

Toward FTF validation

A. Galoyan and V. Uzhinsky, 20 March. 2013

1. Problem formulation
2. Structure of the main directory for the task
3. Structure of sub-directory. Each subdirectory is aimed for FTF validation for defined reaction.
4. Results obtained with the current release – 09-06-ref-03
5. Comparison of current calculation results with previous ones
6. Conclusion and Plans

Problem formulation

Many experimental data were gathered and analyzed during FTF development

The data were not accessible for users

Aims:

Make the exp. data available.

Creation of codes:

For fast simulation with FTF

For comparison of calculations of present version and exp. data

For comparison of different version calculations with exp. data

User - calculations in current version

Developer – comparison of current results with previous ones

Current content of main directory for FTF validation (/tests/test22)

ChipsX
GNUmakefile
History
Include
KmPchan
KpPchan
pbarA_X
PbarPchan
PimPchan
PipPchan
Ppchan

README

src

Subdirectories “**Incude**” and “**src**” are based on tests/test30).
In other subdirectories, the information on exp. data, scripts for calculations of π^\pm , K^\pm , P, Pbar – P and Pbar-Nucleus cross-sections and also scripts for visualization are stored.

Many other subdirectories will be added:

for **kinematical characteristics** in presented reactions,

for characteristics of π^\pm , K^\pm , P – **Nucleus** reactions,

for **Nucleus-Nucleus** and **anti-Nucleus – Nucleus** reactions.

Content of sub-directory PPchan

Exp_LPKp.dat Exp_pn_2pip_pim.dat Exp_pn_pip.dat

Exp_pp_pi0.dat

Exp_pp_pim_pip.dat Exp_pp_pim_pip_pi0.dat

Prong2.dat Prong4.dat Prong6.dat Prong8.dat

G09-06-ref-00

PPchanTest

PPCHANmakefile PPchan.cc PPchan.mac

PPchan.dat PPtopo.dat

PPChanFigs

PPprong.C PPchan.C

PP_ch.gif PP_pr.gif

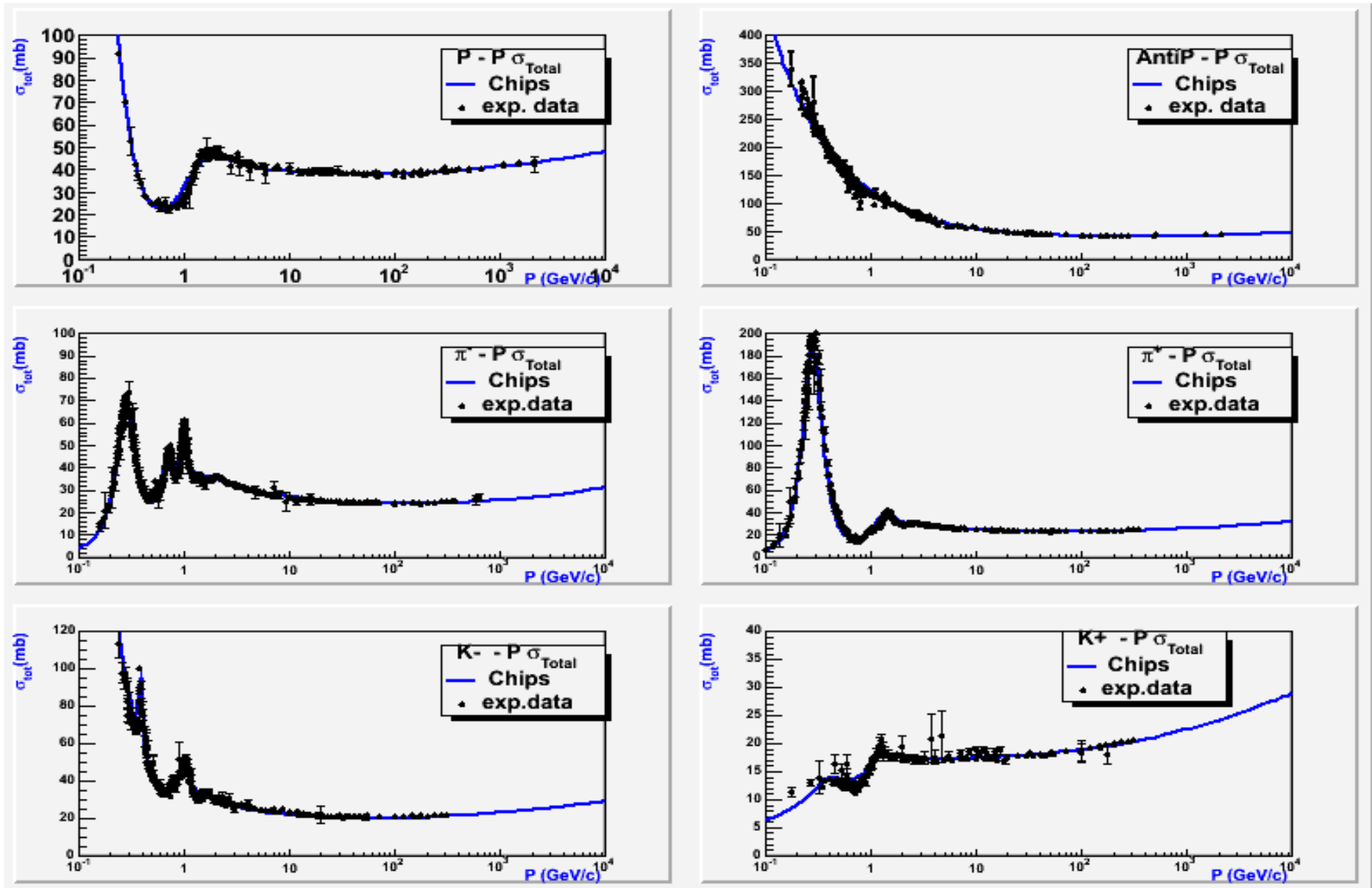
PPFigs_comp

PPch_comp.C PPpr_comp.C

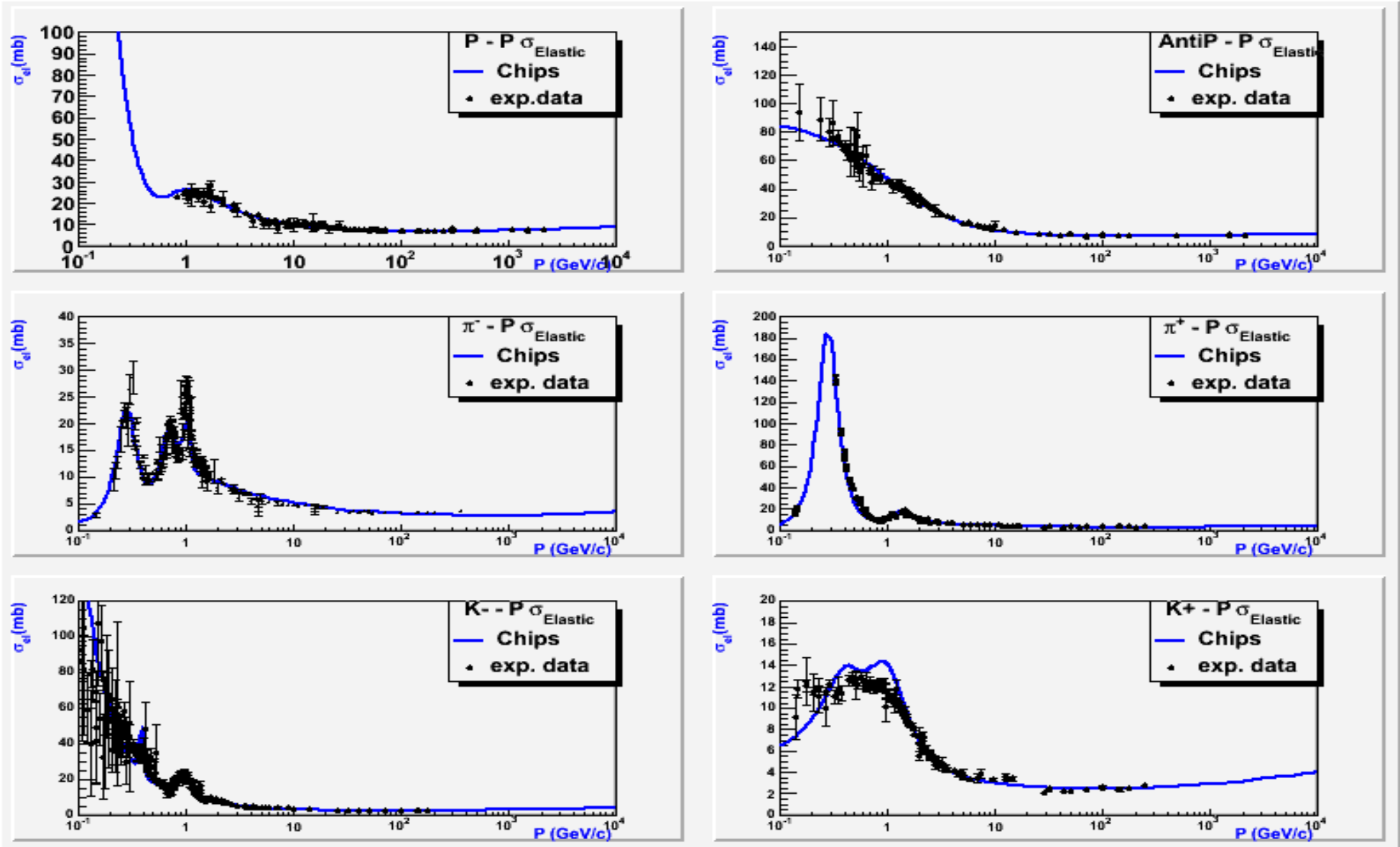
PPch_comp.gif PPpr_comp.gif

Other subdirectories have analogical structure

Test of Chips Total Cross-sections

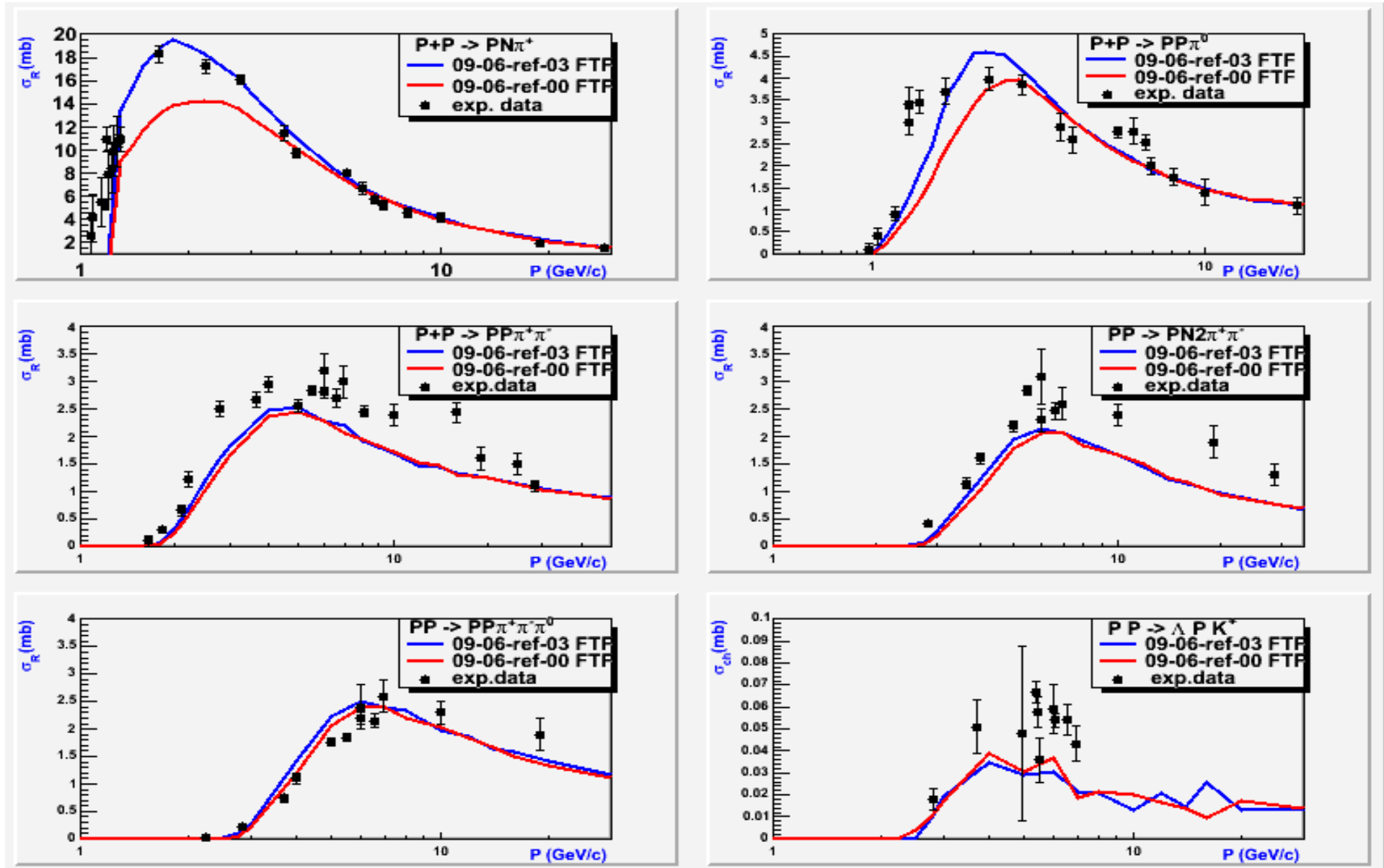


Test of Chips Elastic Cross-sections



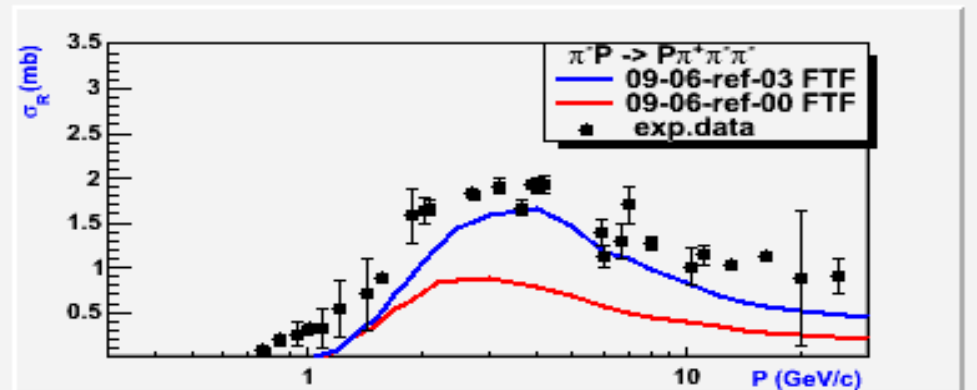
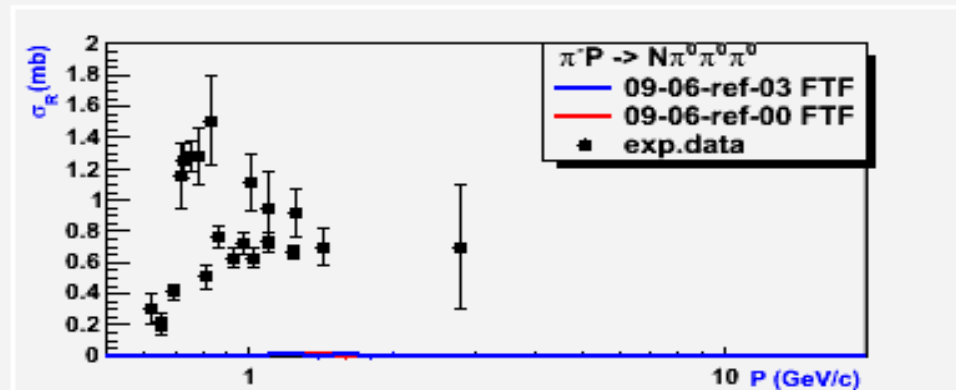
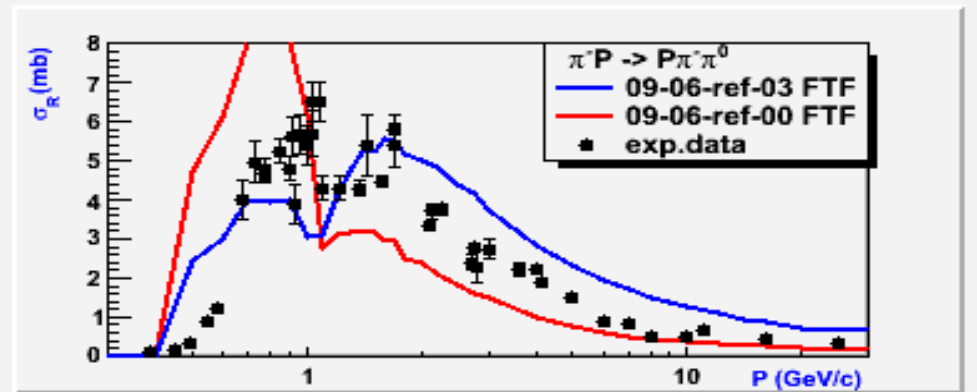
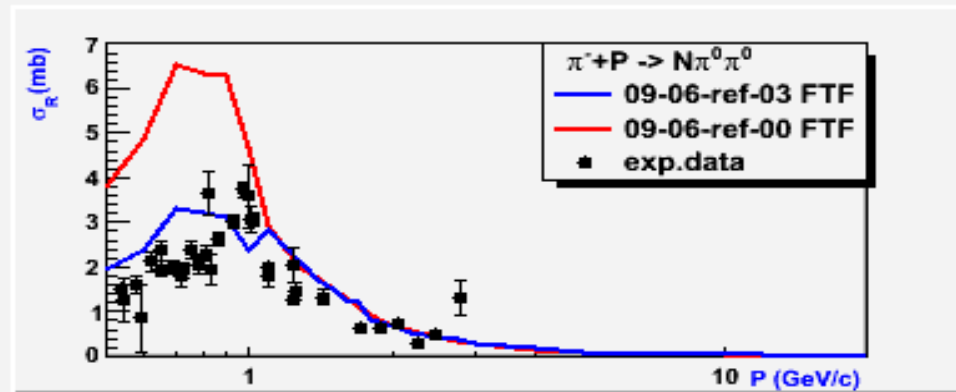
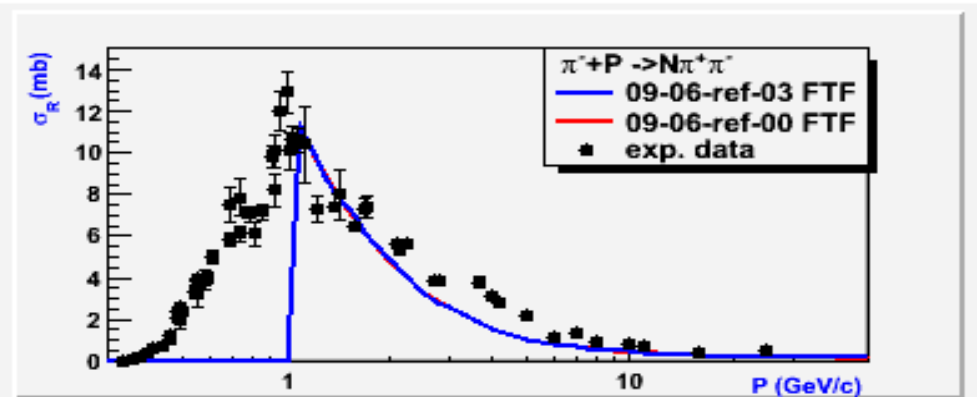
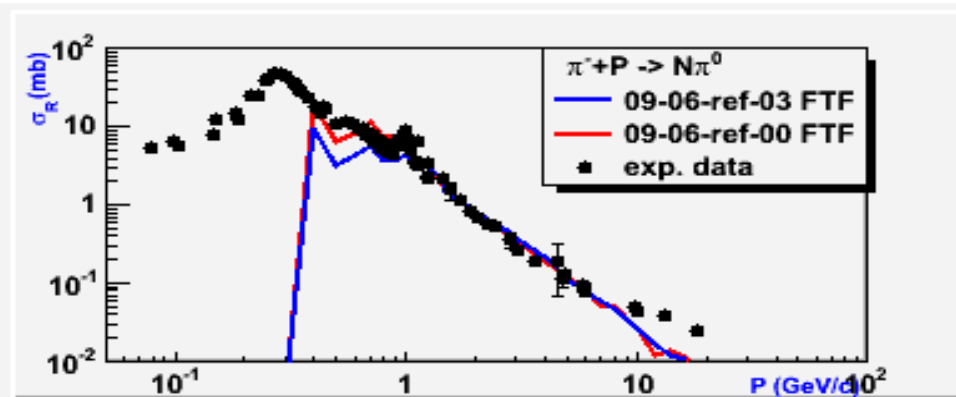
PP channel cross sections

comparison of results for refs: 09-06-ref-03 and 09-06-ref-00.



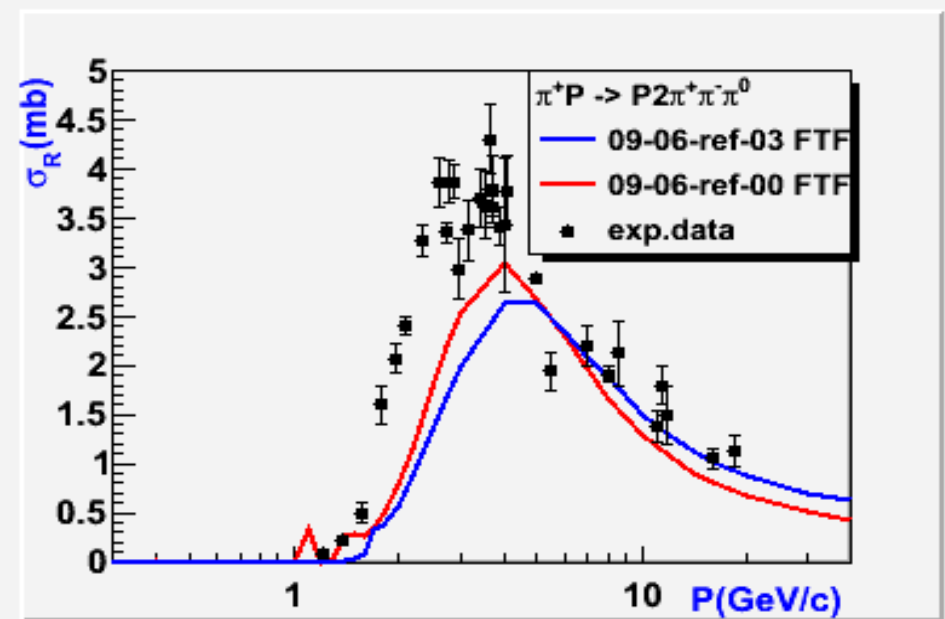
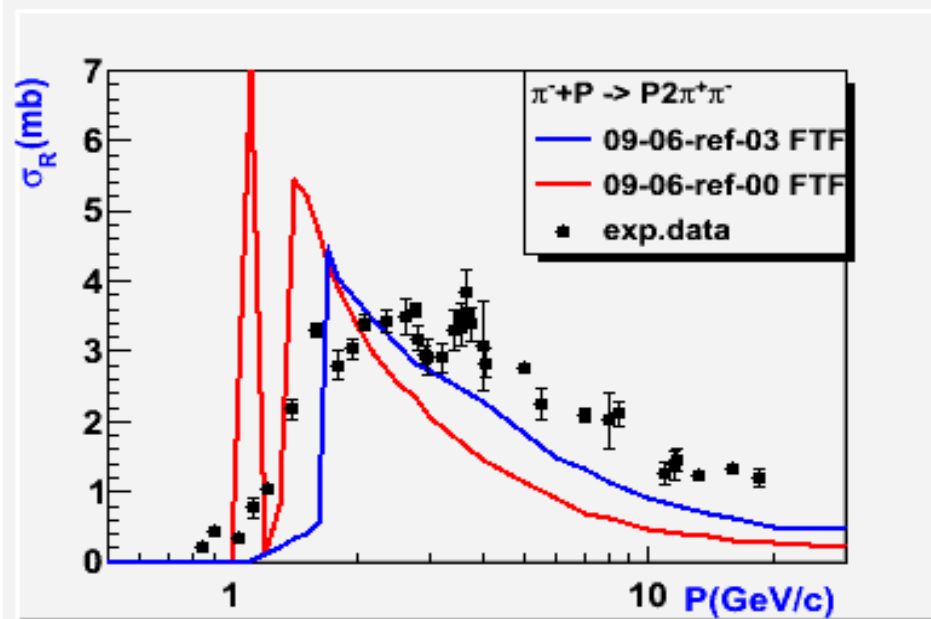
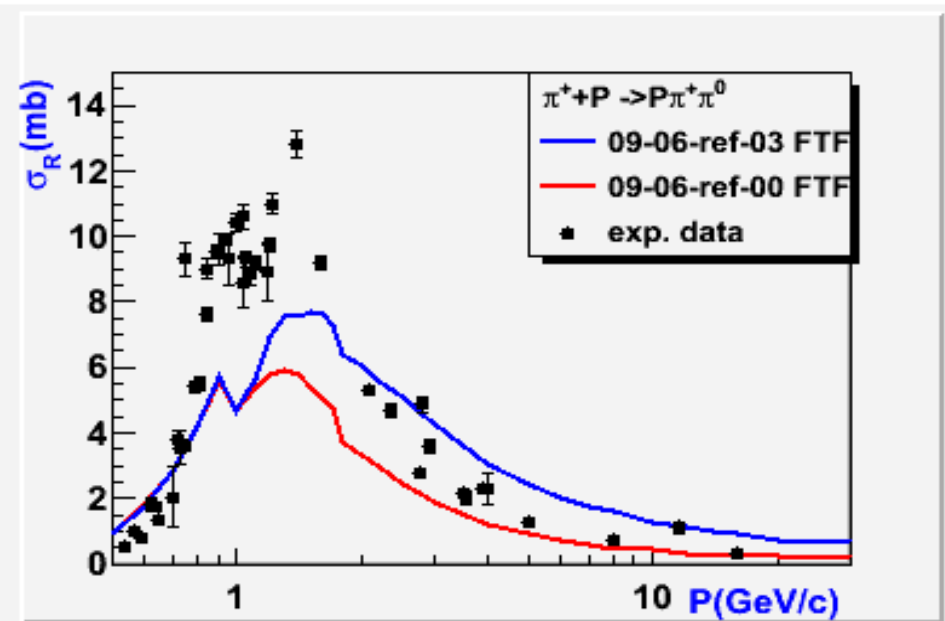
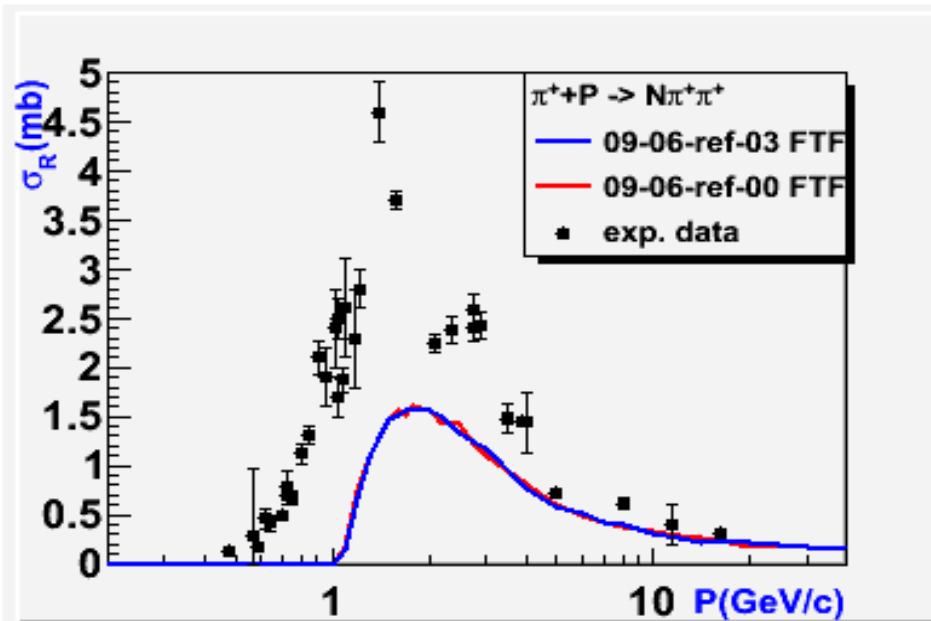
π^- -P channel cross sections

comparison of results for refs: 09-06-ref-03 and 09-06-ref-00.



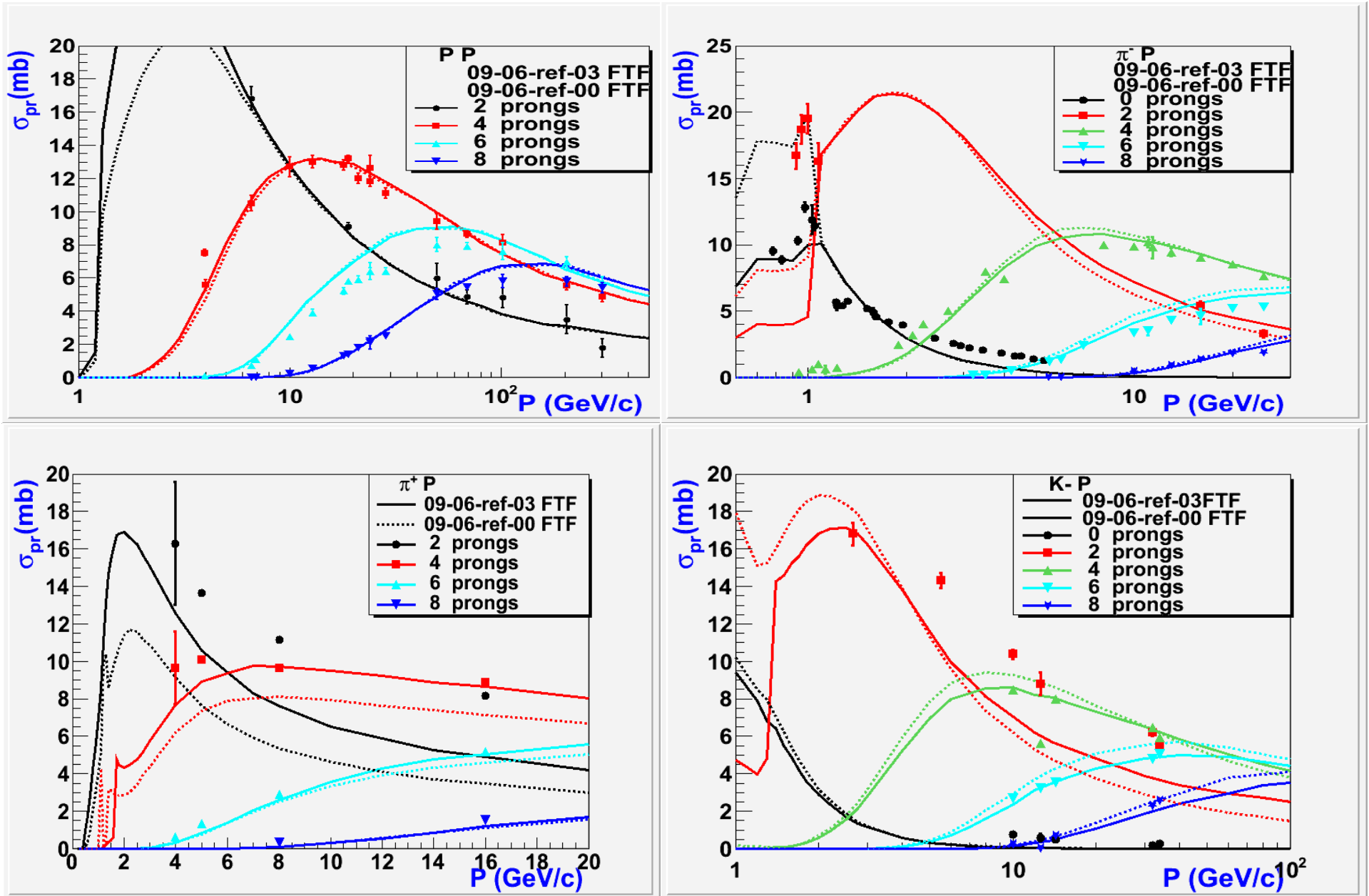
$\pi^+ P$ channel cross sections

comparison of results for refs: 09-06-ref-03 and 09-06-ref-00.



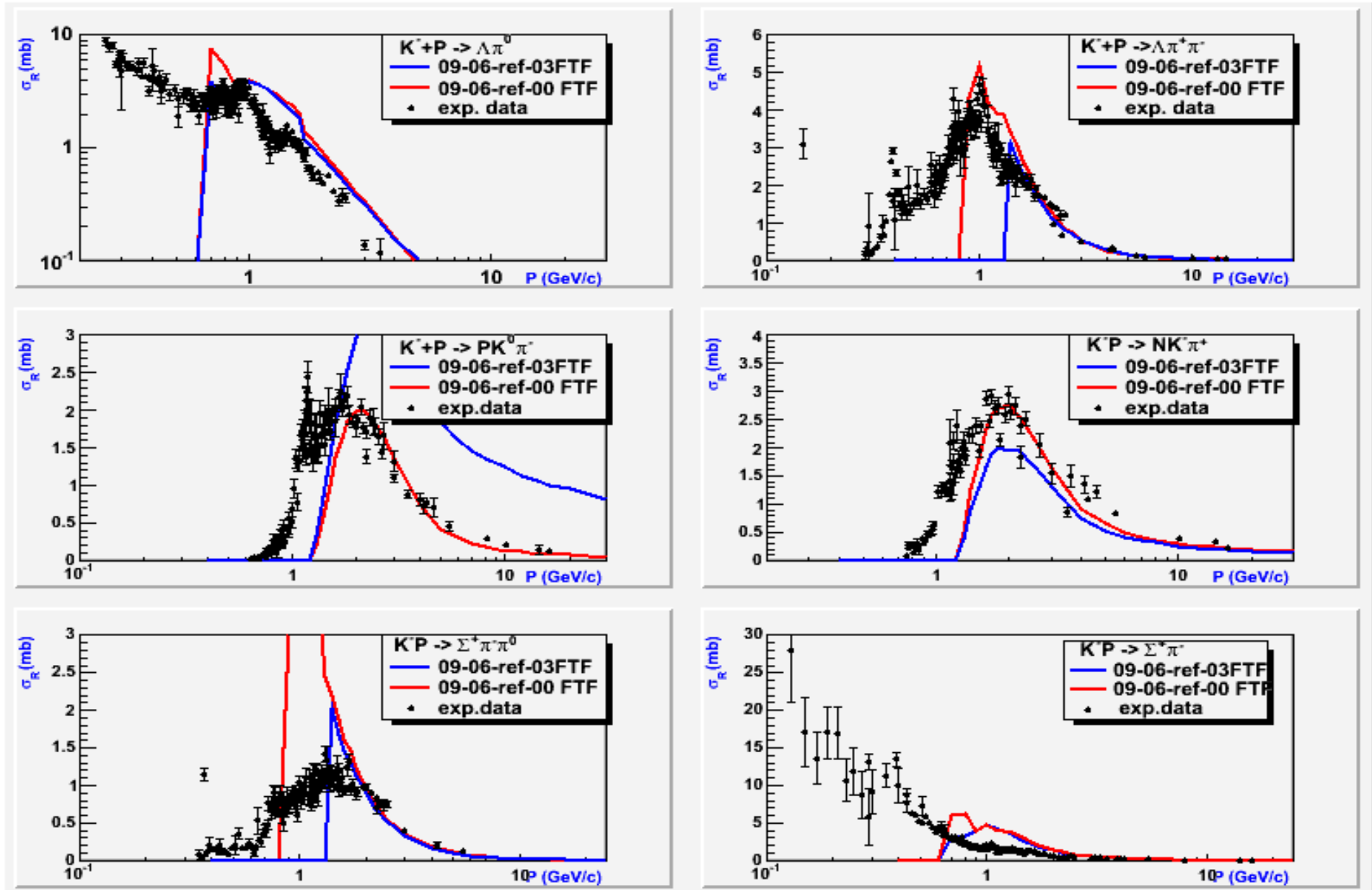
Topological cross sections of PP, $\pi^\pm P$, K-P

comparison of results for refs: 09-06-ref-03 and 09-06-ref-00.



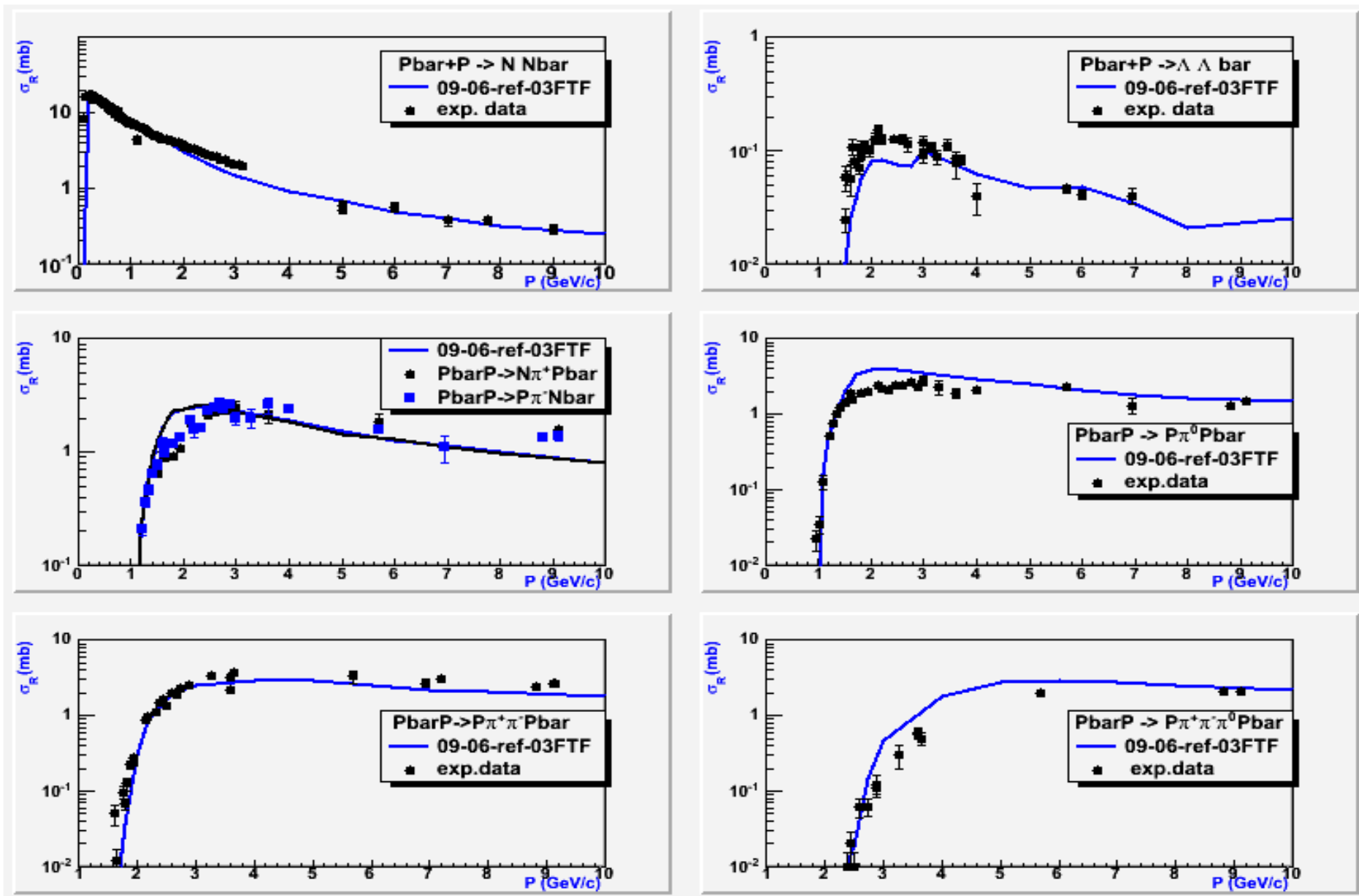
$K^- P$ channel cross sections

comparison of results for refs: 09-06-ref-03 and 09-06-ref-00.



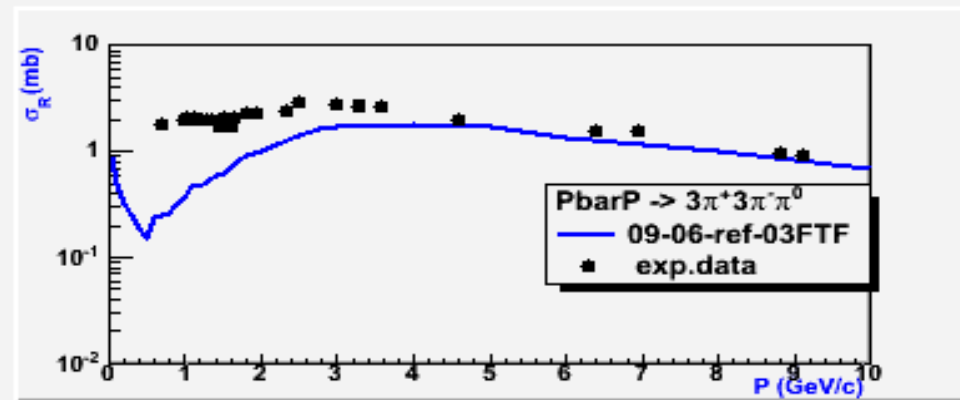
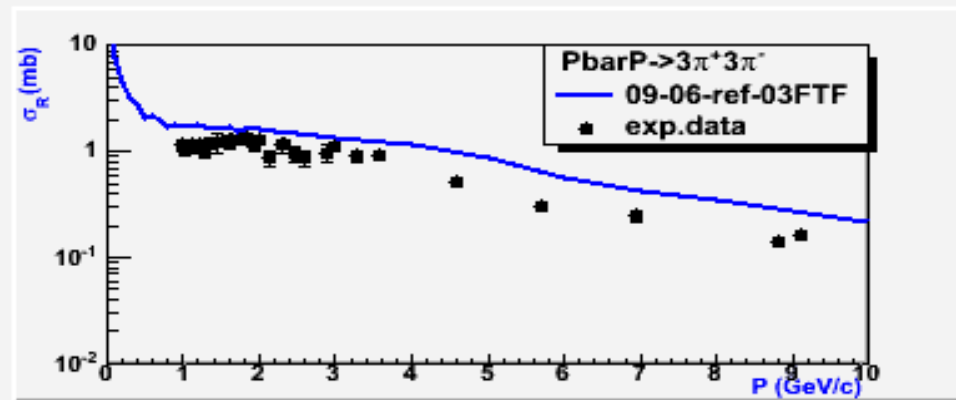
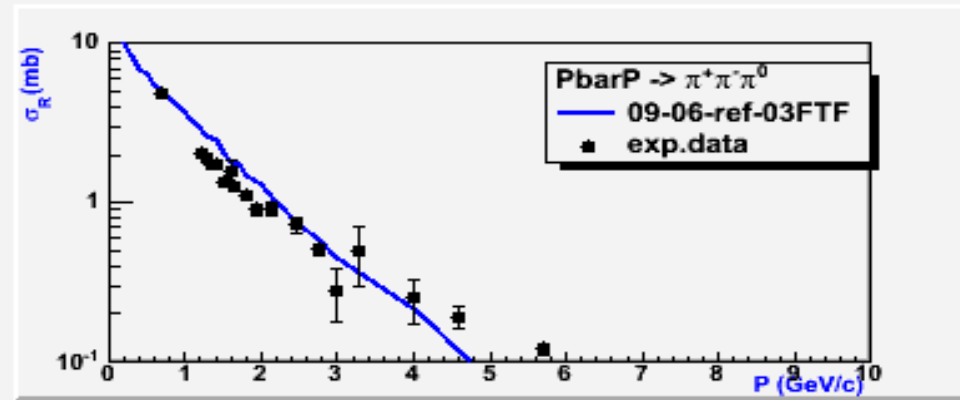
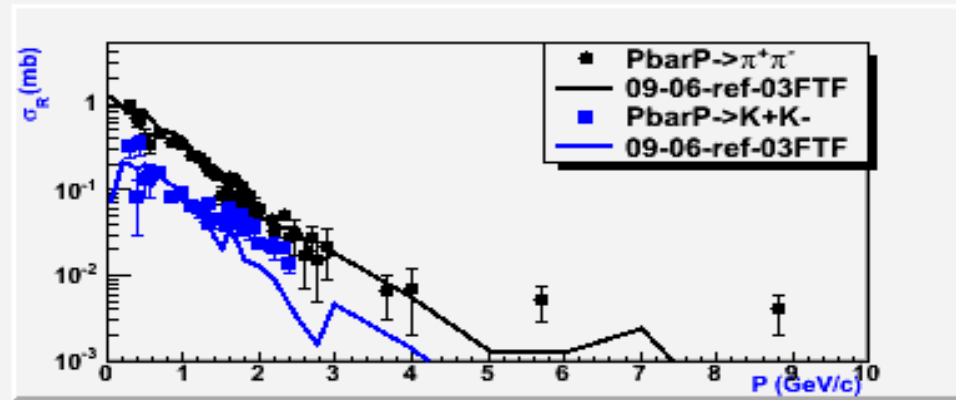
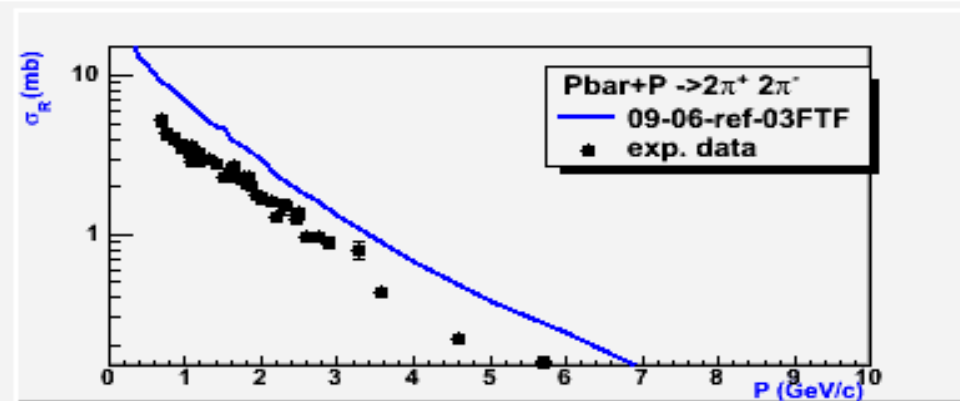
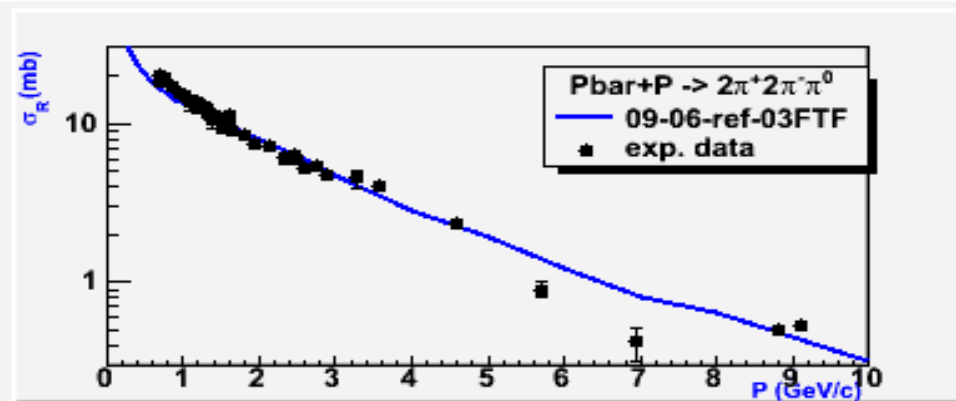
Pbar-P channel cross sections with baryons in final states

Results for ref: 09-06-ref-03



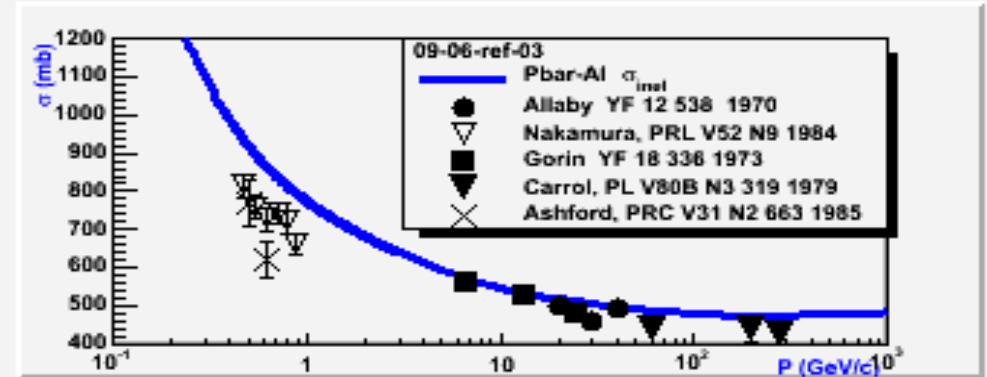
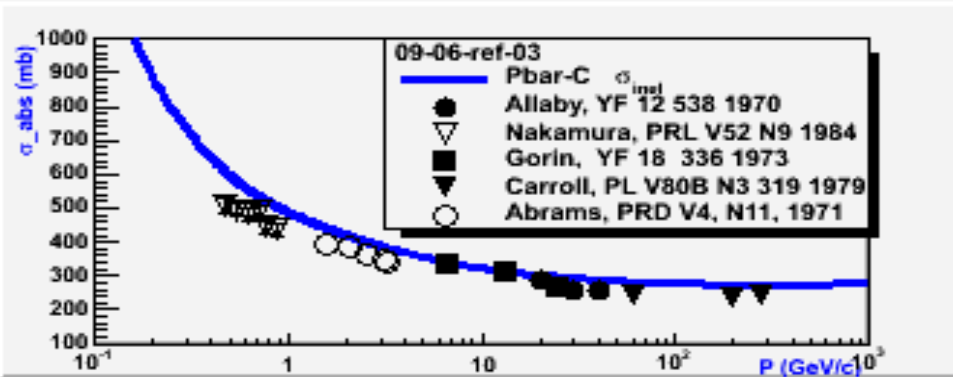
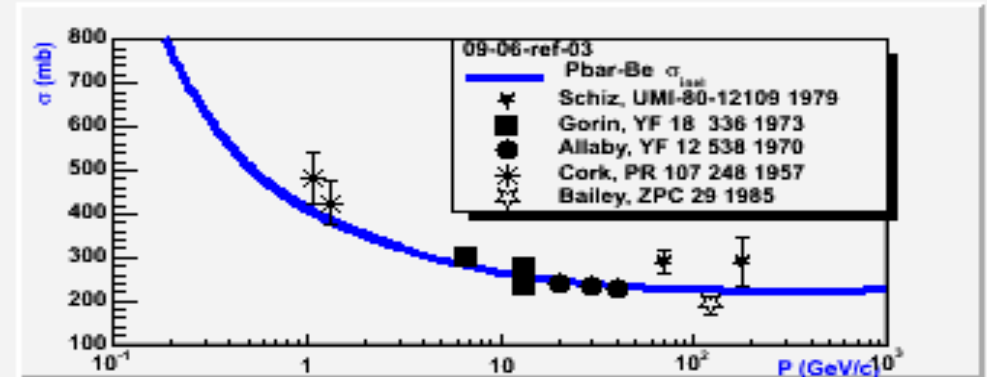
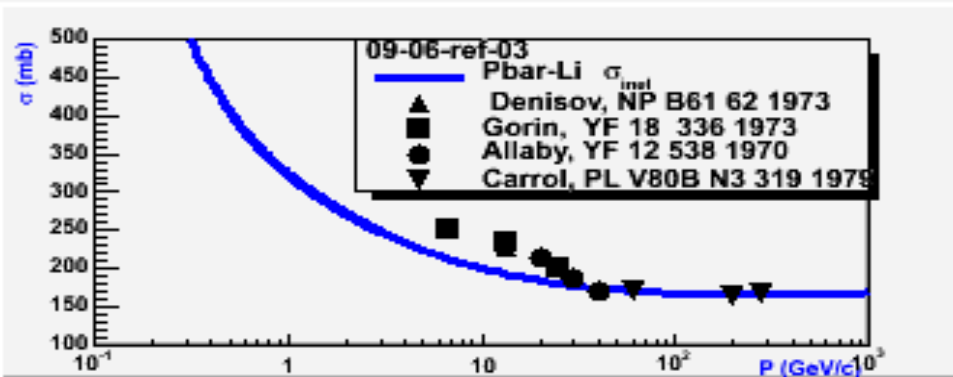
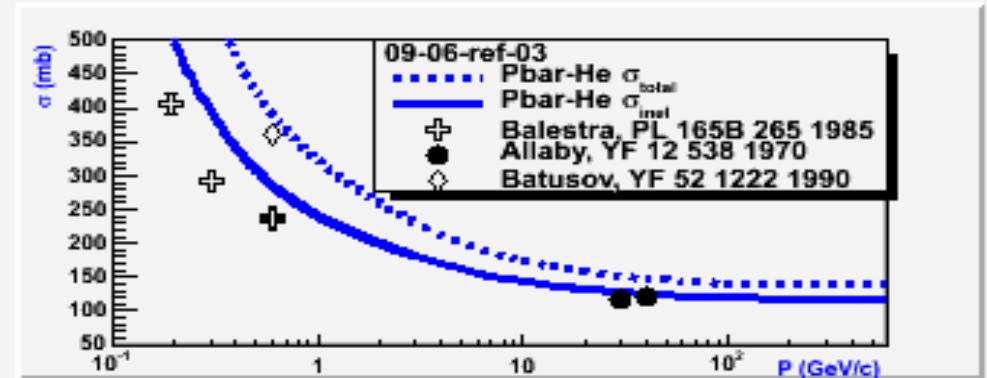
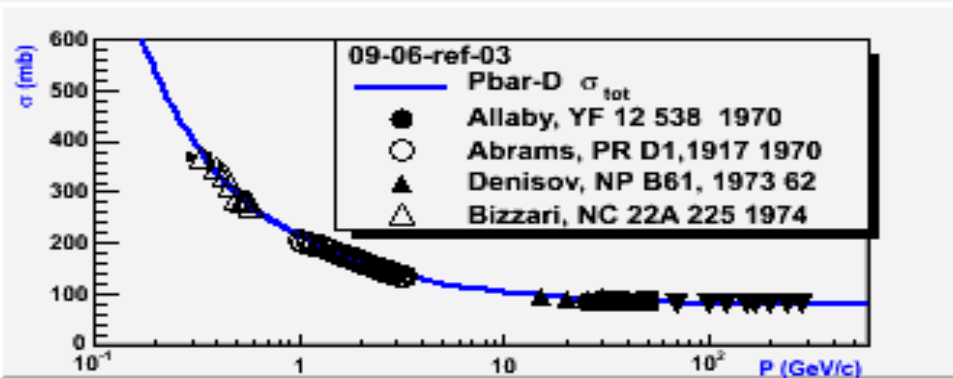
Pbar P annihilation channel cross sections

results for ref: 09-06-ref-03



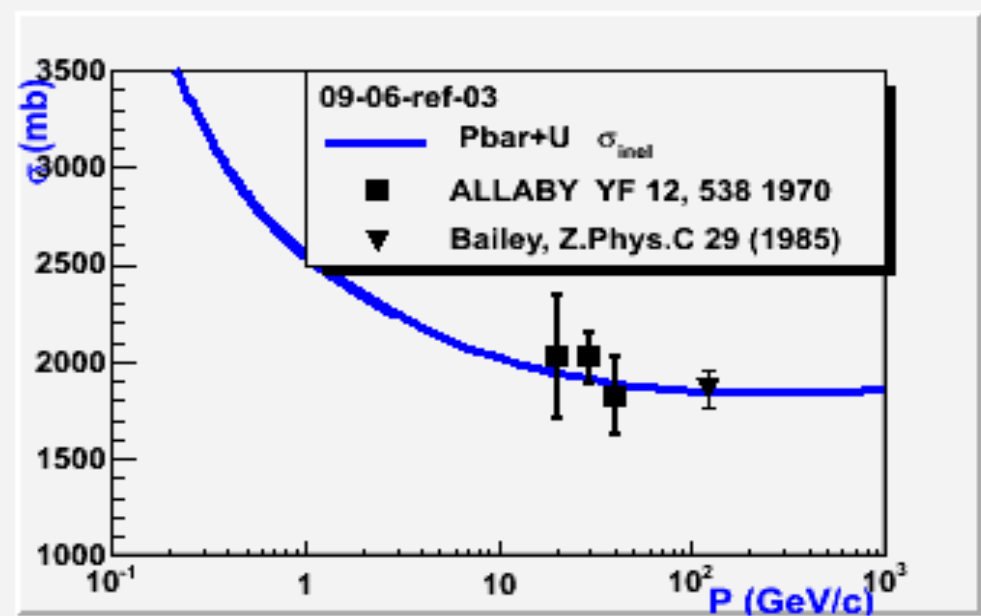
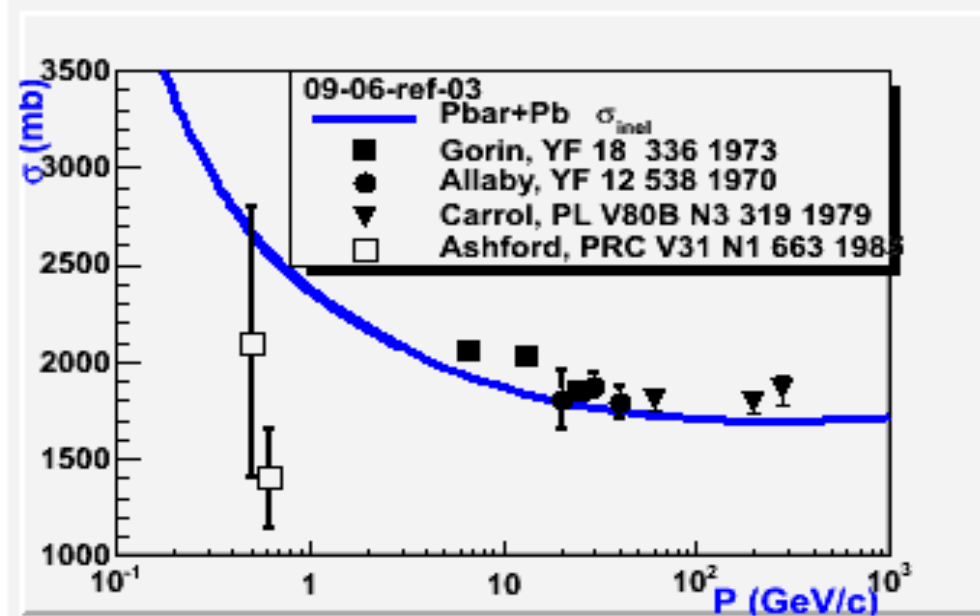
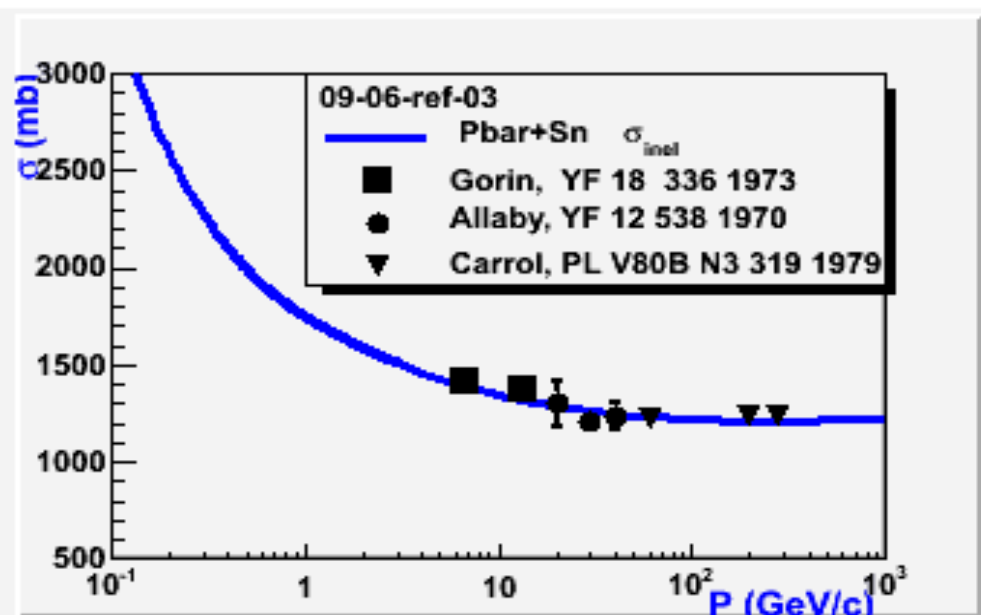
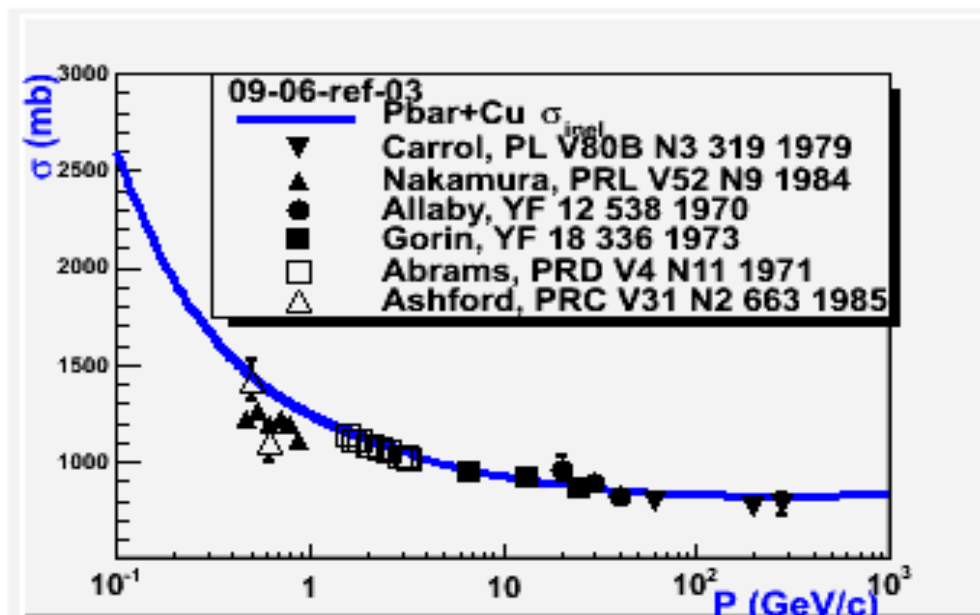
Cross sections of Pbar - Light Nucleus interactions

results for ref: 09-06-ref-03.



Cross sections of Pbar – Heavy Nucleus interactions

results for ref: 09-06-ref-03.



Conclusion

Tabulated exp. data are stored in directory: test22. They will be committed in svn.

Scripts for fast FTF validation are created. They give a possibility to produce calculations results in current release. They will be committed

Scripts for visualizations are written

They allow one to control results in current release and to compare of results of various releases/models.

Plans

Extend the validation for other reactions and kinematical characteristics. The results will be placed on Geant4 validation web-page.