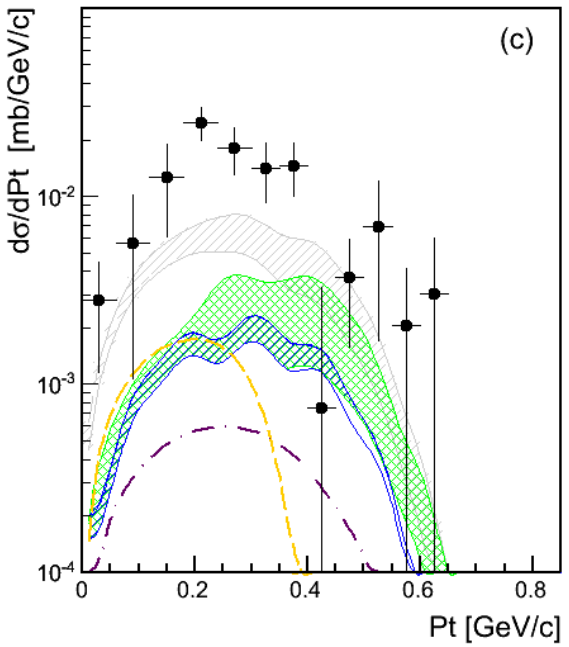
$M_{ee} < 0.14$ GeV/c^2



$0.14 < M_{ee} < 0.45$ GeV/c^2

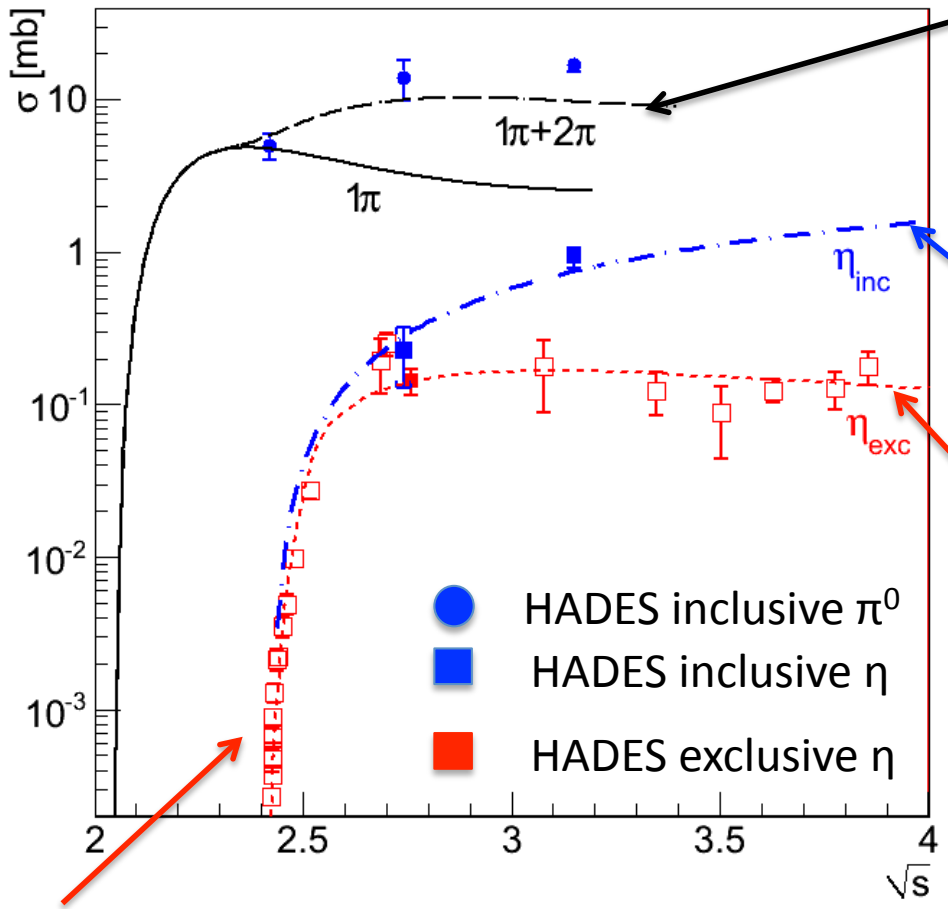


$M_{ee} > 0.45$ GeV/c^2



Nice agreement with the space space distributions at low and intermediate mass region

Inclusive π^0 and η cross-section



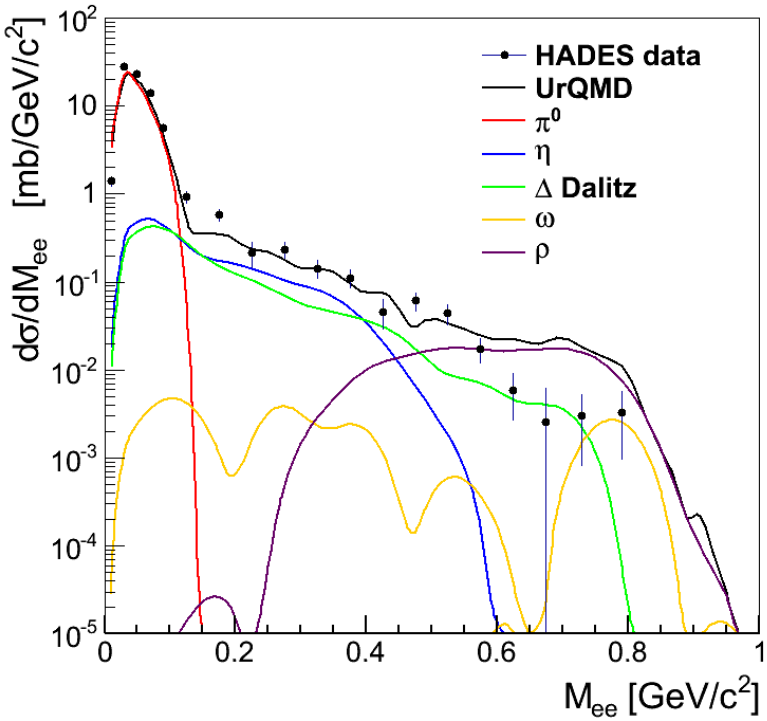
J. Bystricky et al.,
J. Physique 48, 1901 (1987)
- fit to exclusive one-π and two-π cross section

Sibirtsev, W. Cassing, U. Mosel
Z. Phys. A 358, 357 (1997)
- fit to Pythia

S. Teis et al.,
Z. Phys. A 356, 421 (1997)
- resonance model

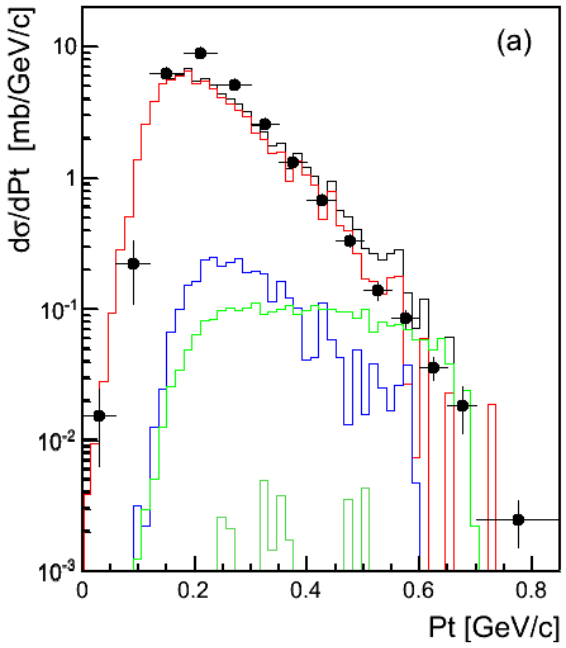
η exclusive – compilation of data
from P. Moskal et al., Nucl. Phys. 49, 1 (2002)

Comparison with UrQMD

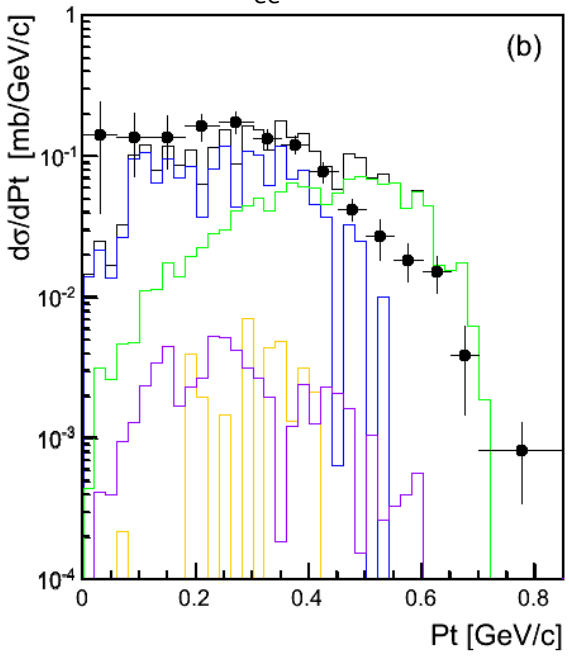


K. Schmidt et al.,
Phys Rev C, 79, 64908

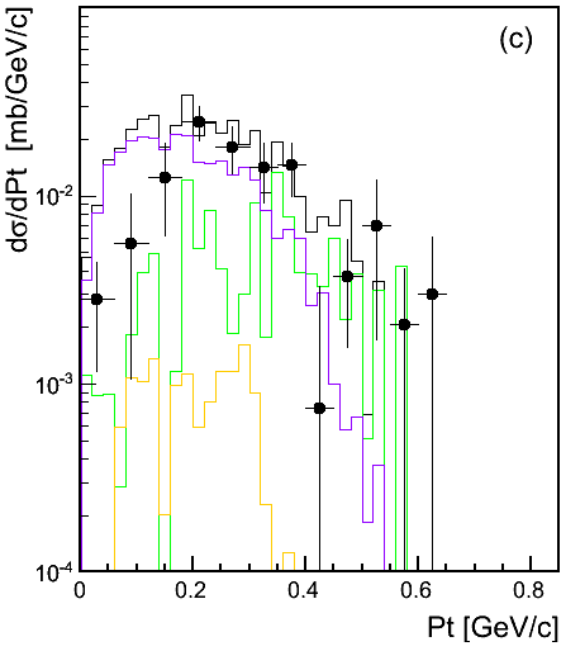
$M_{ee} < 0.14$ GeV/c^2



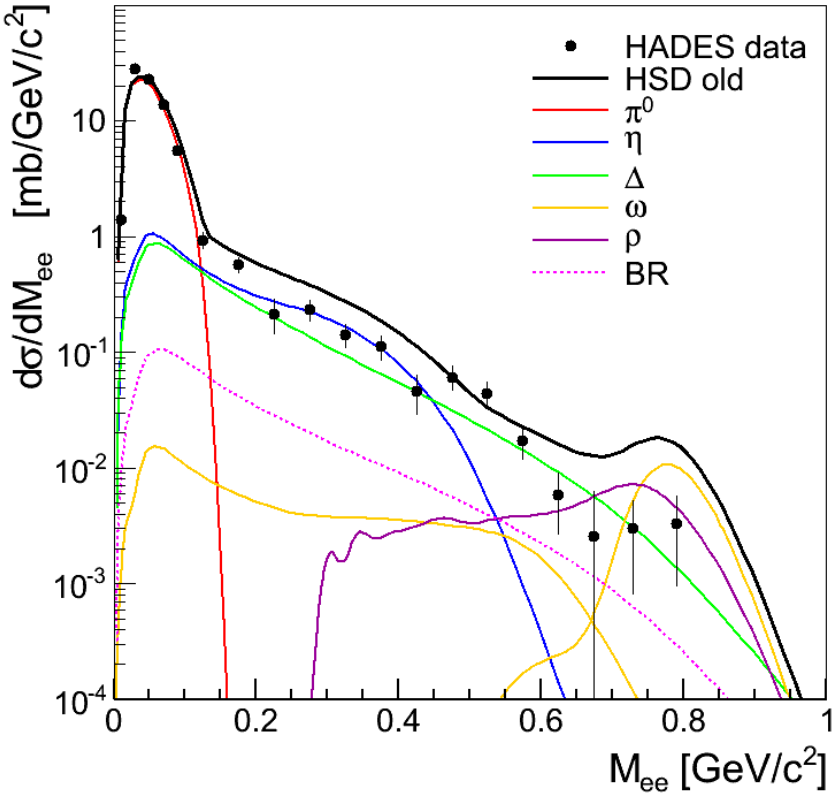
$0.14 < M_{ee} < 0.45$ GeV/c^2



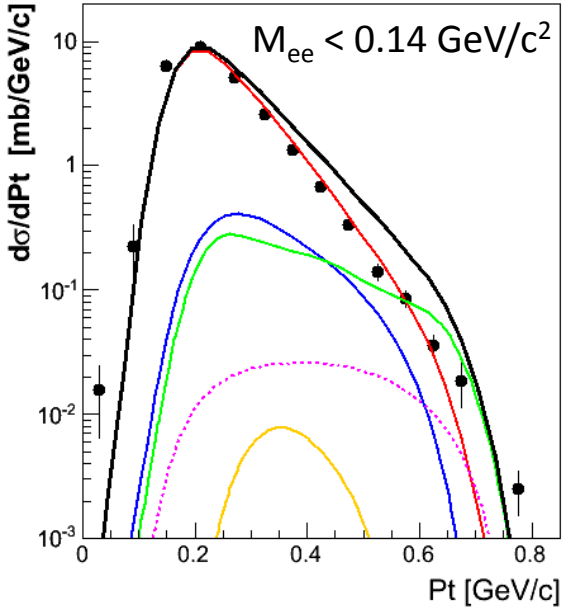
$M_{ee} > 0.45$ GeV/c^2

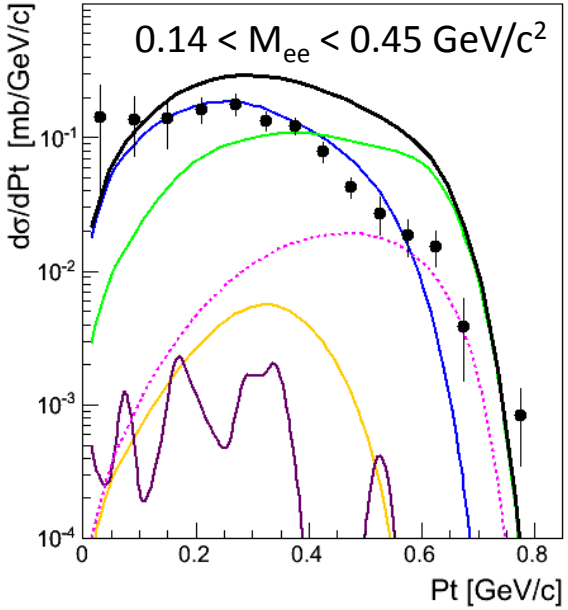


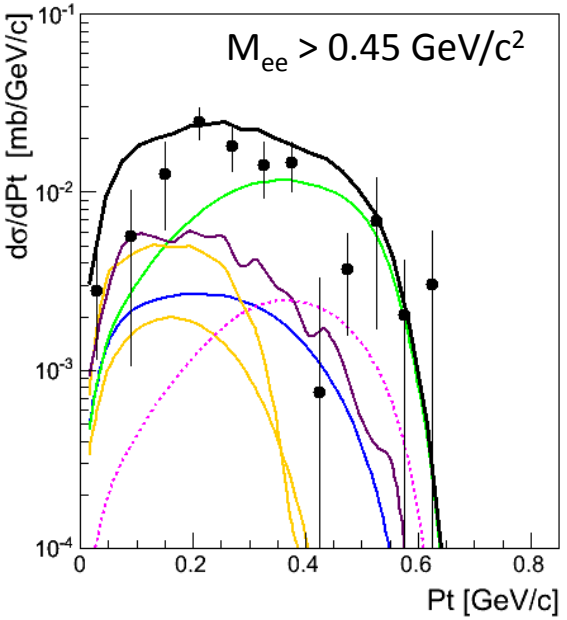
Comparison with HSD



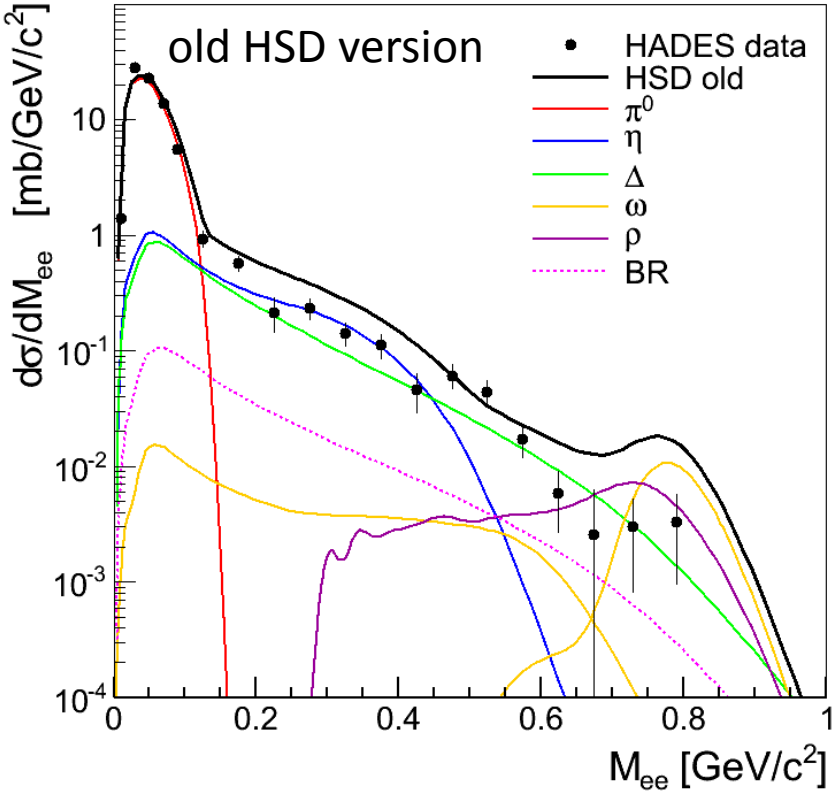
E. L. Bratkovskaya, W. Cassing
Nucl. Phys. A 807 (2008) 214-250

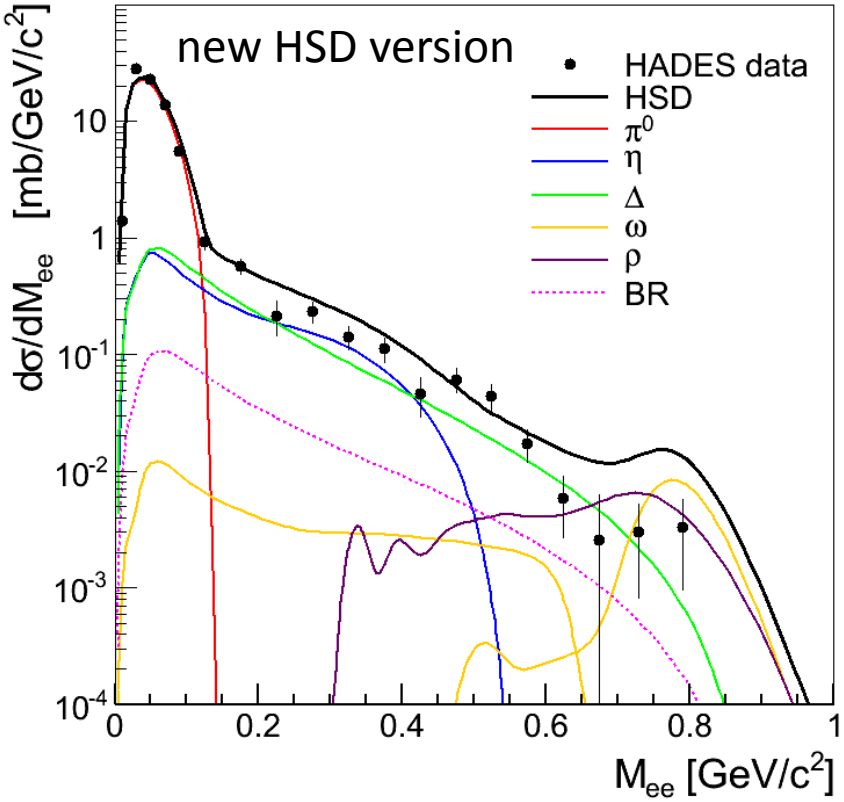






Comparison with HSD





PARTICLE	**OLD [mb]**	**NEW [mb]**
π^0	15	15
η	0.48	0.34
Δ	25	23
$\omega_{dal/dir}$	0.06/0.05	0.05/0.04
ρ	0.17	0.17

backup slides

Phenomenological analysis of the double-pion production in nucleon-nucleon collisions up to 2.2 GeV

Xu Cao,[1,3,5,*] Bing-Song Zou,[2,3,4] and Hu-Shan Xu[1,3,4]