NA49: proton-proton

x_F - NA49 pp collisions at 158 GeV
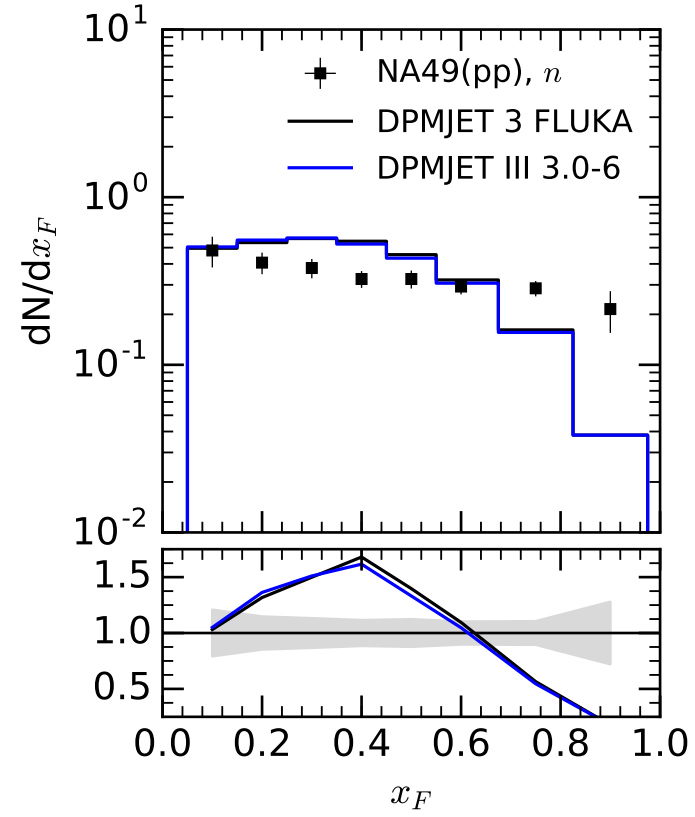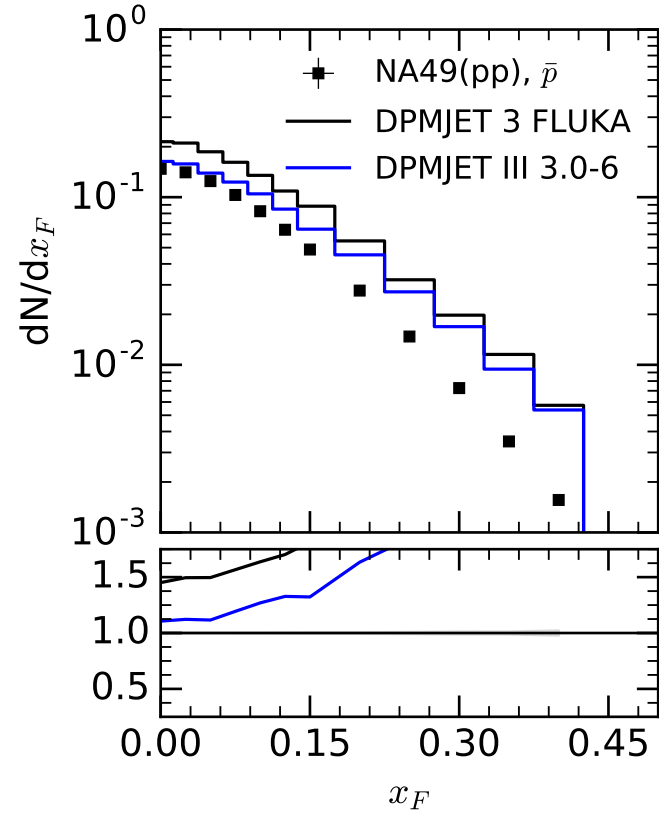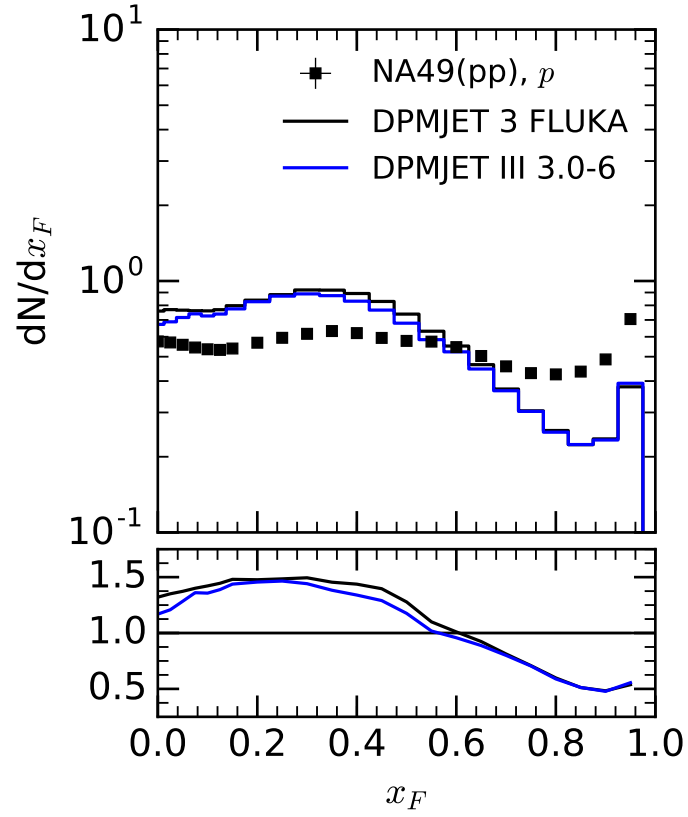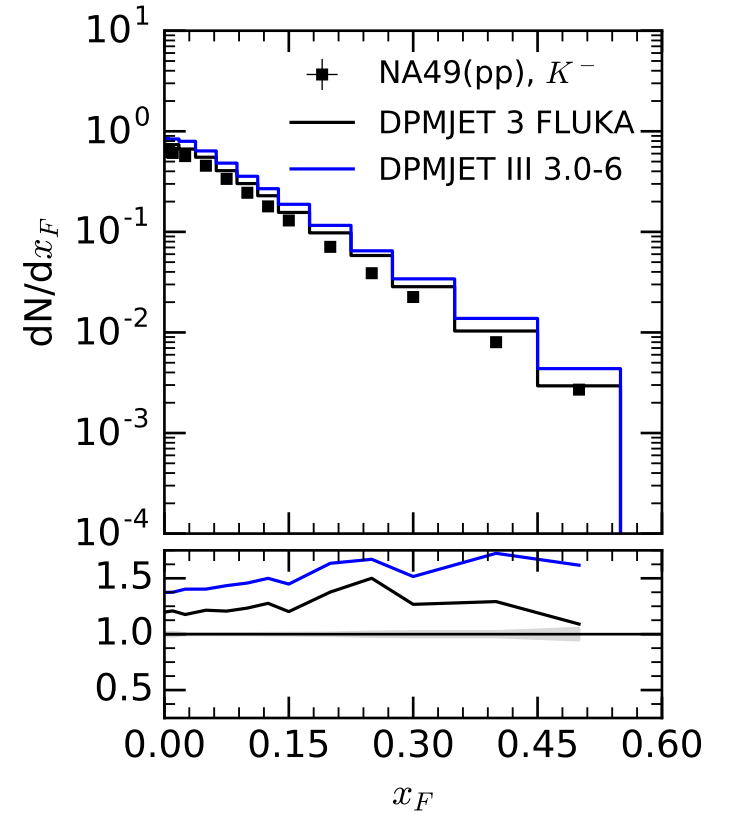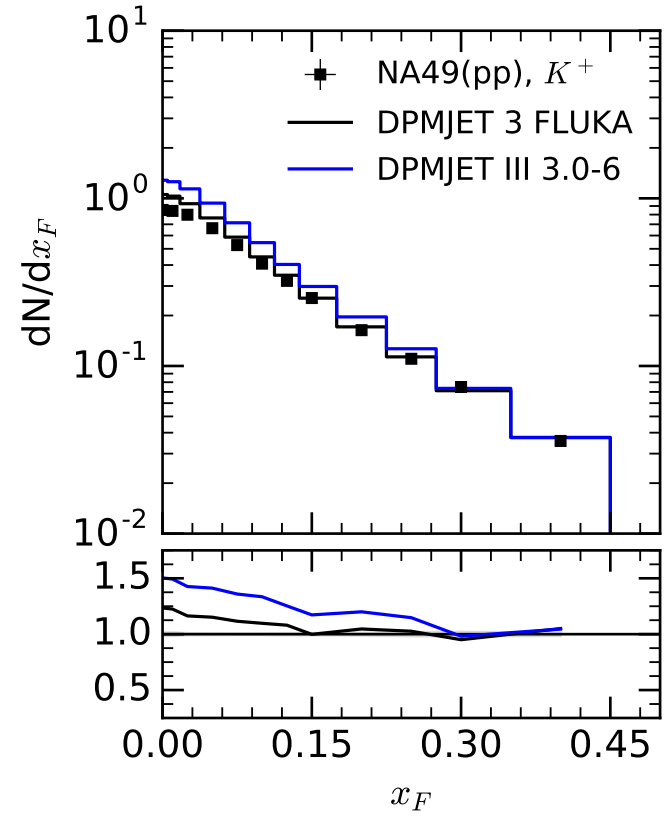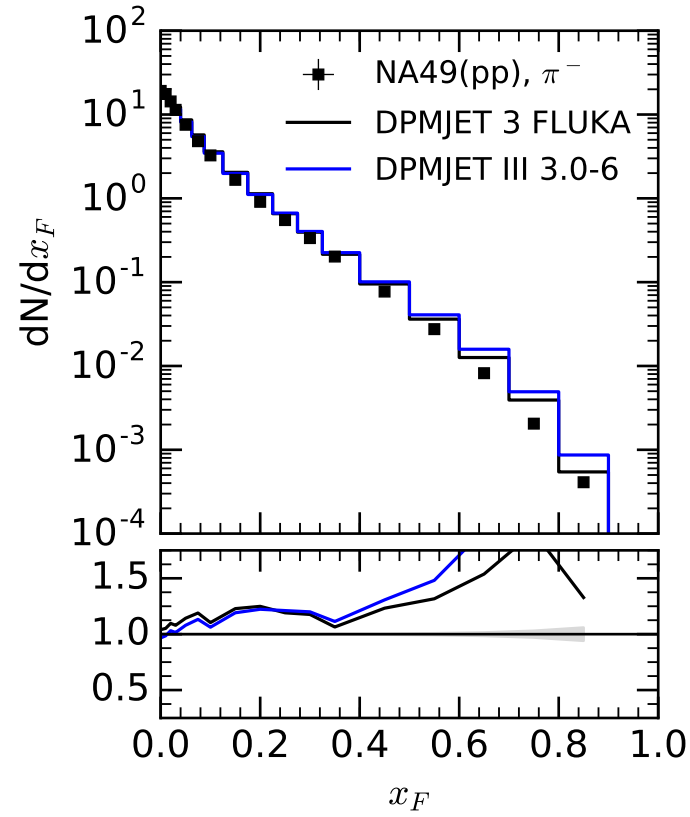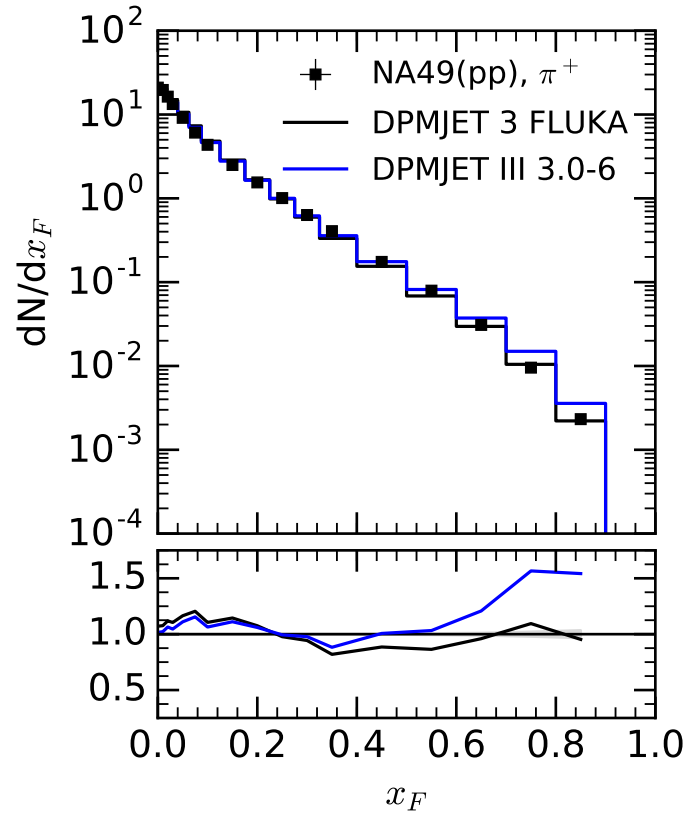
$F(x_F)$ - NA49 pp collisions at 158 GeV
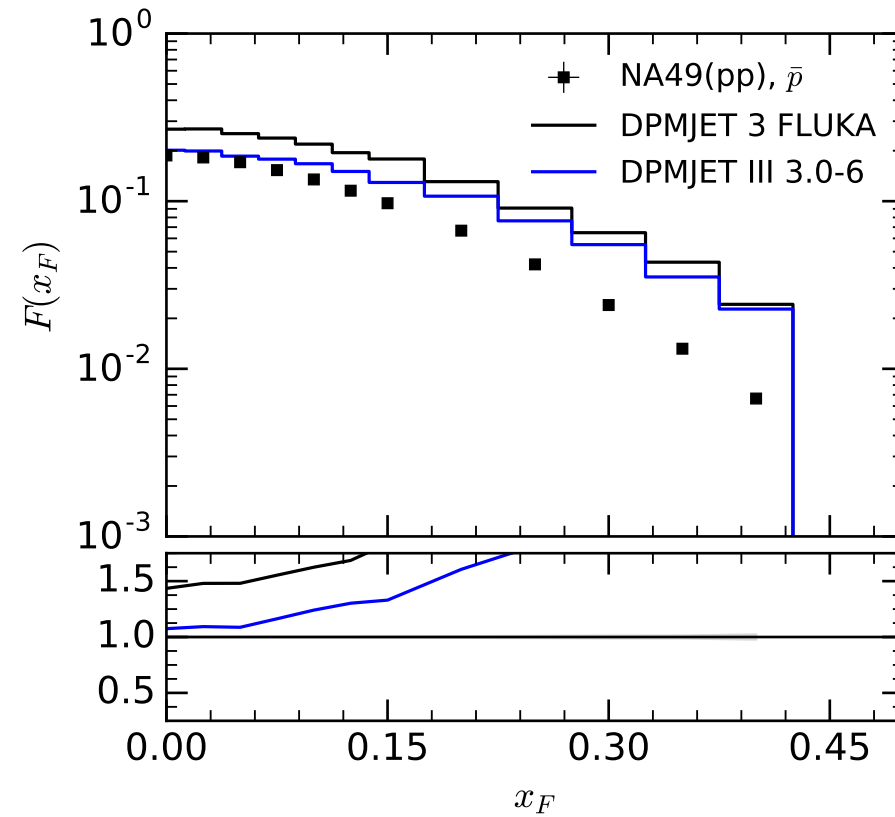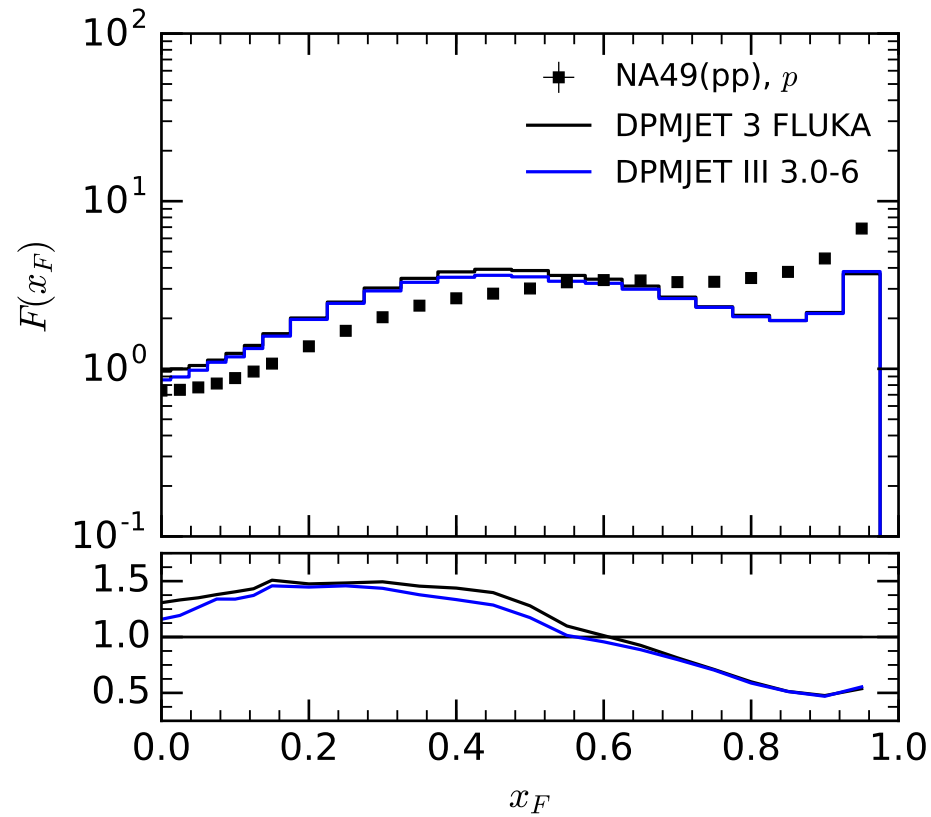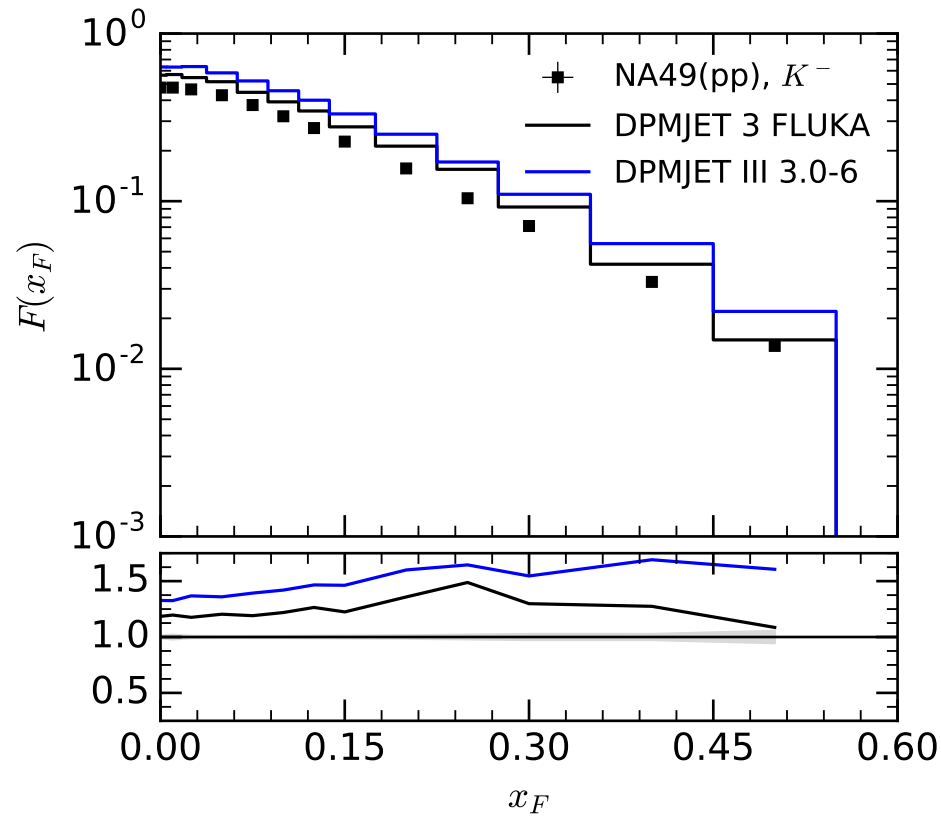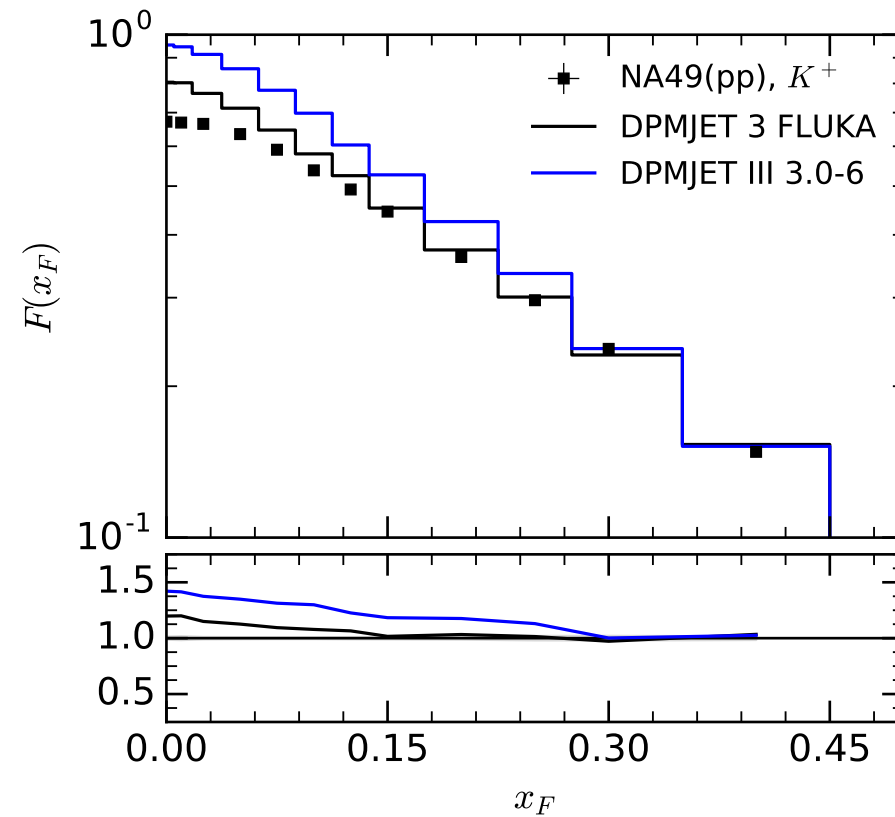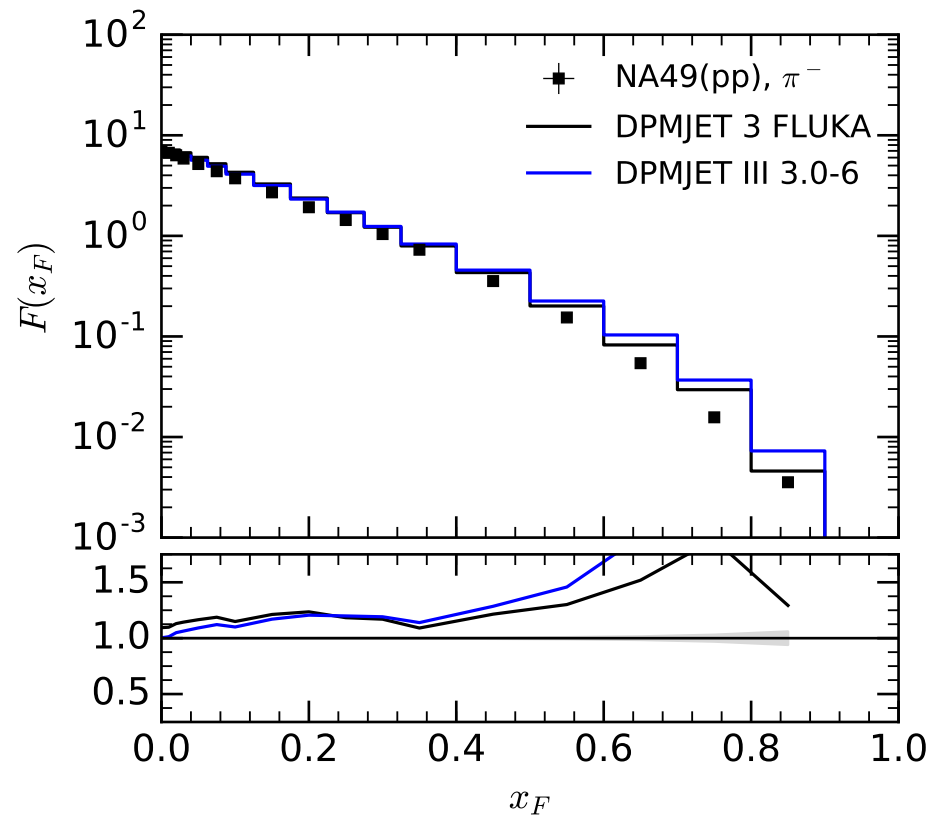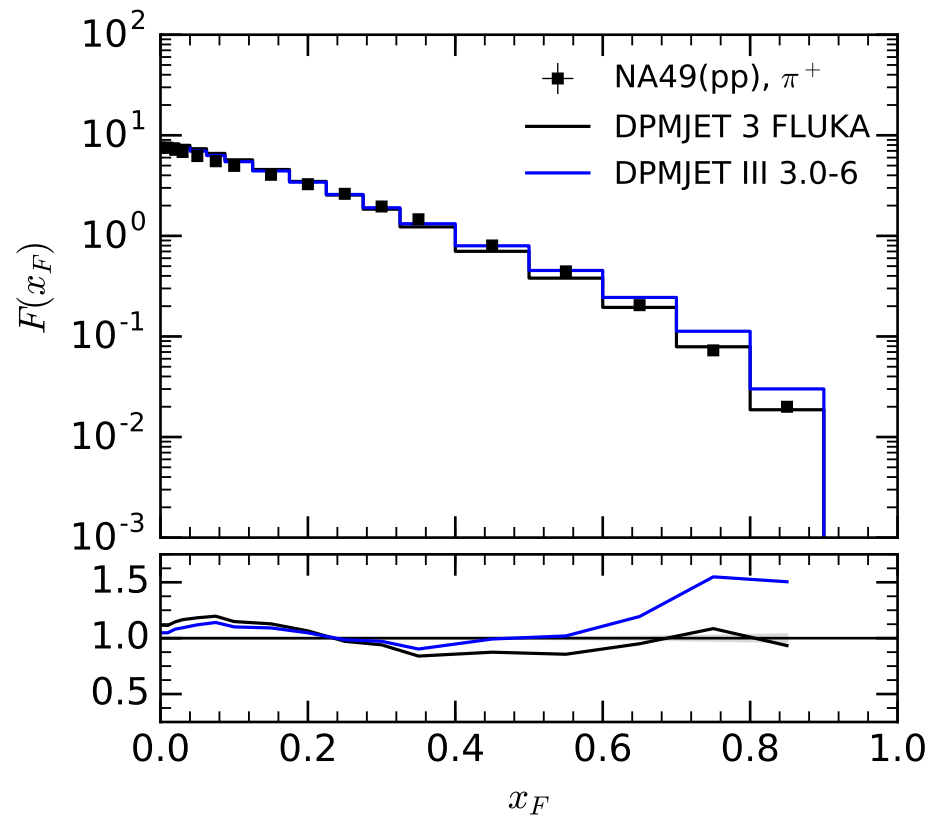
y - NA49 pp collisions at 158 GeV
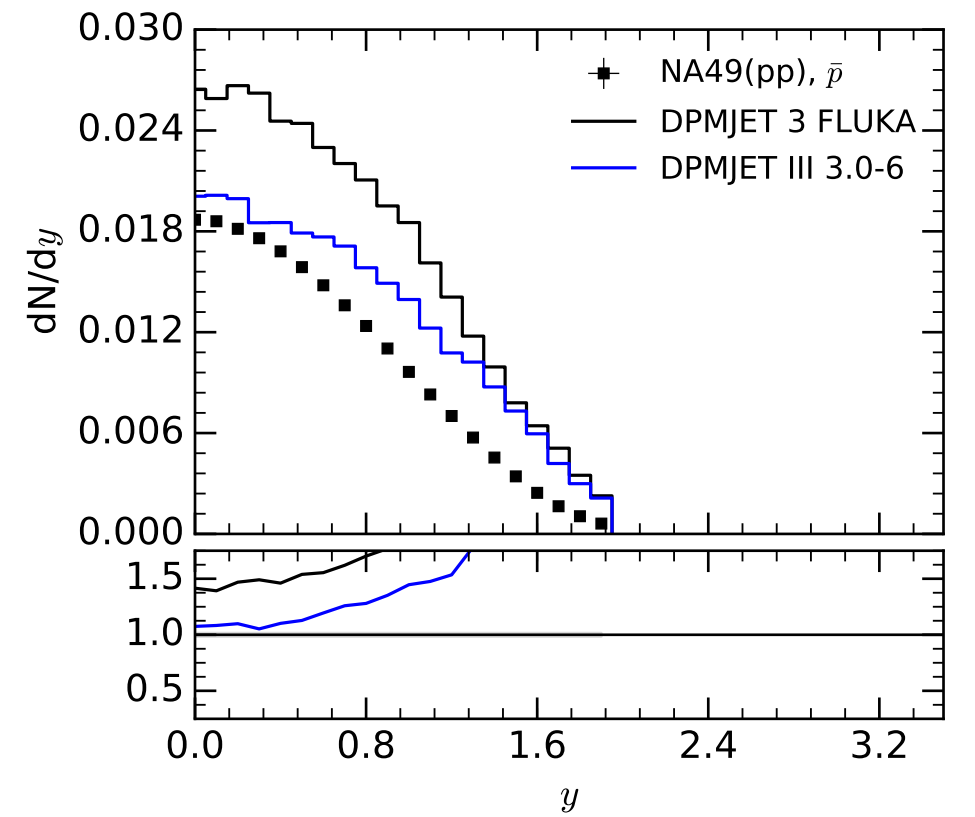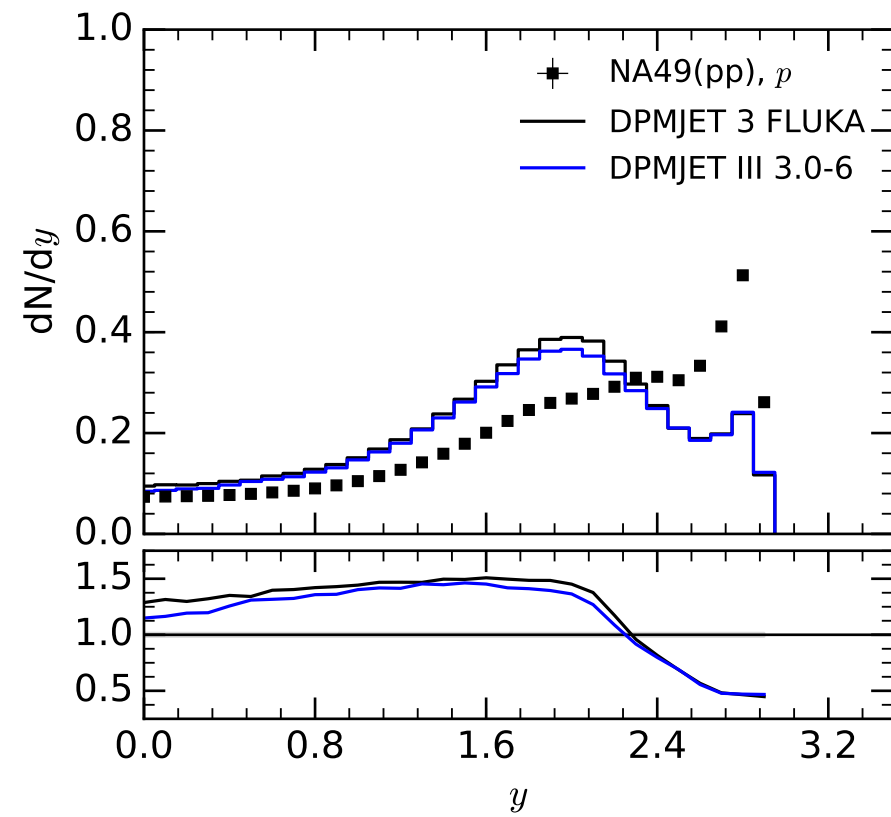
NA49: proton-carbon

x_F - NA49 pC collisions at 158 GeV

$F(x_F)$ - NA49 pC collisions at 158 GeV
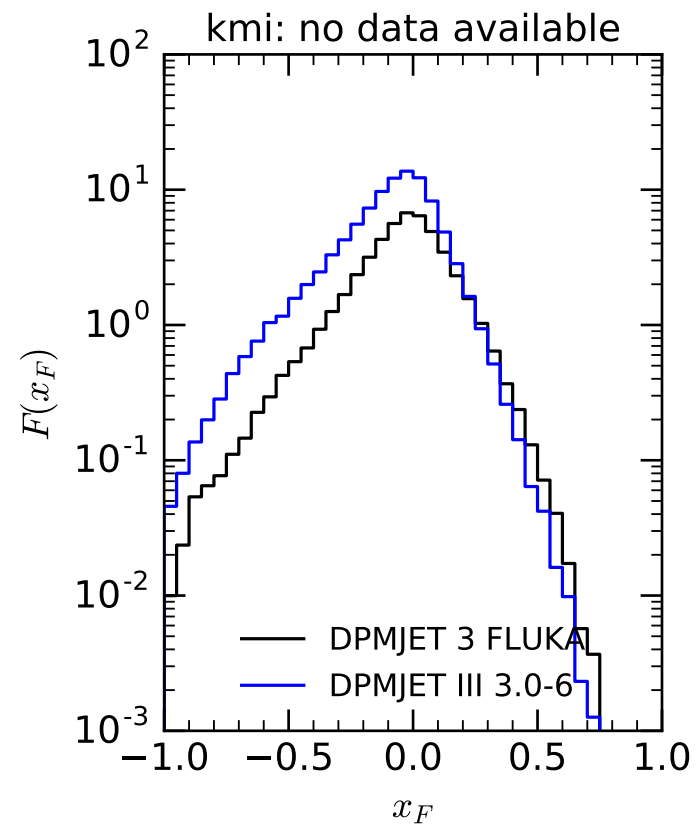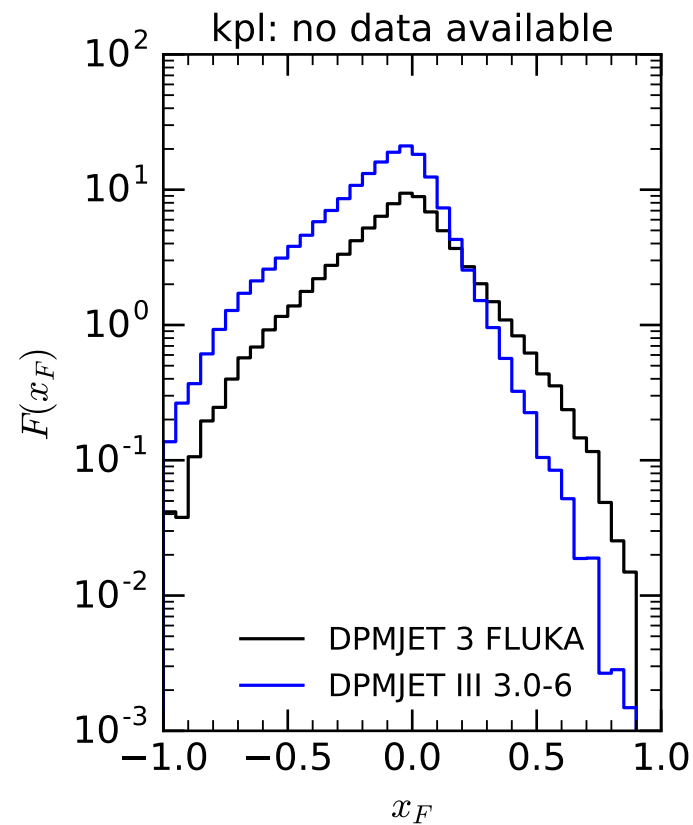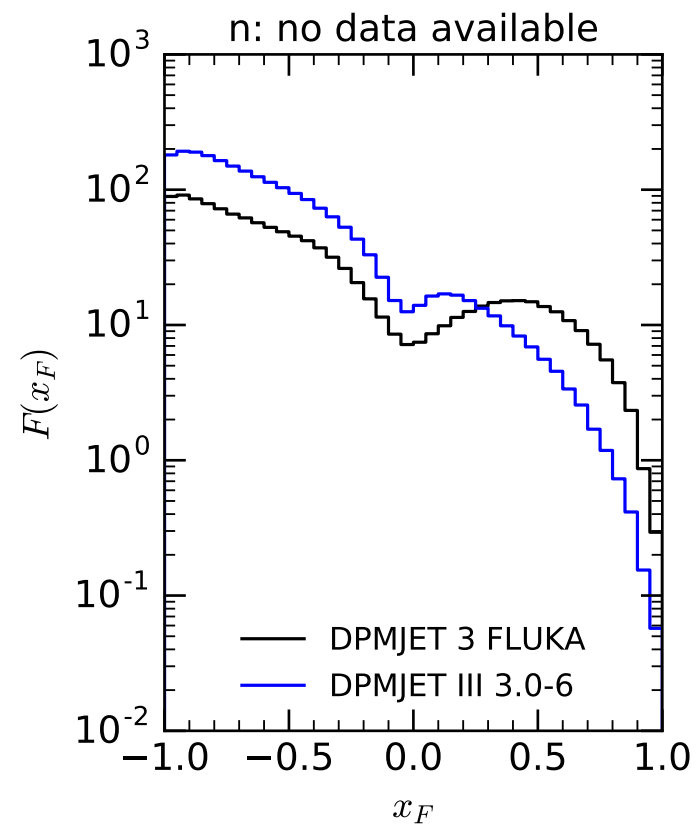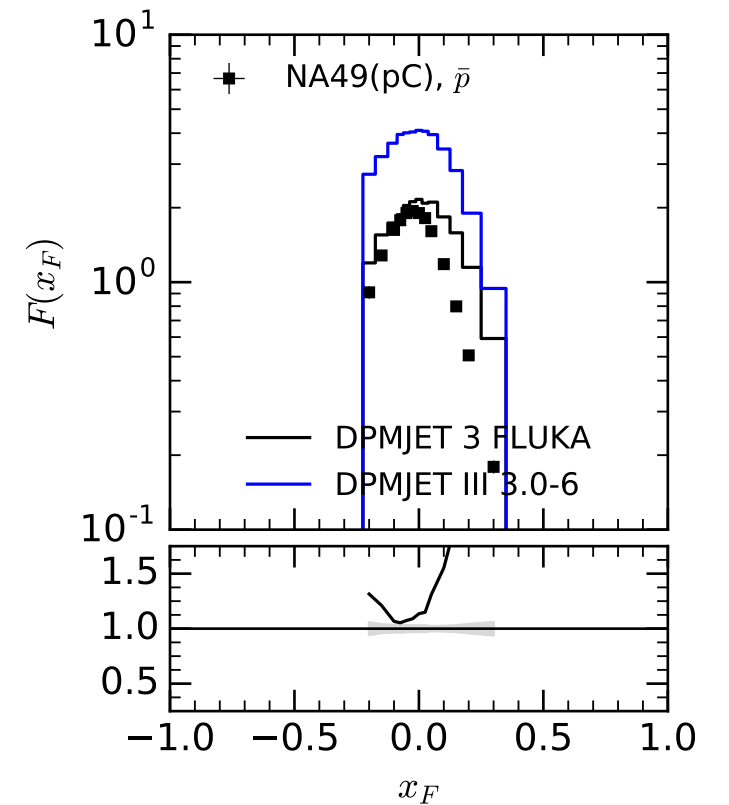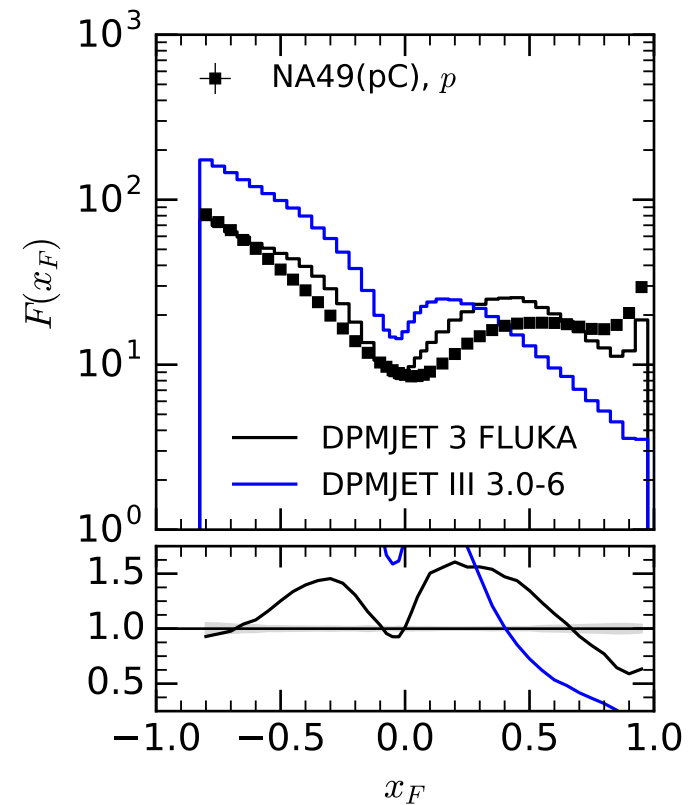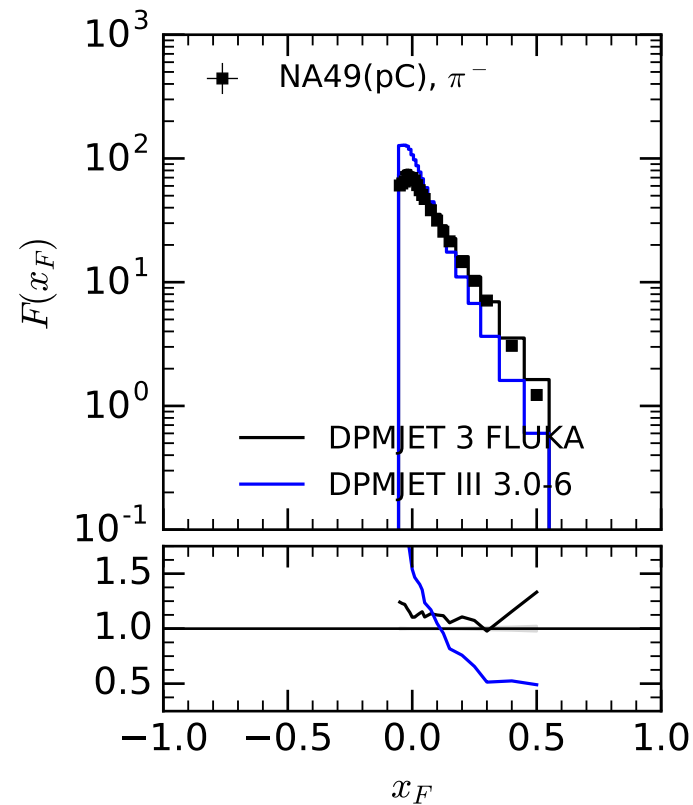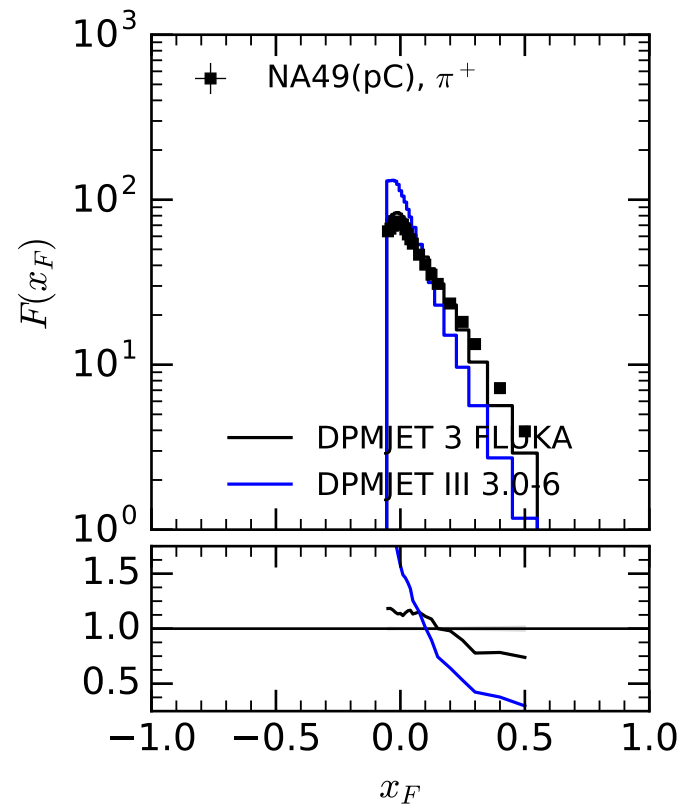
y - NA49 pC collisions at 158 GeV
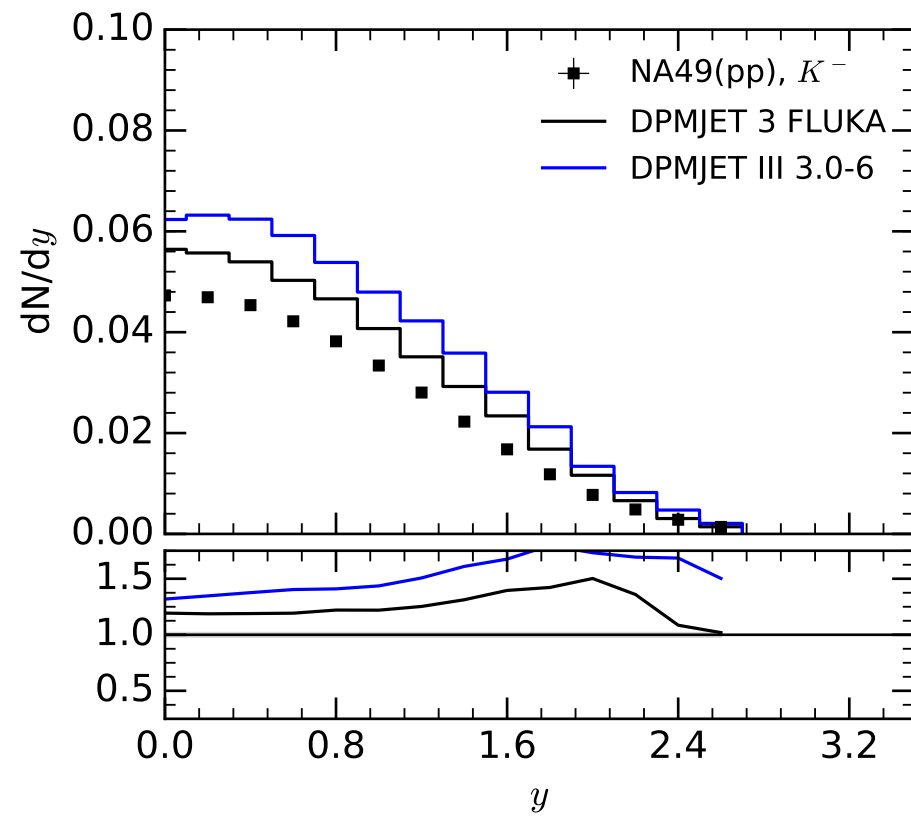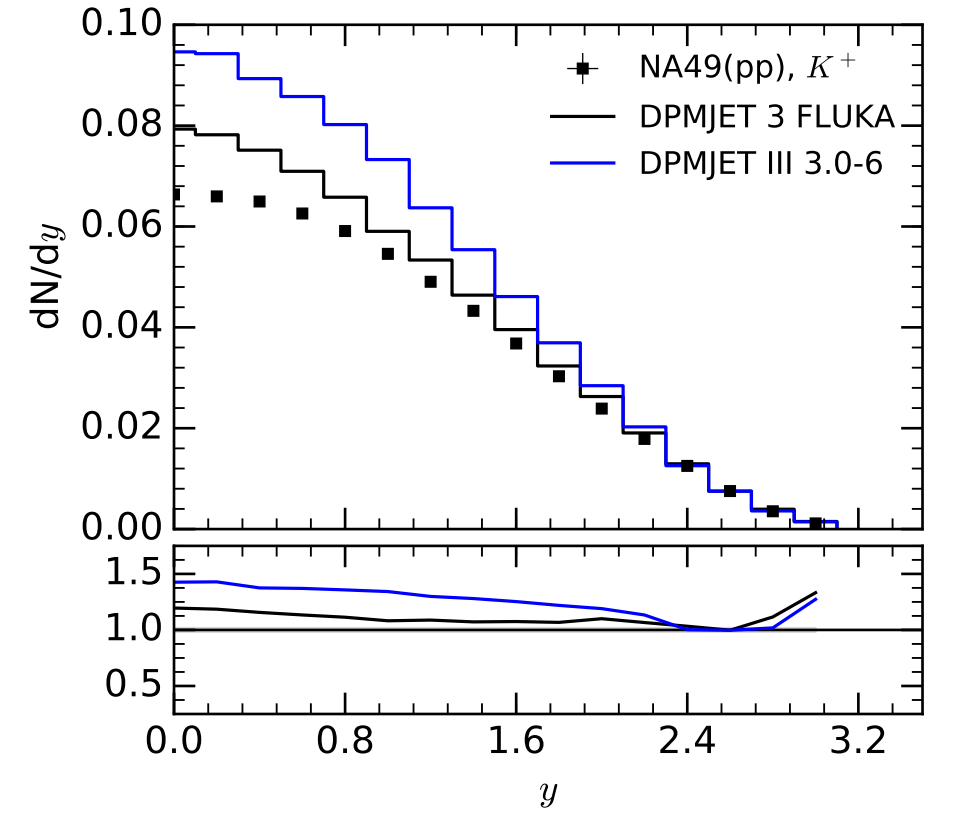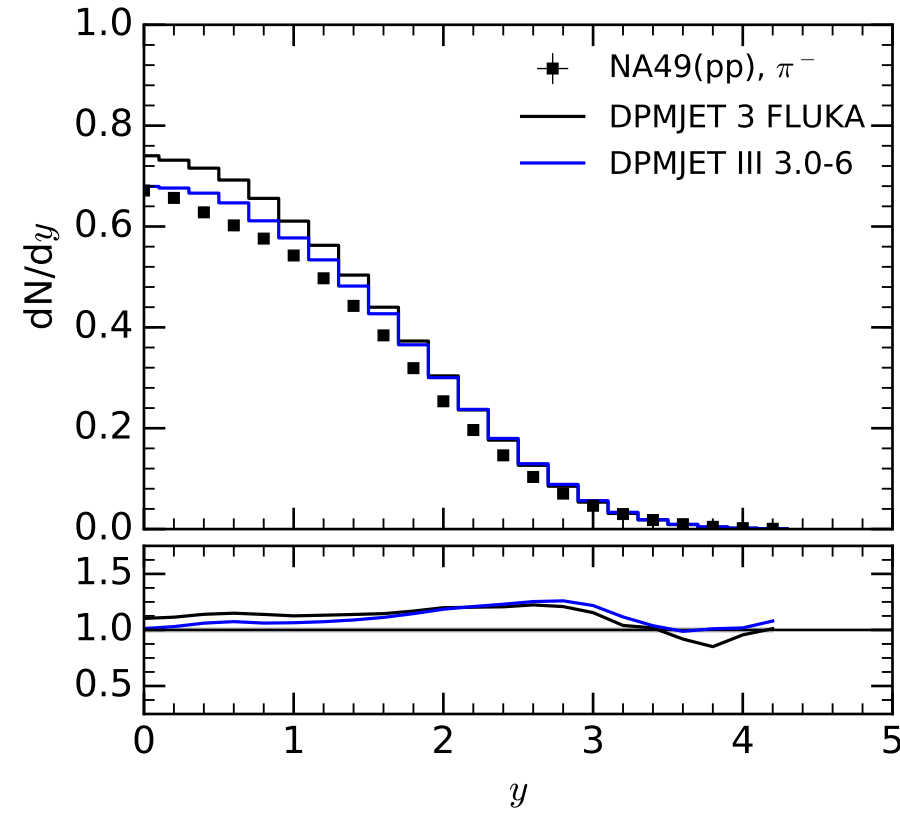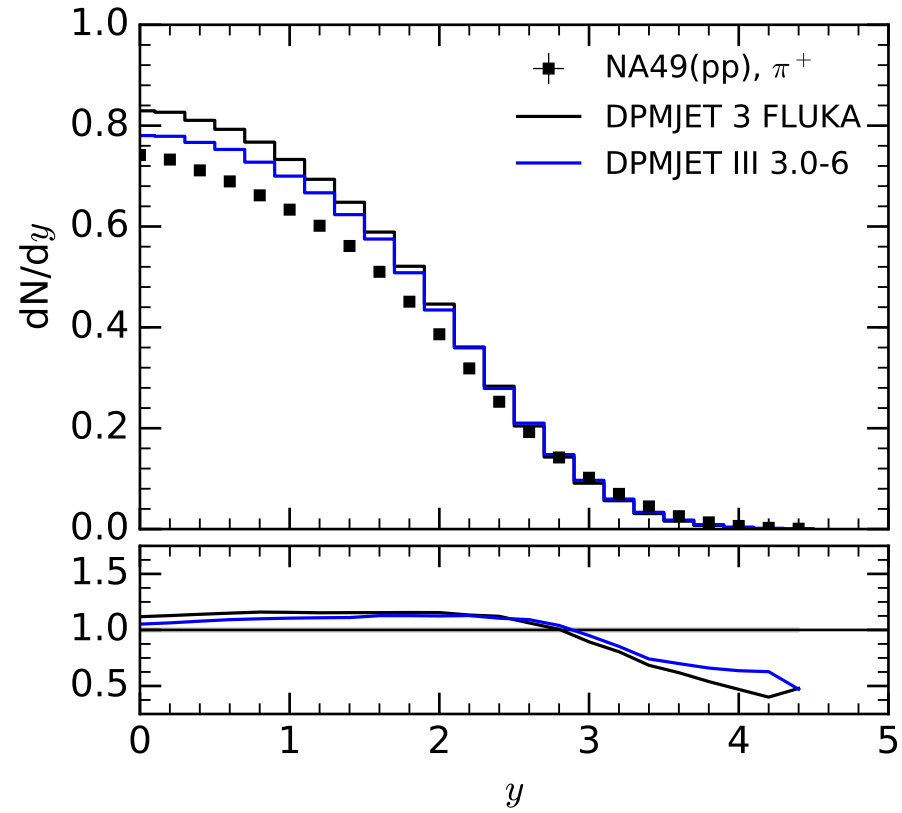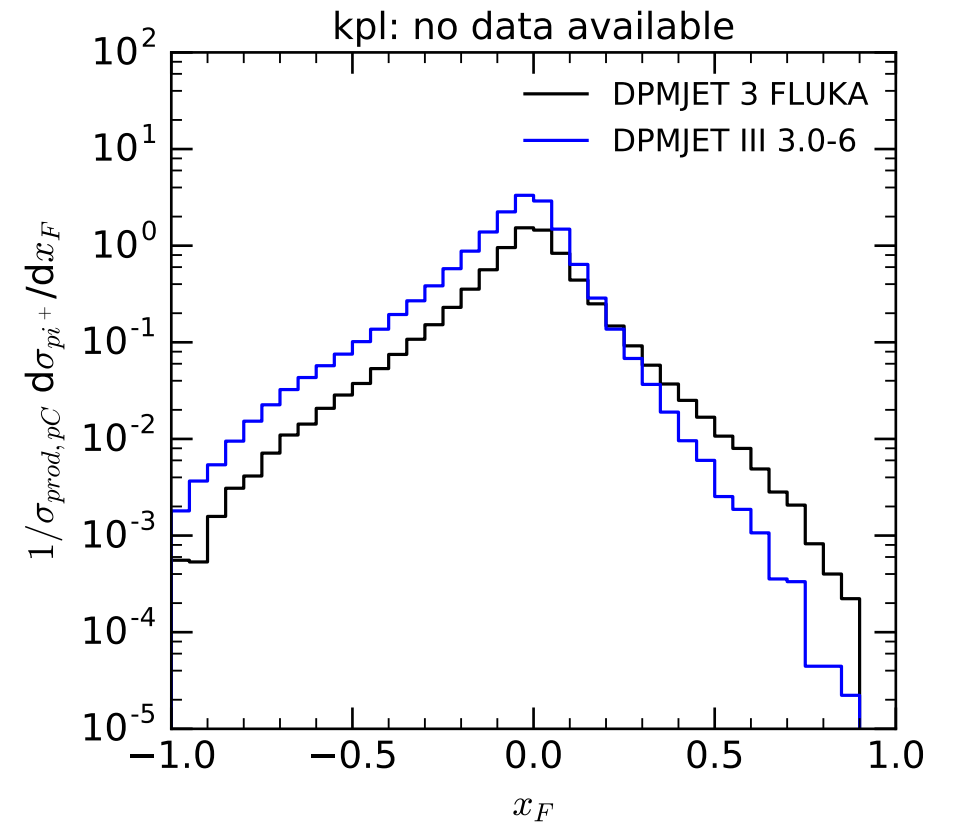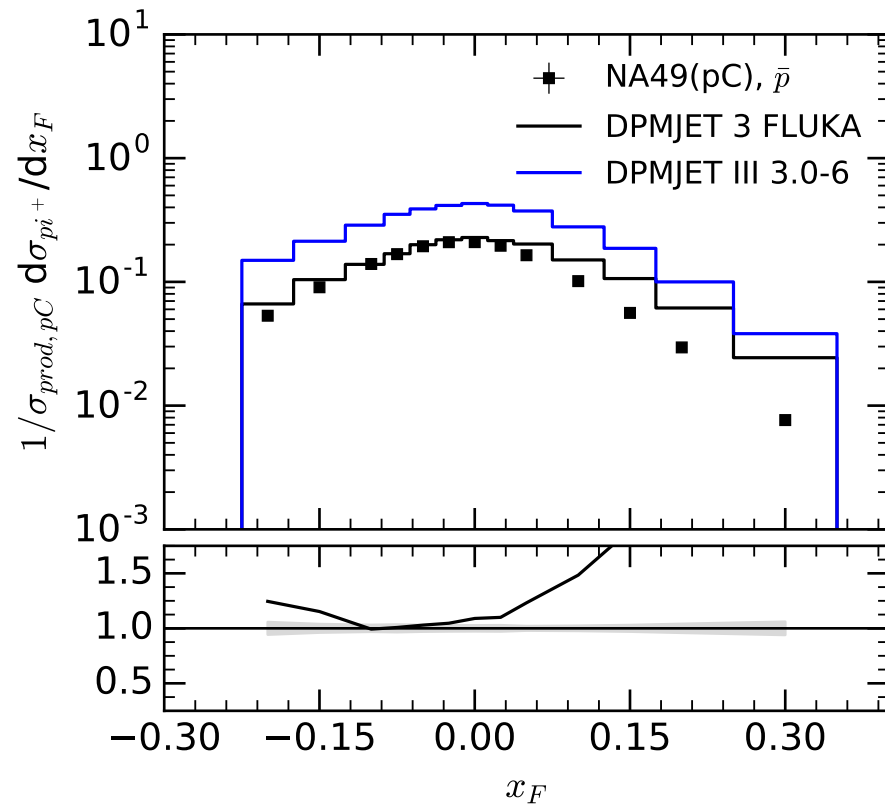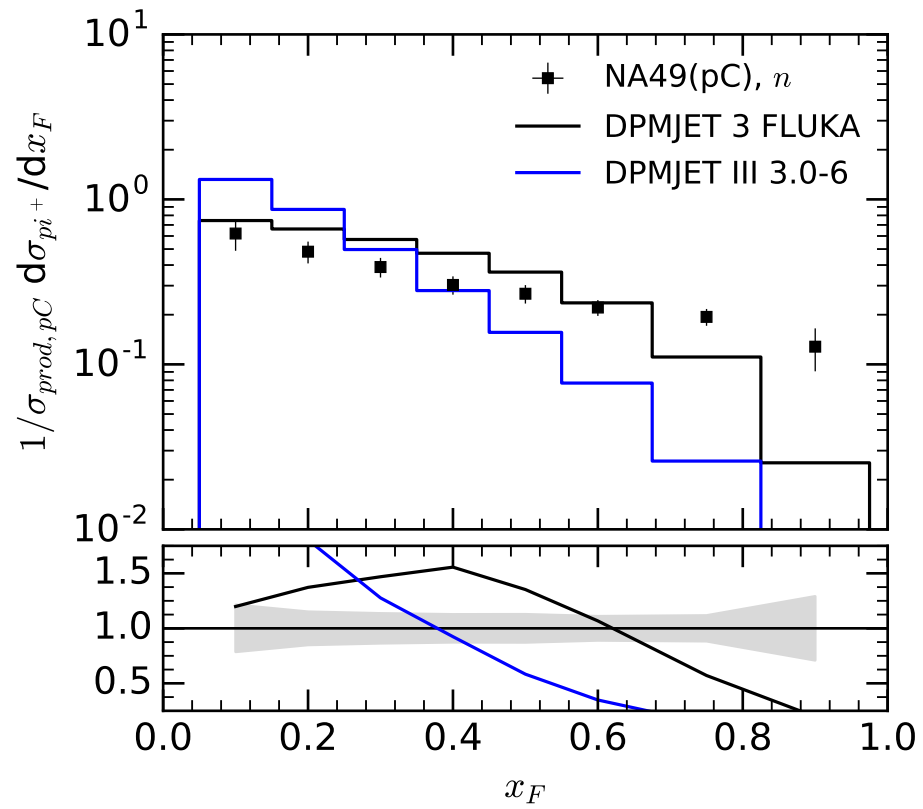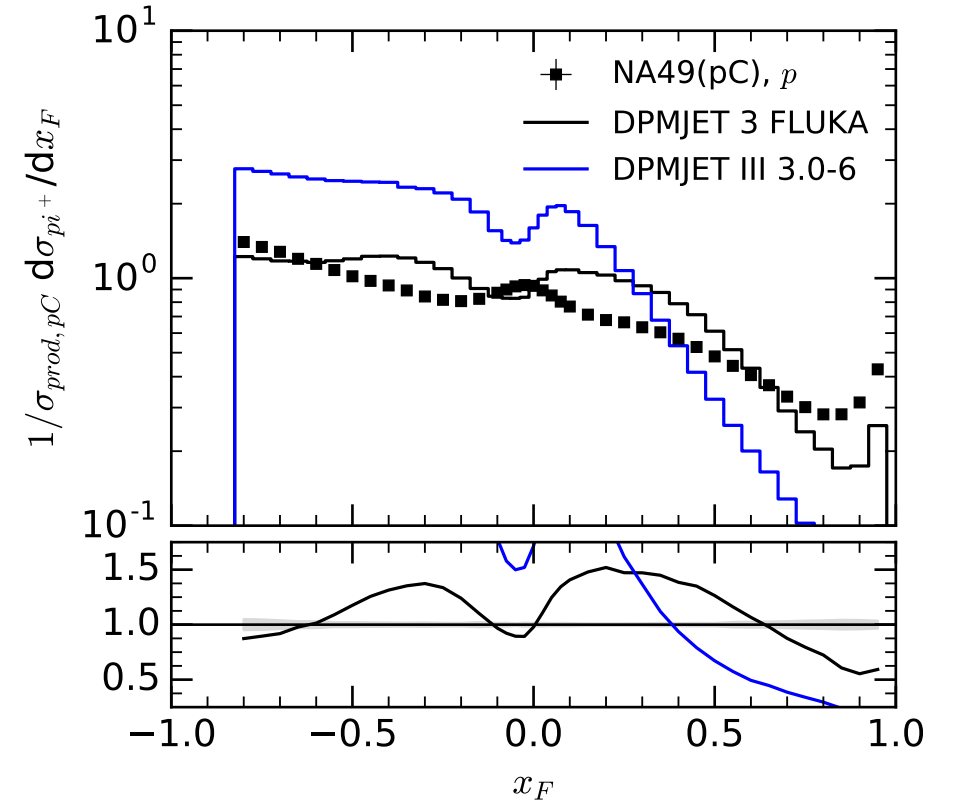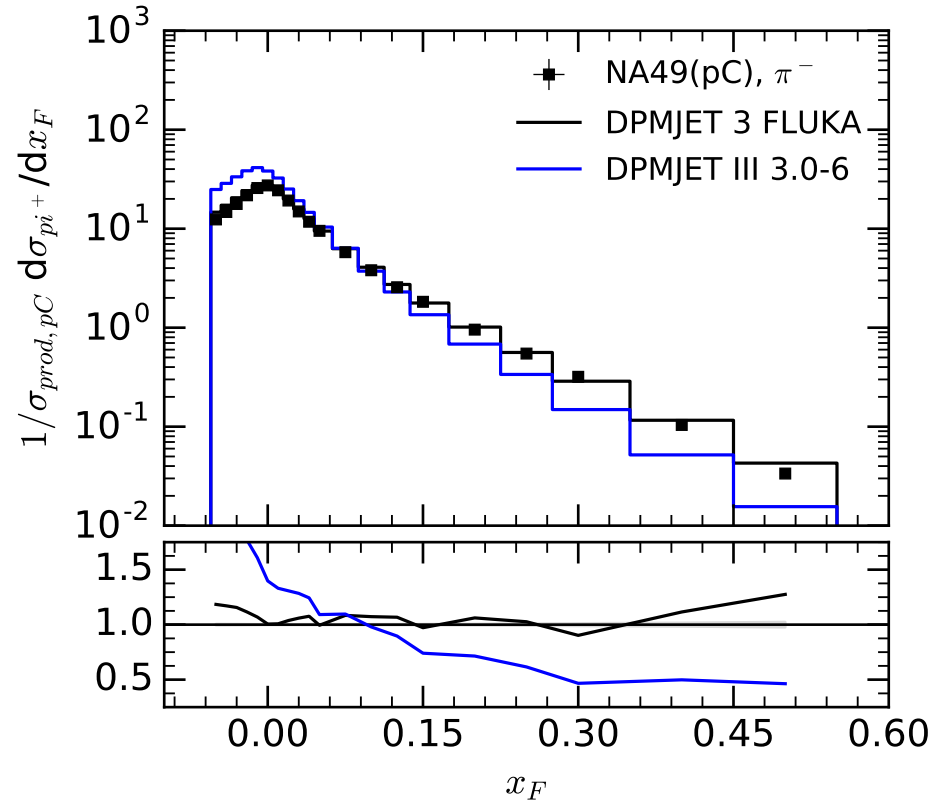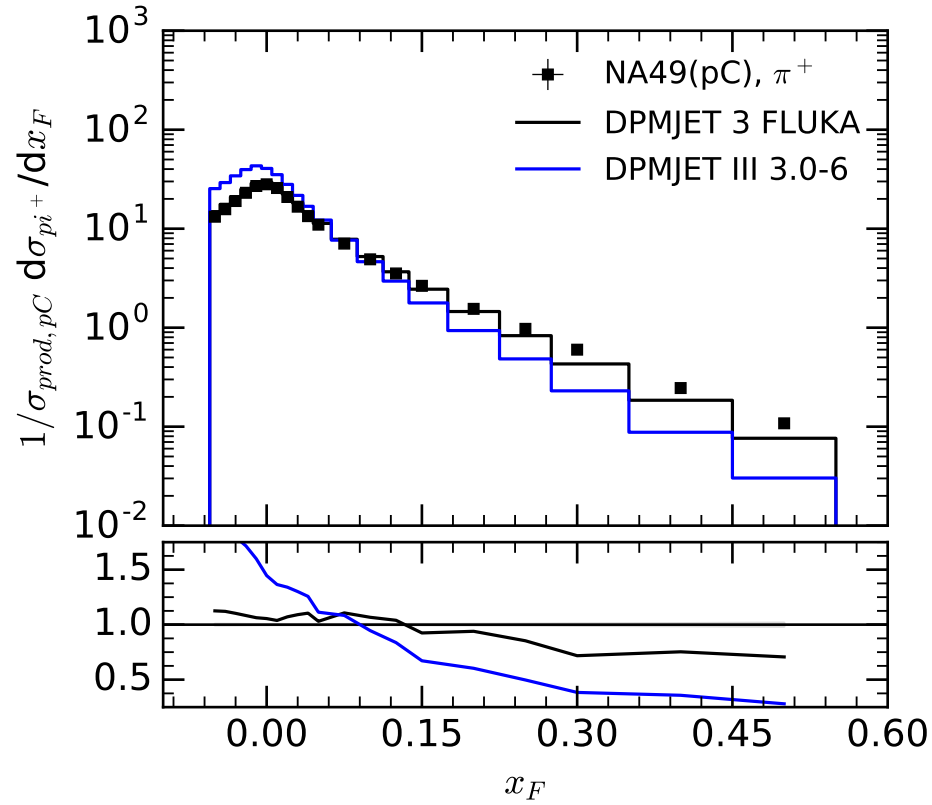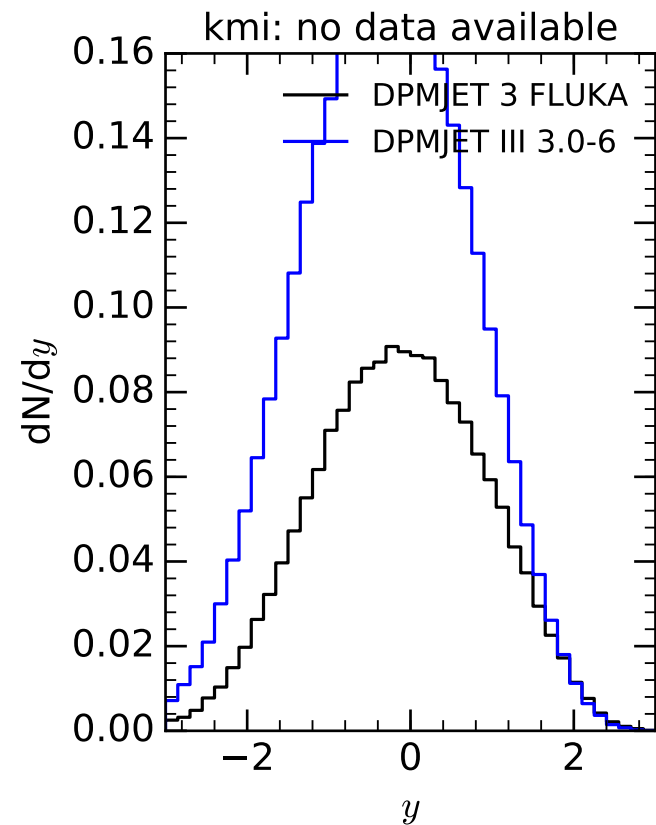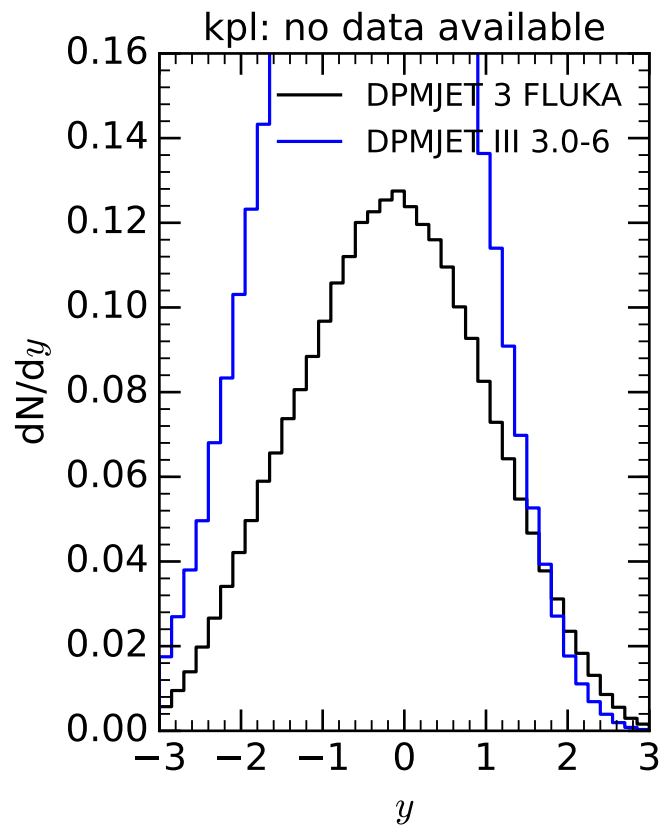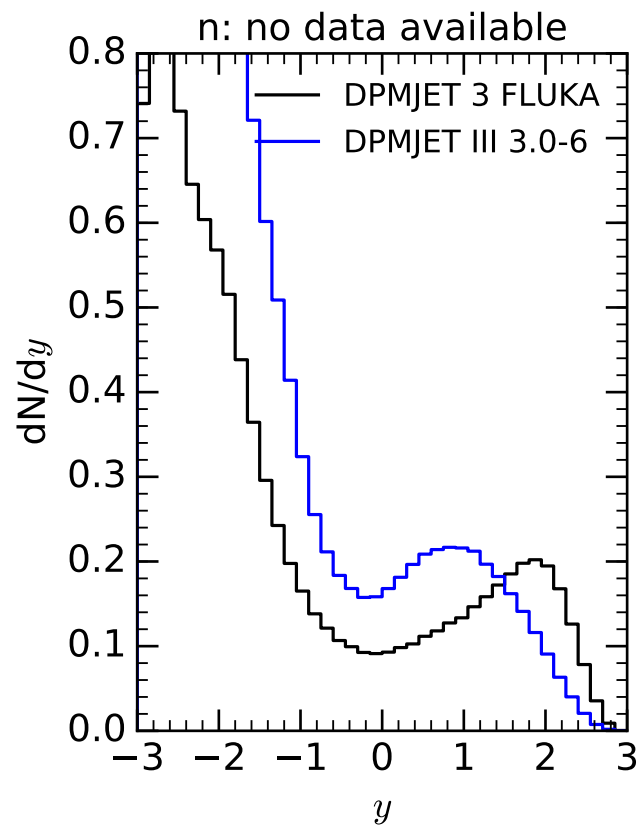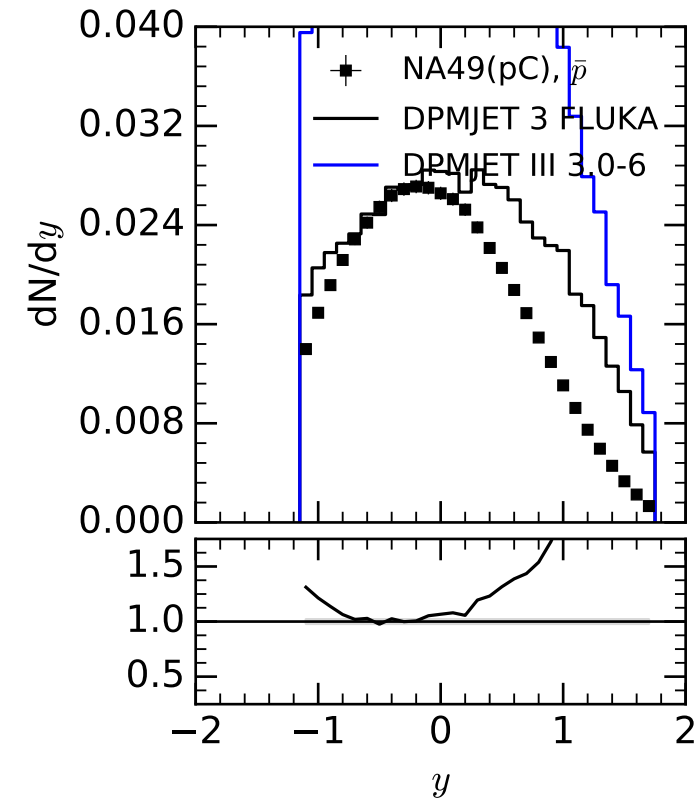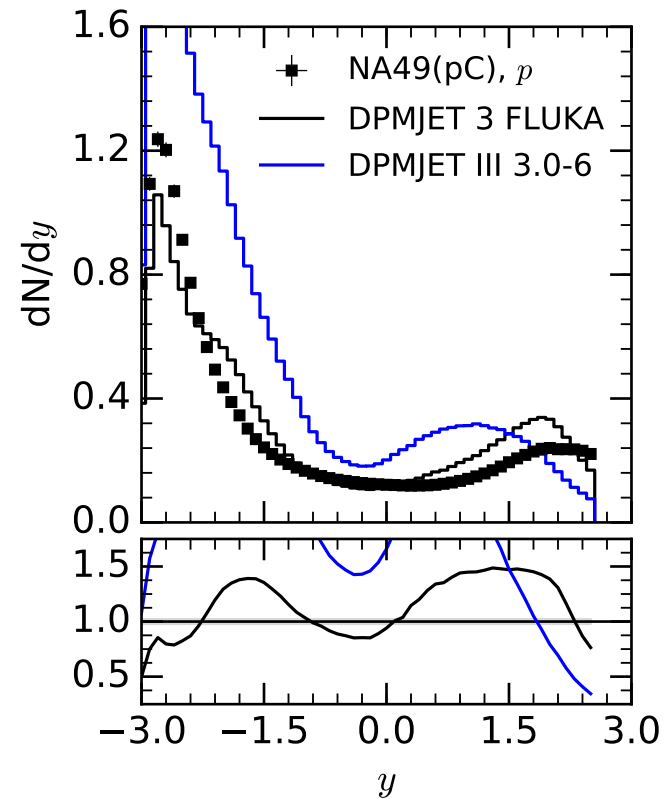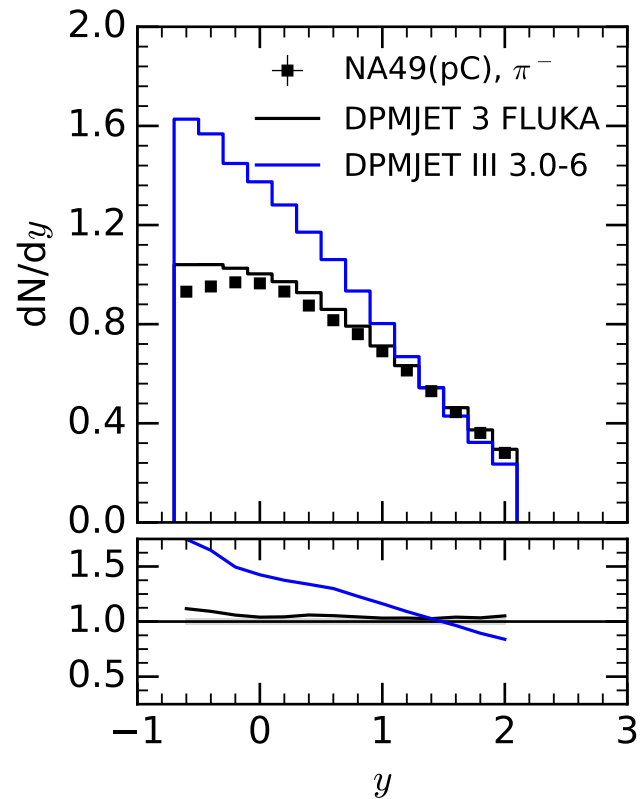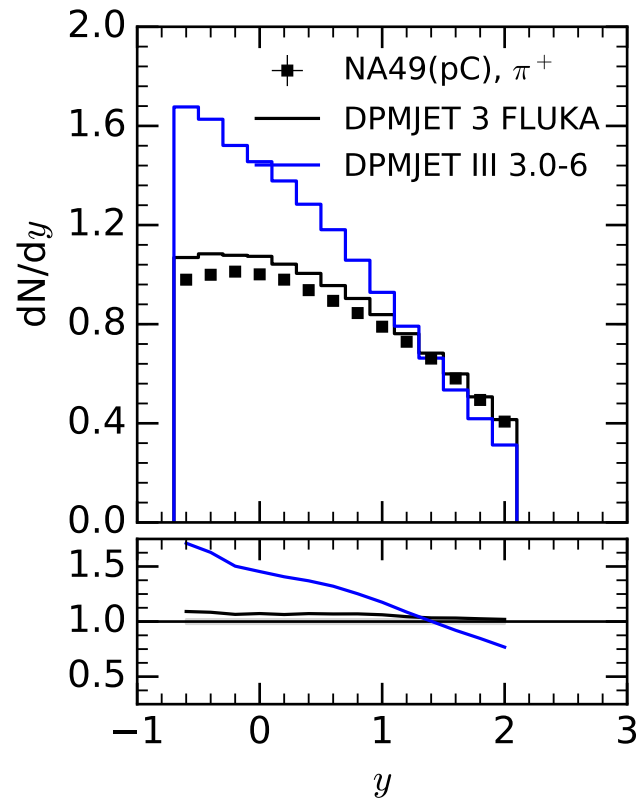
NA27: proton-proton

x_F - NA27 pp collisions at 400 GeV
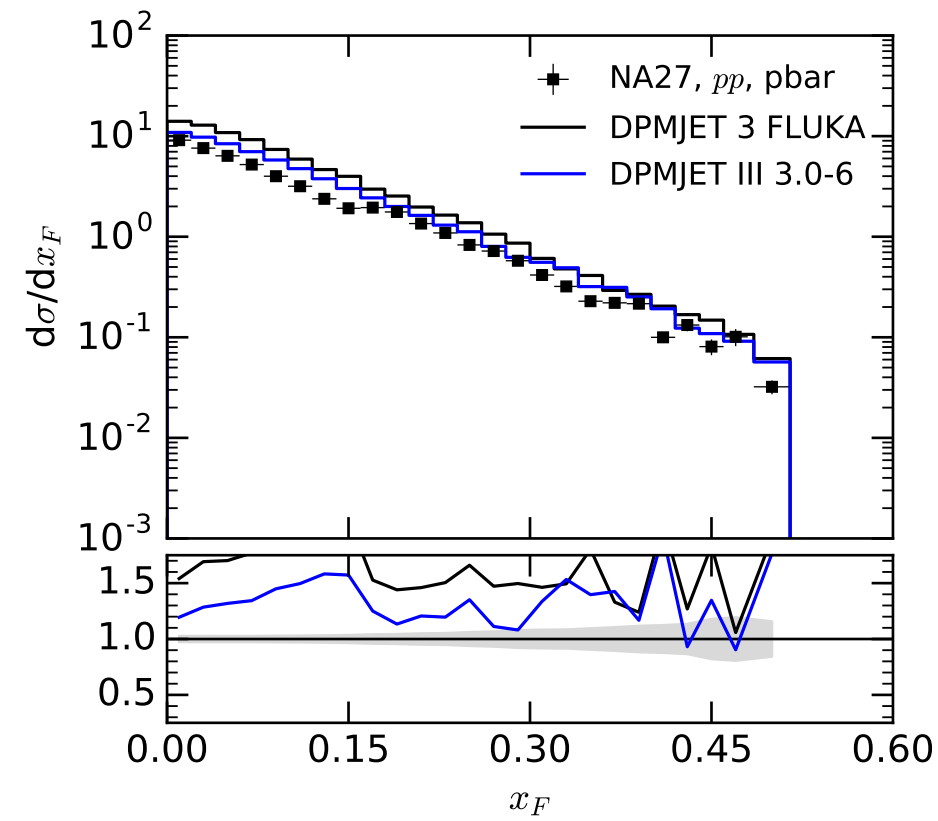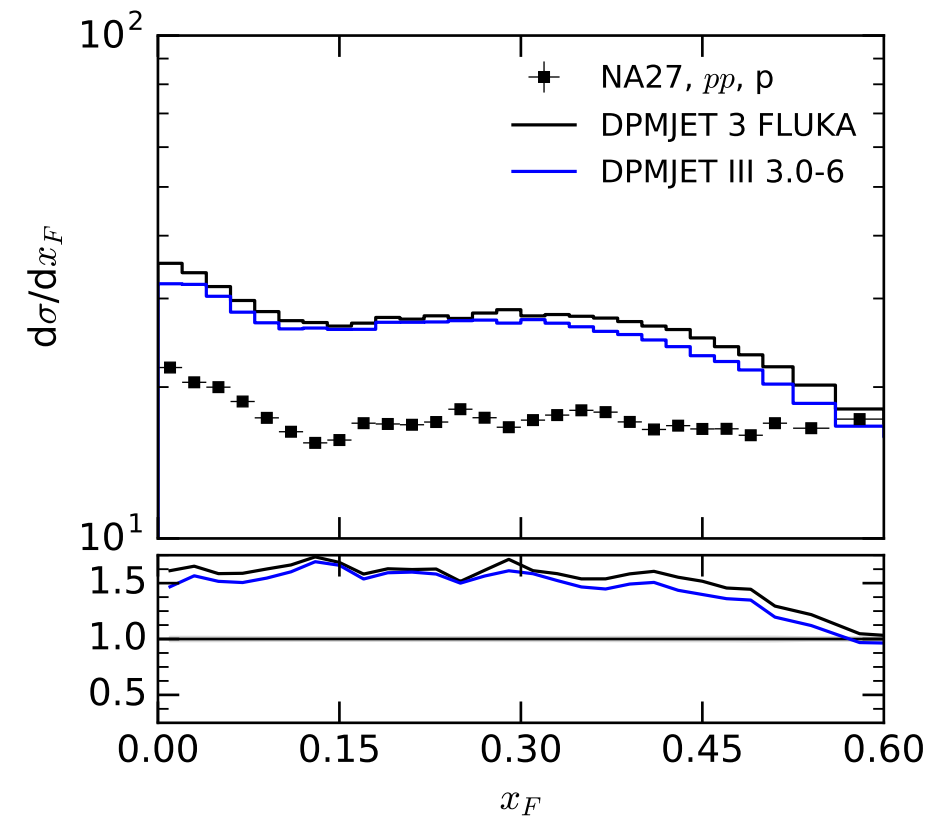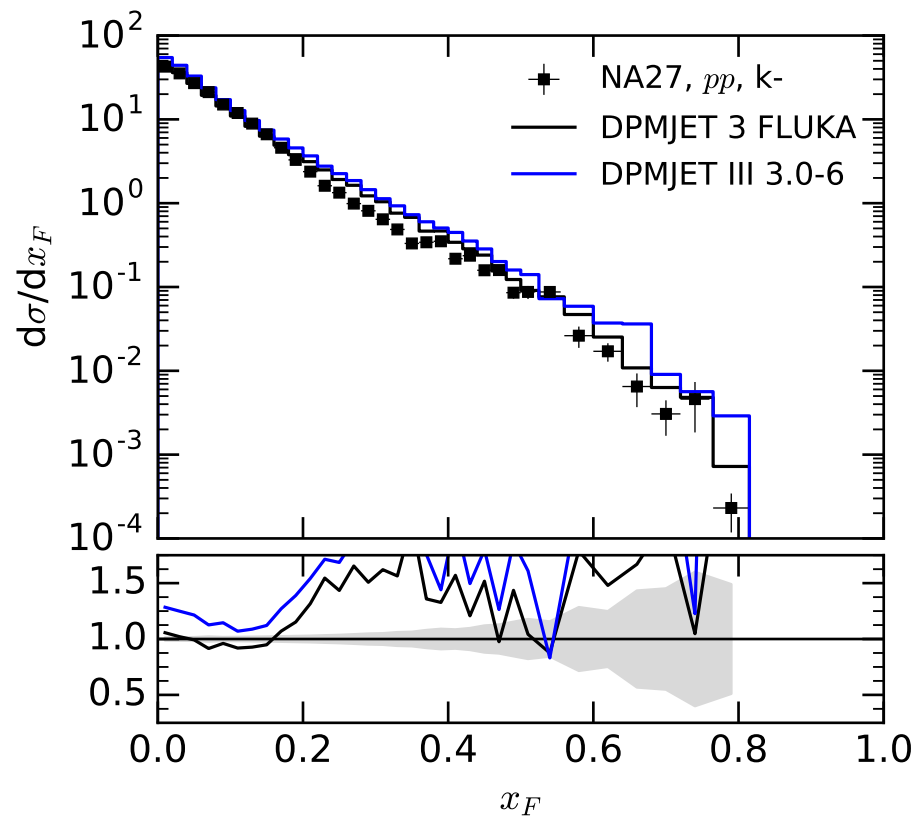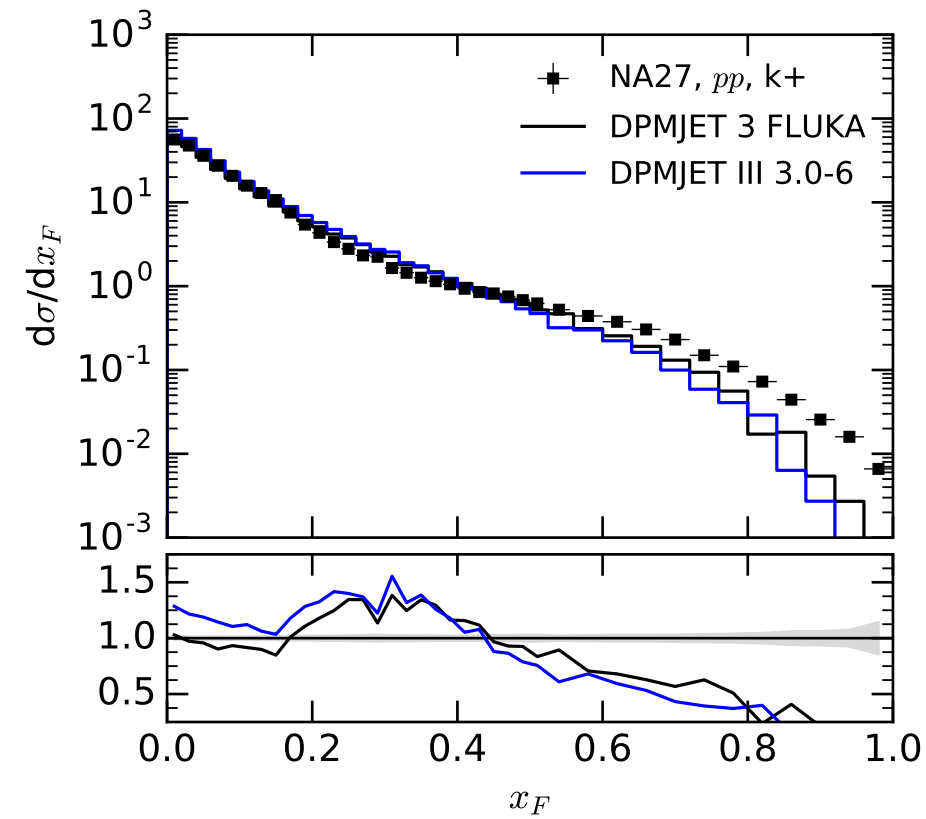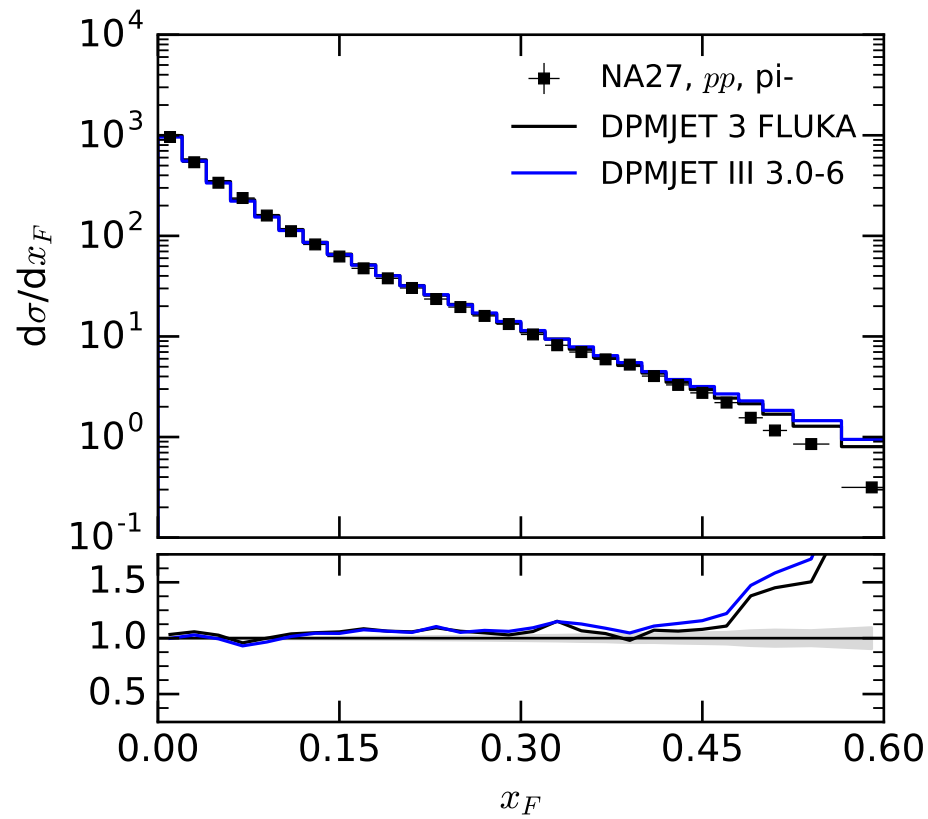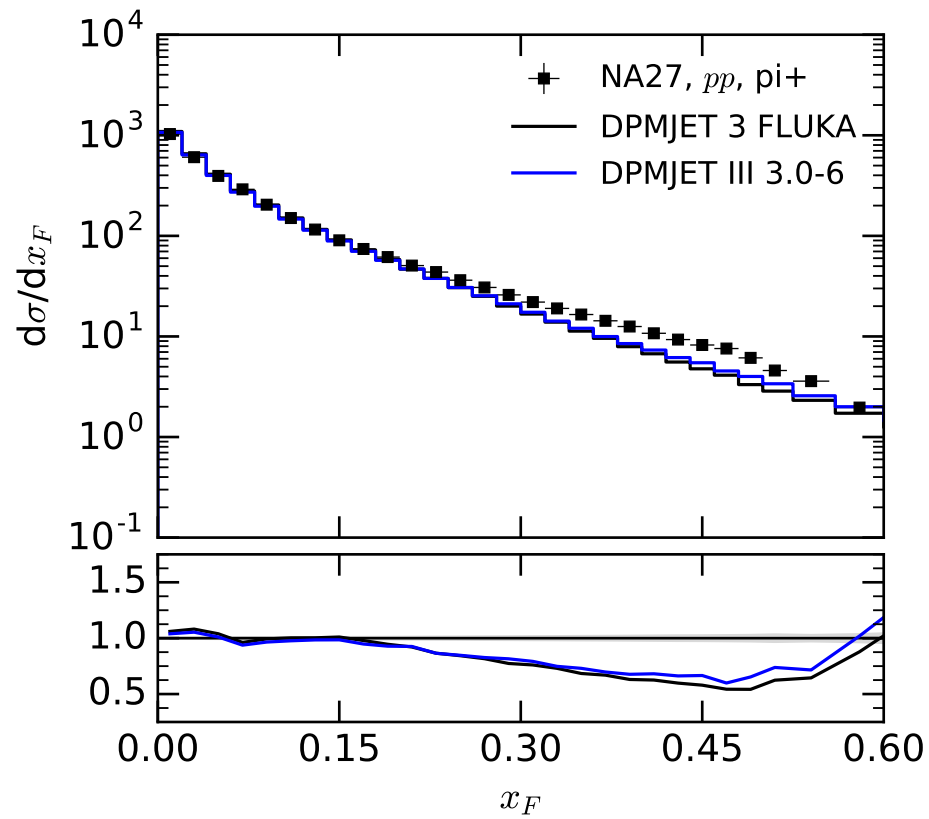
$F(x_F)$ - NA27 pp collisions at 400 GeV
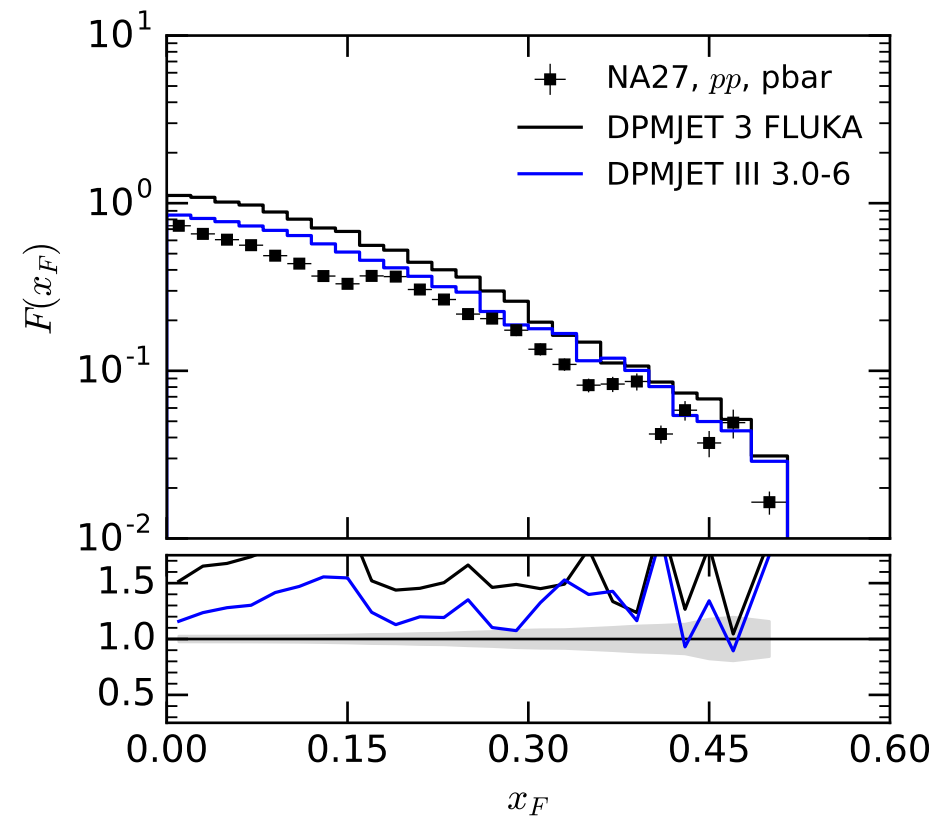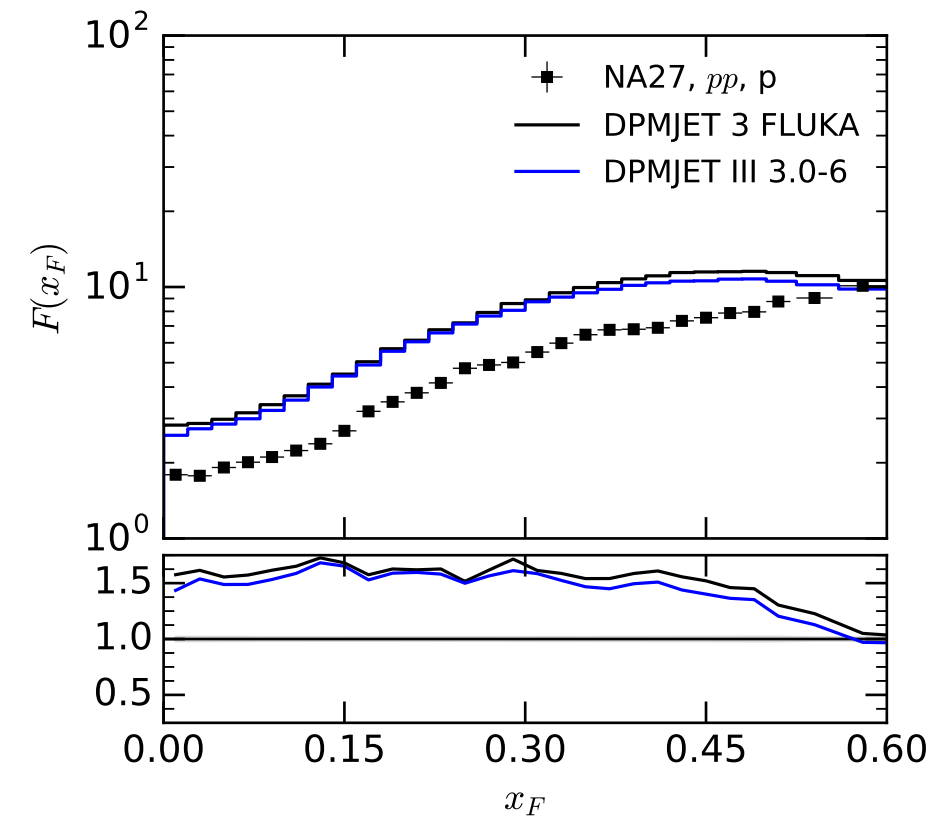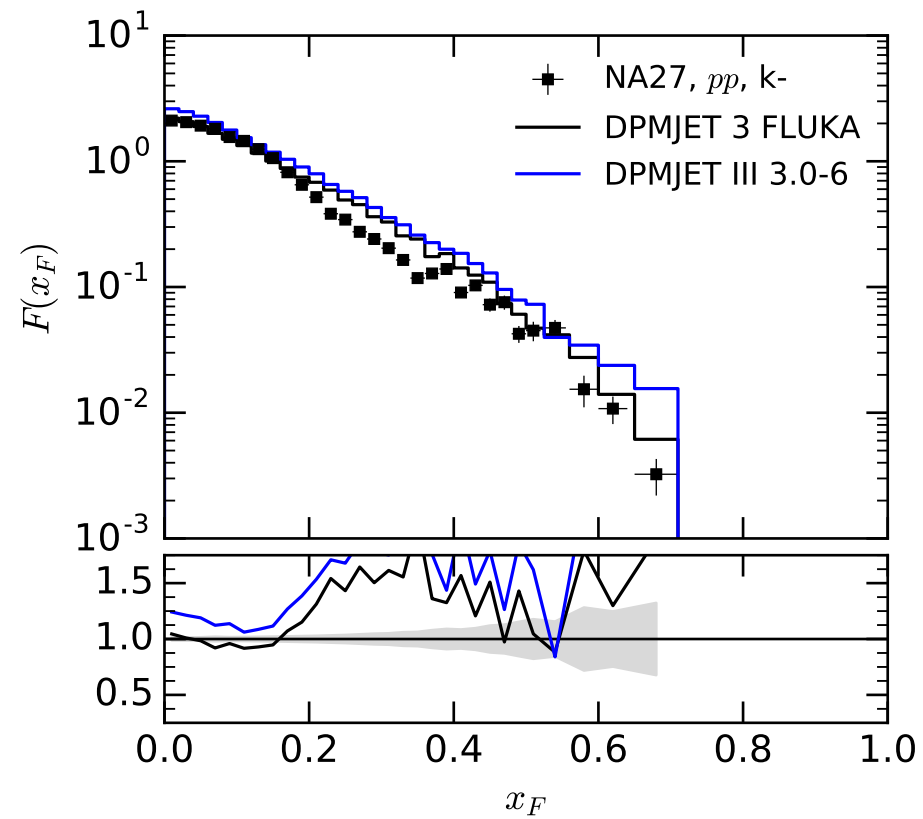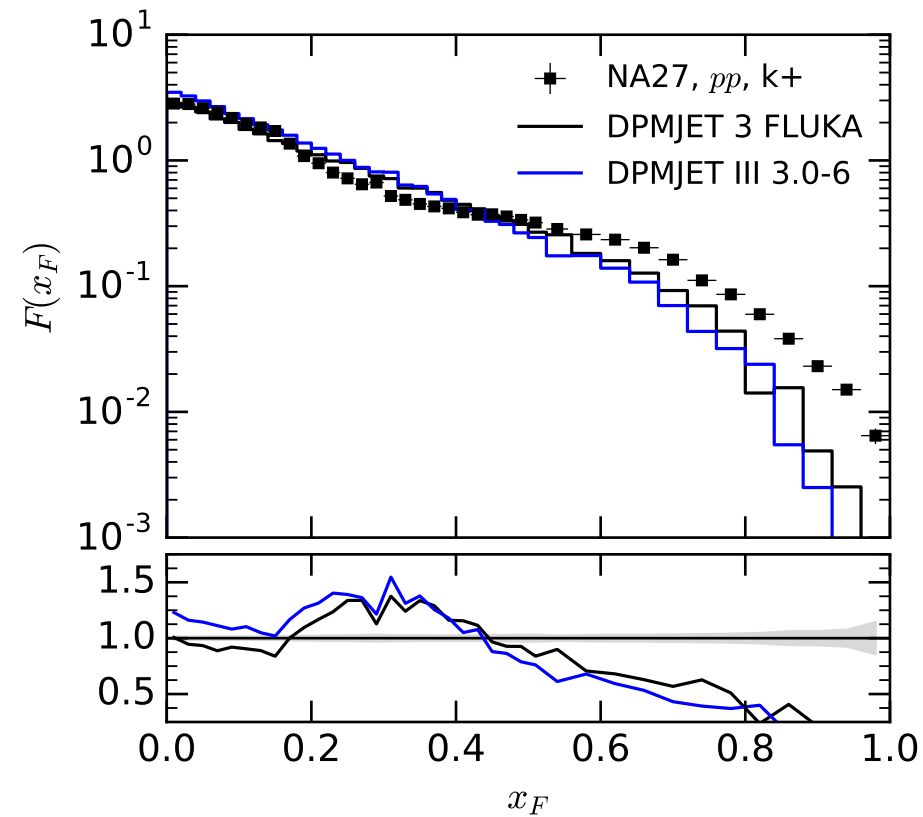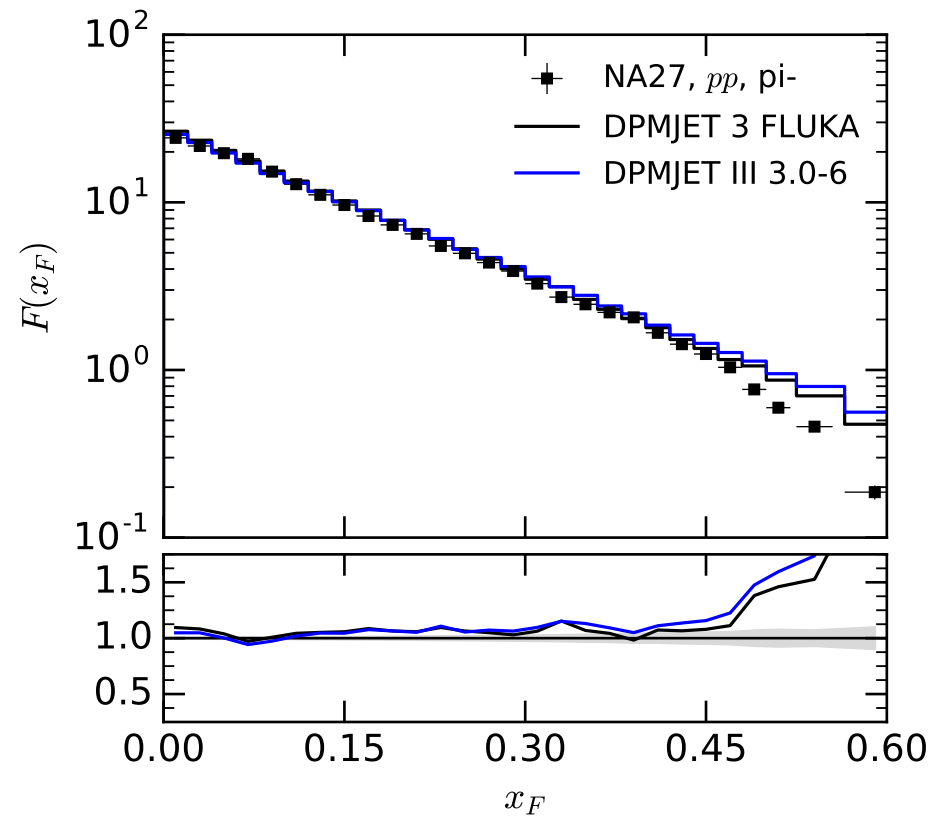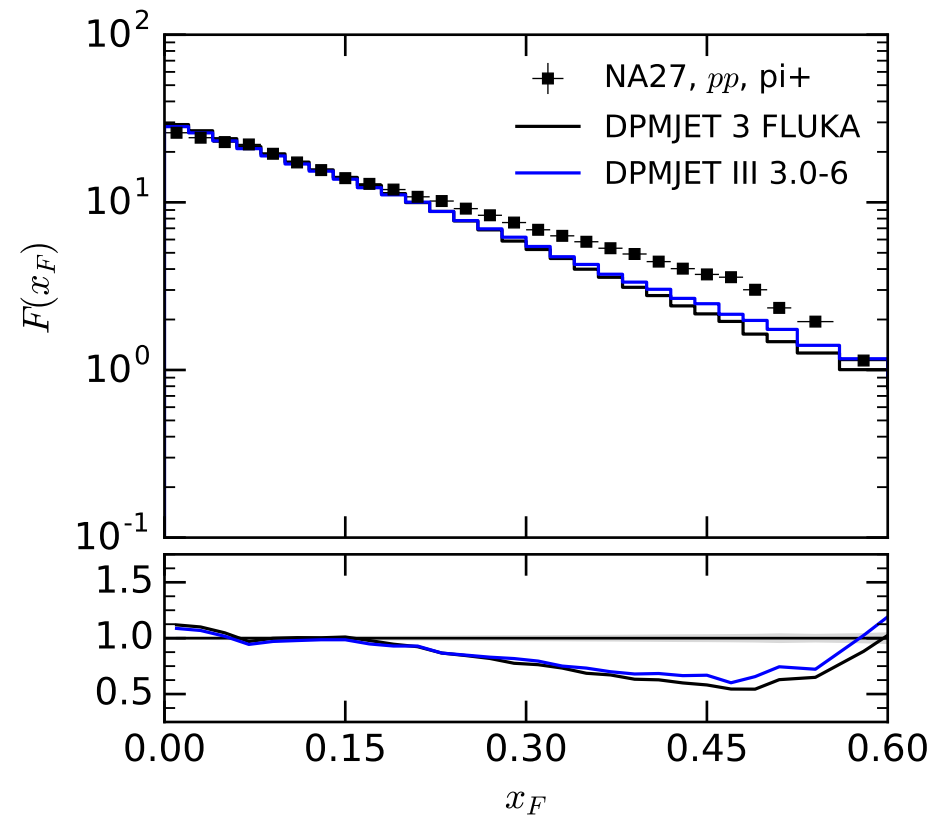
p_T^2 - NA27 pp collisions at 400 GeV
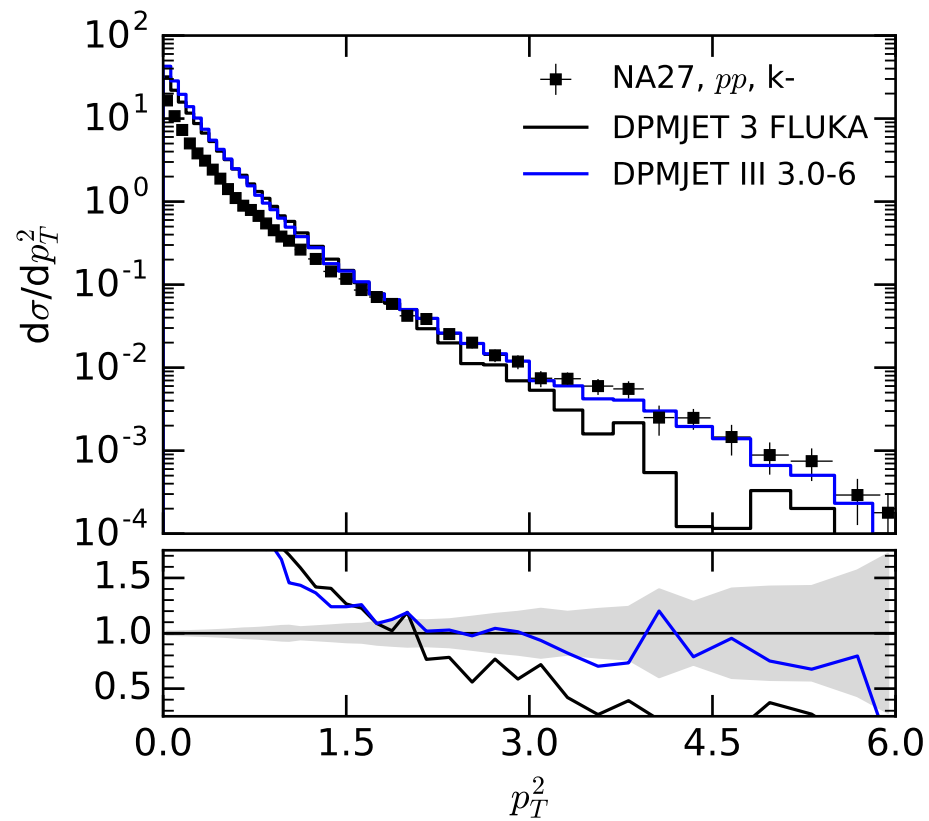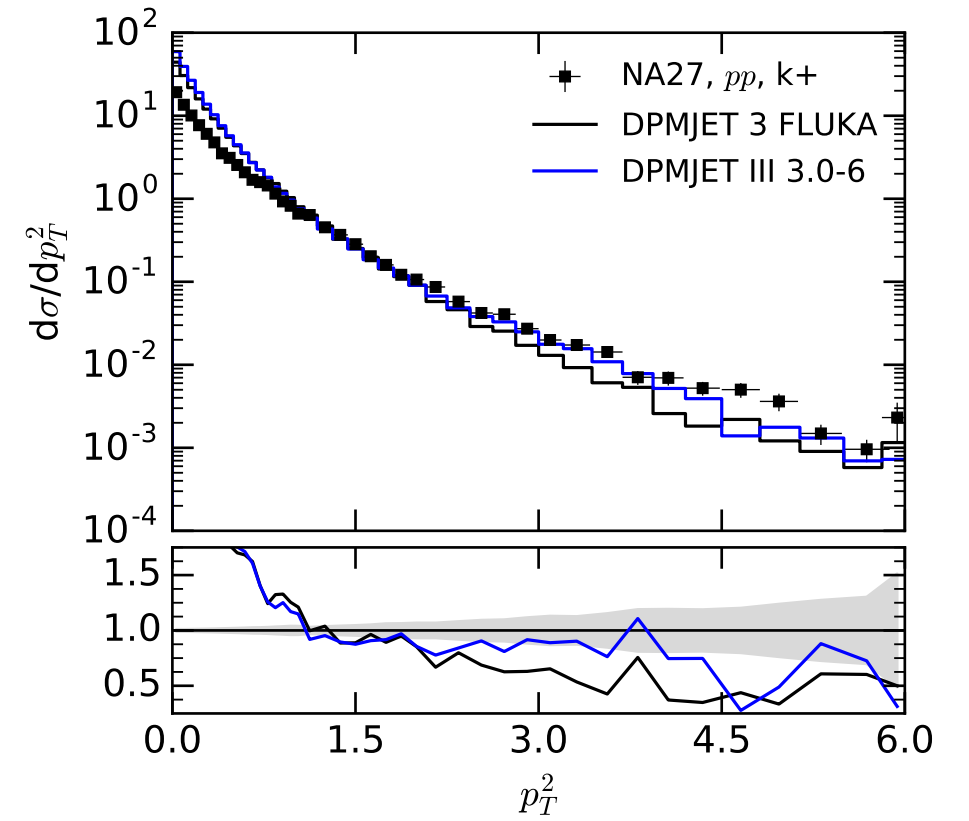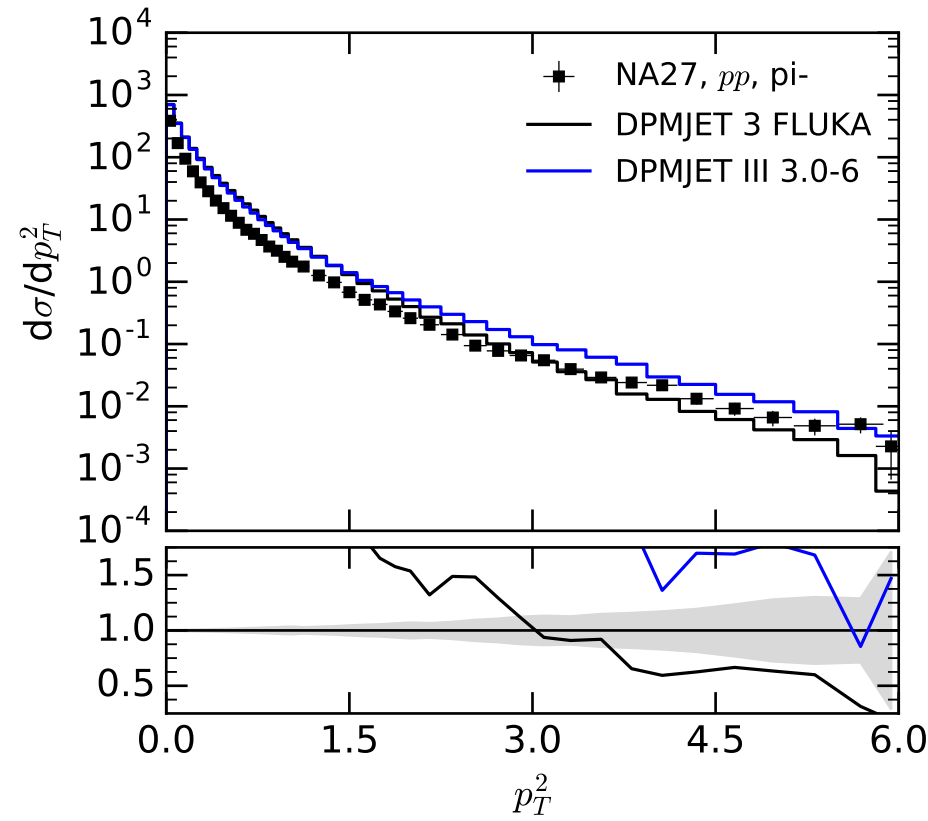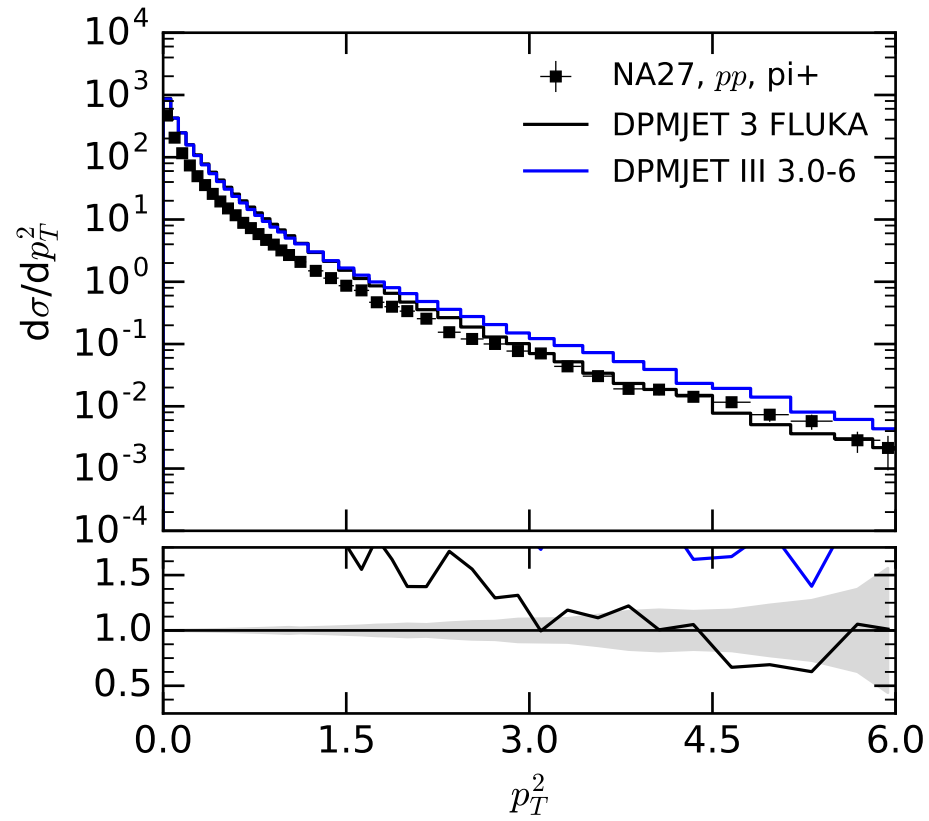
y - NA27 pp collisions at 158 GeV
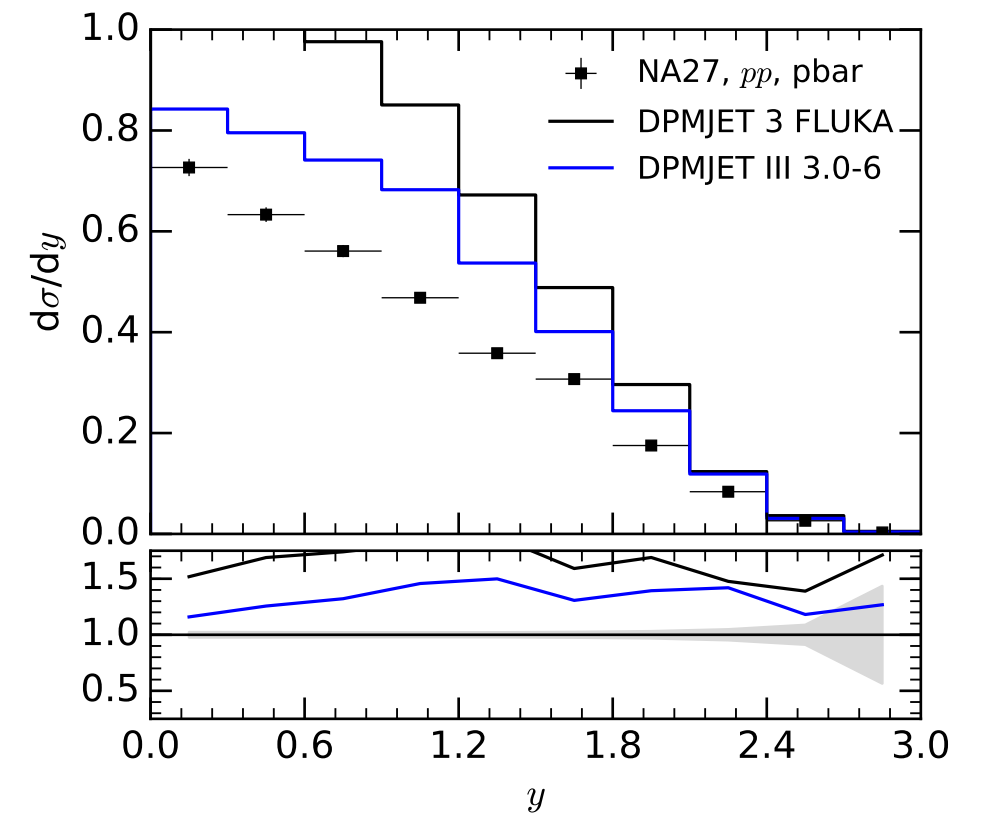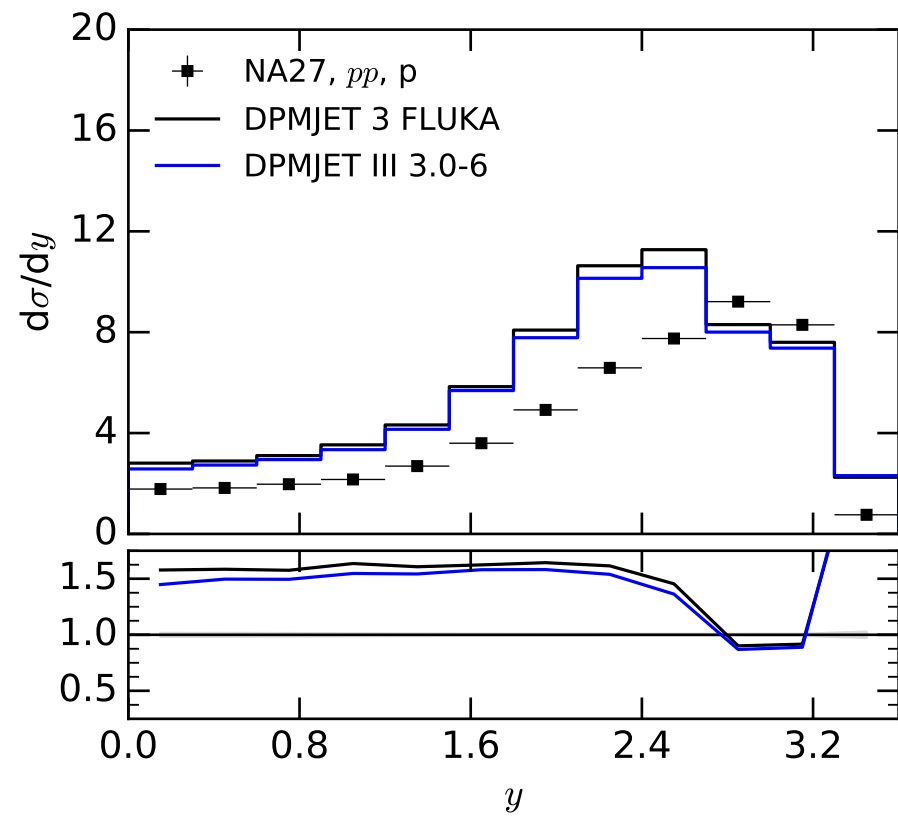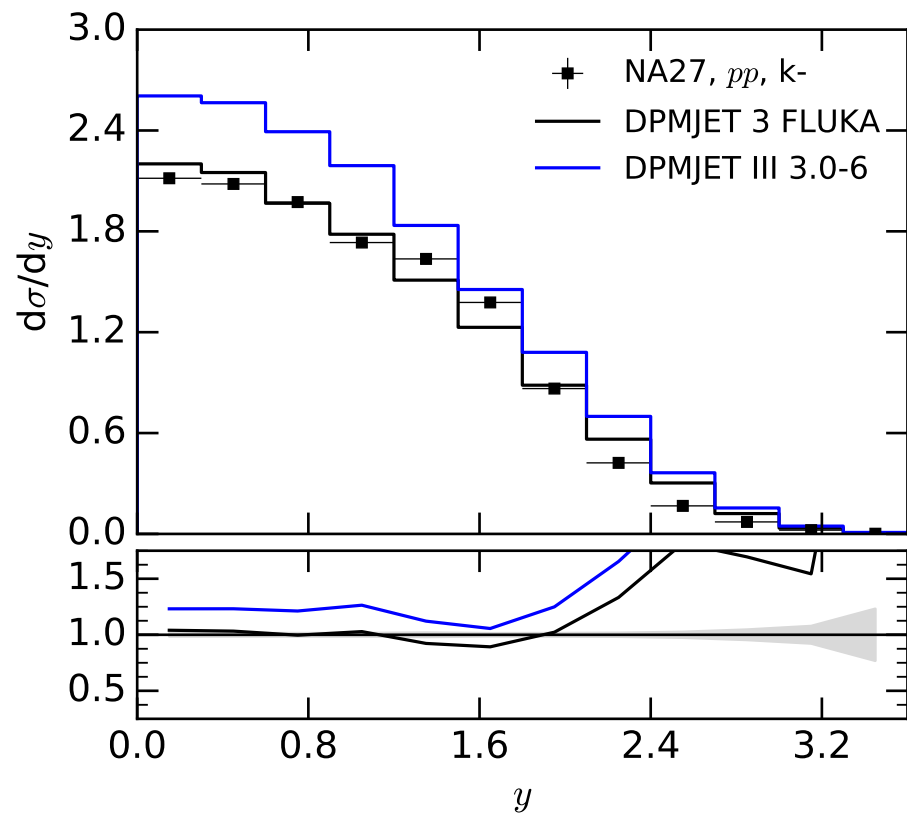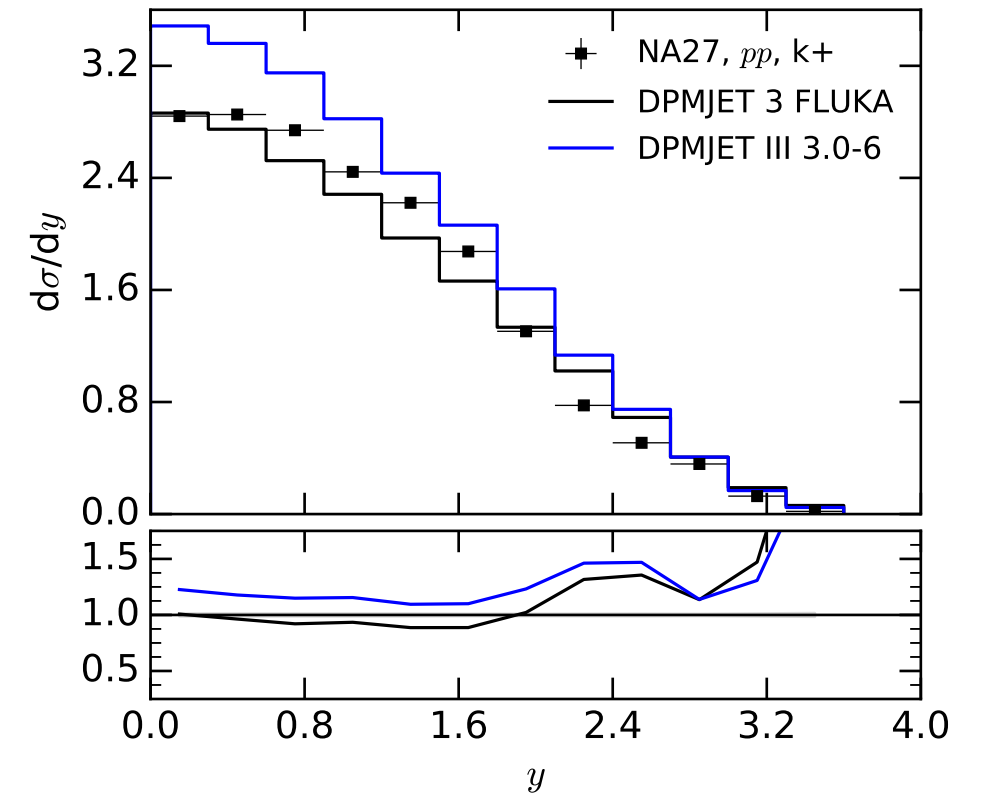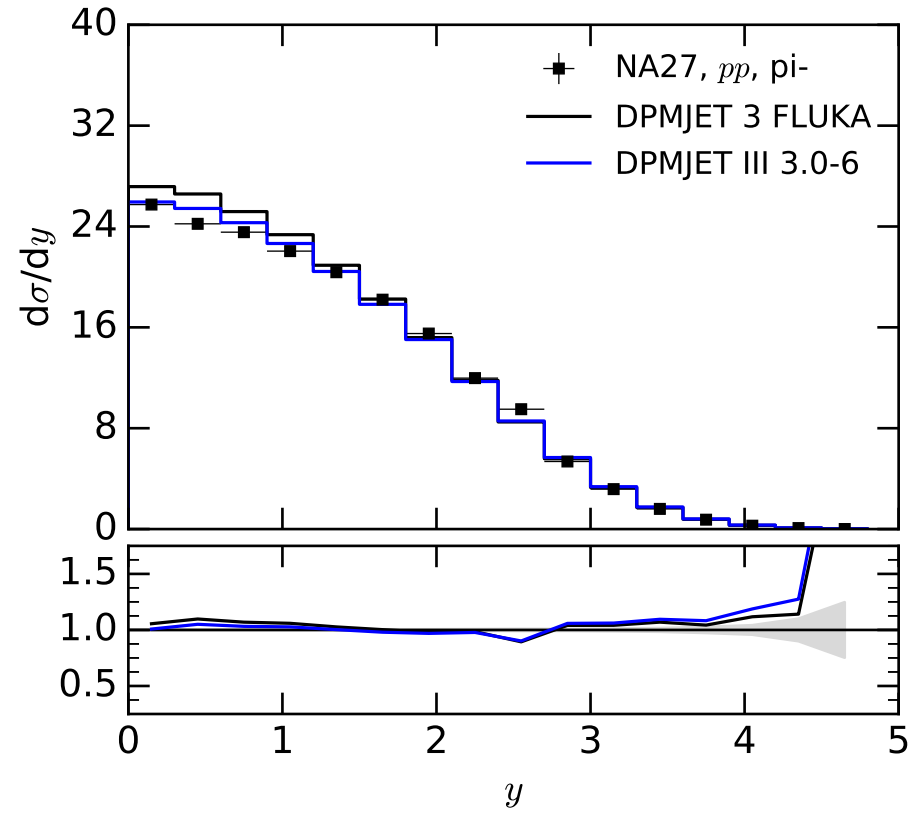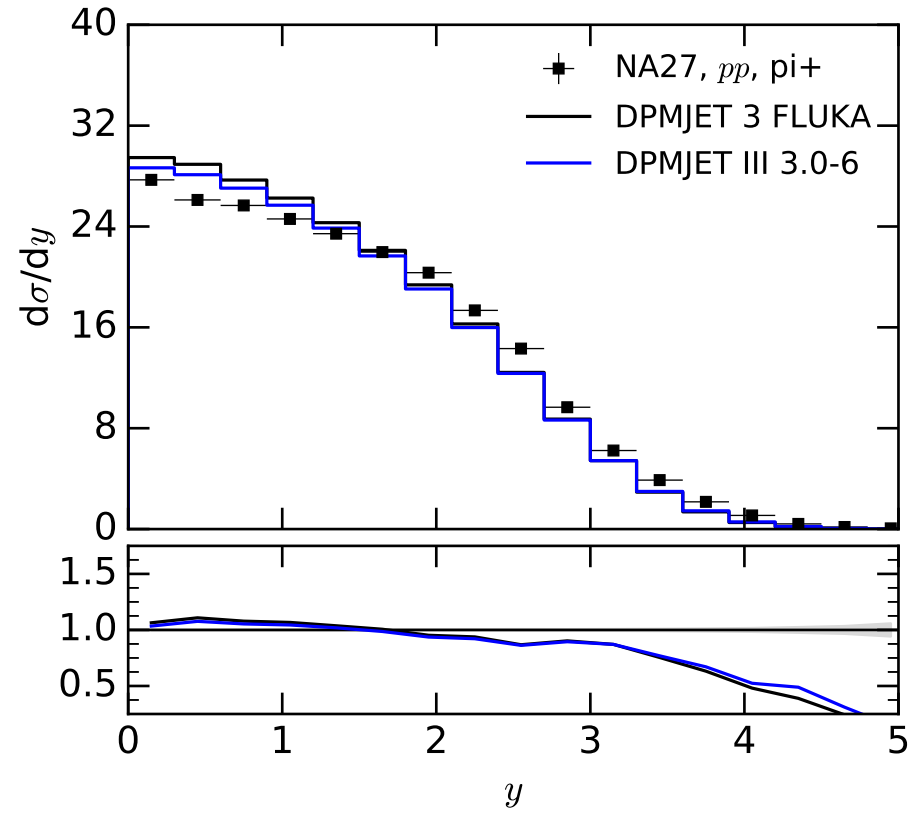
NA22: p-/π-/K-proton

η - NA22 pp, $\pi^+ p$ and $K^+ p$ collisions at 250 GeV
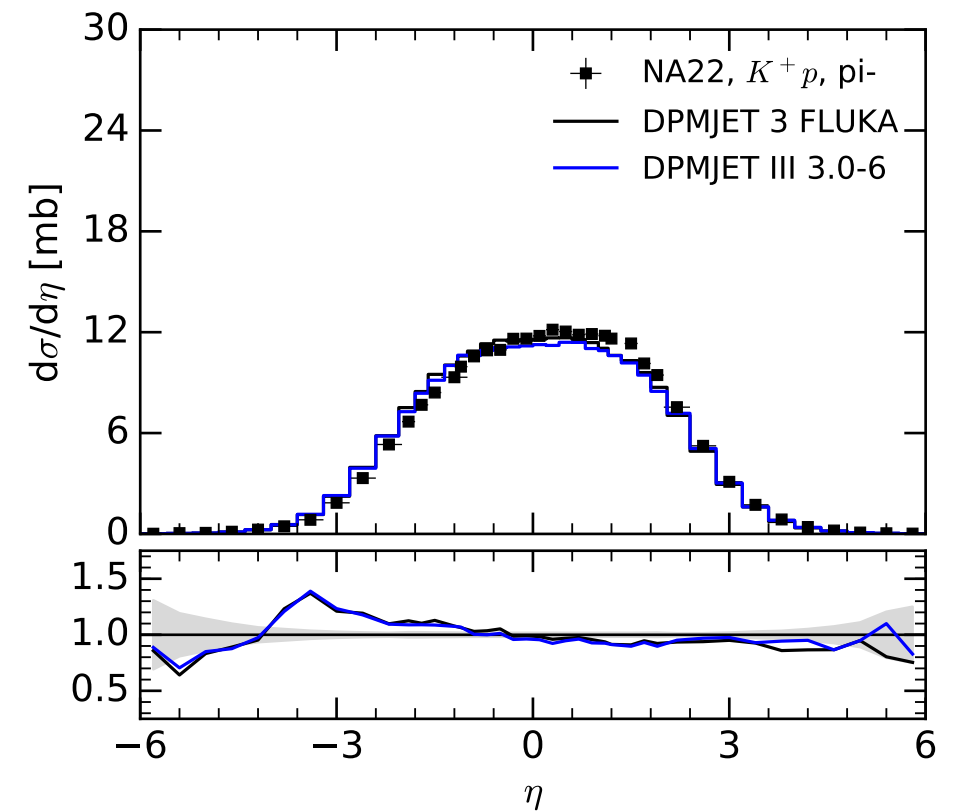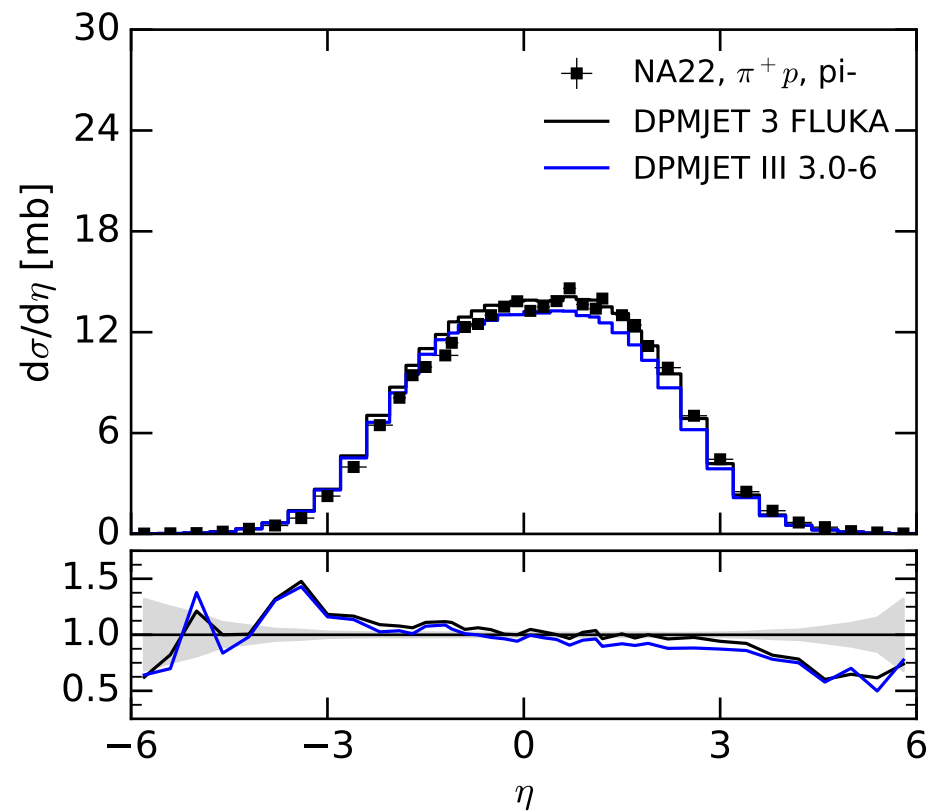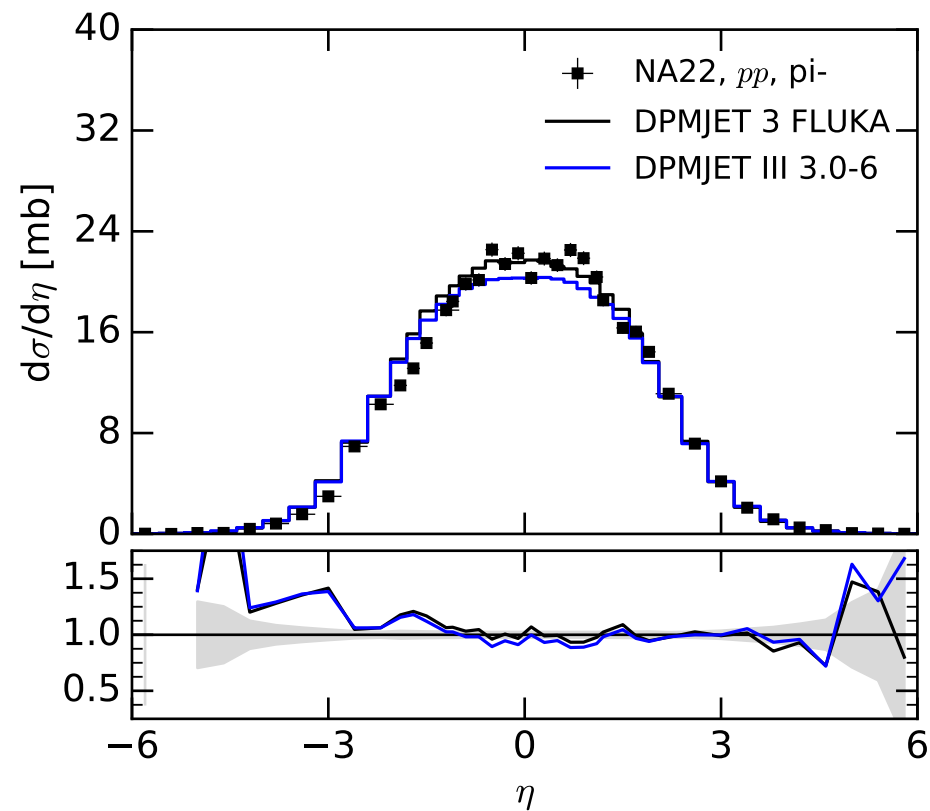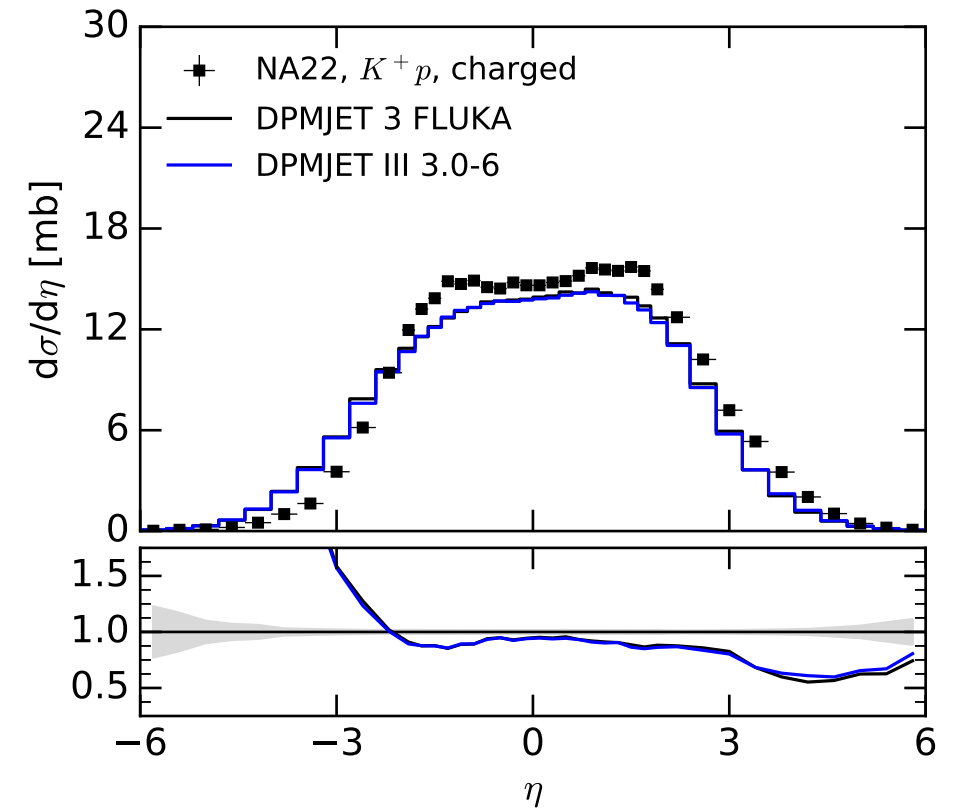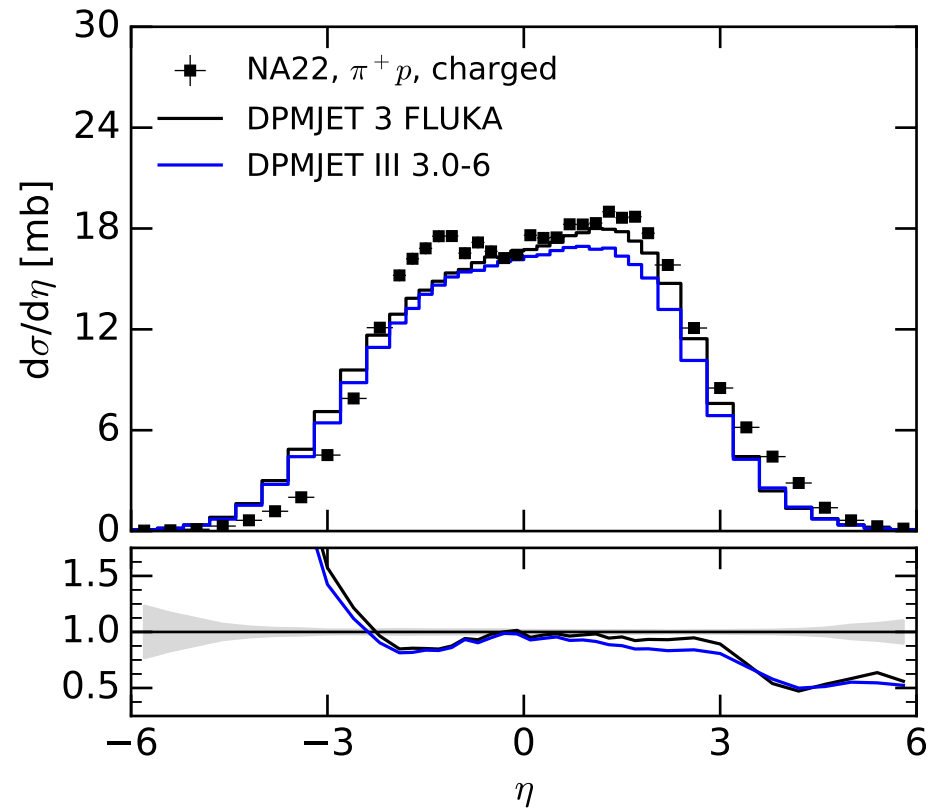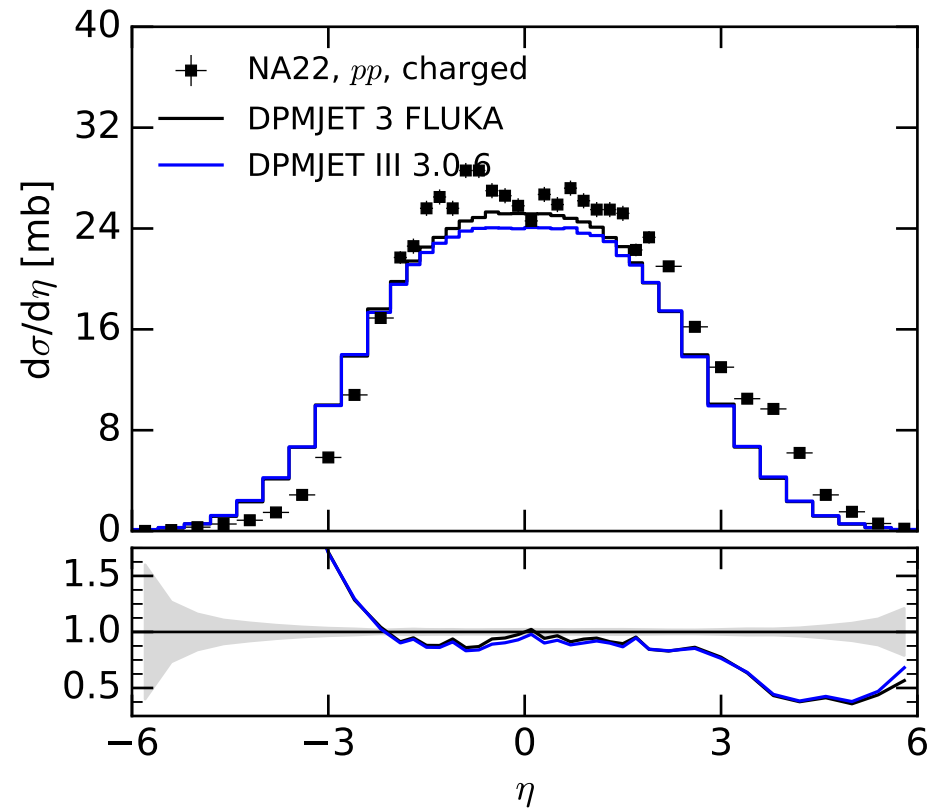
y - NA22 $\pi^+ p$ and $K^+ p$ collisions at 250 GeV
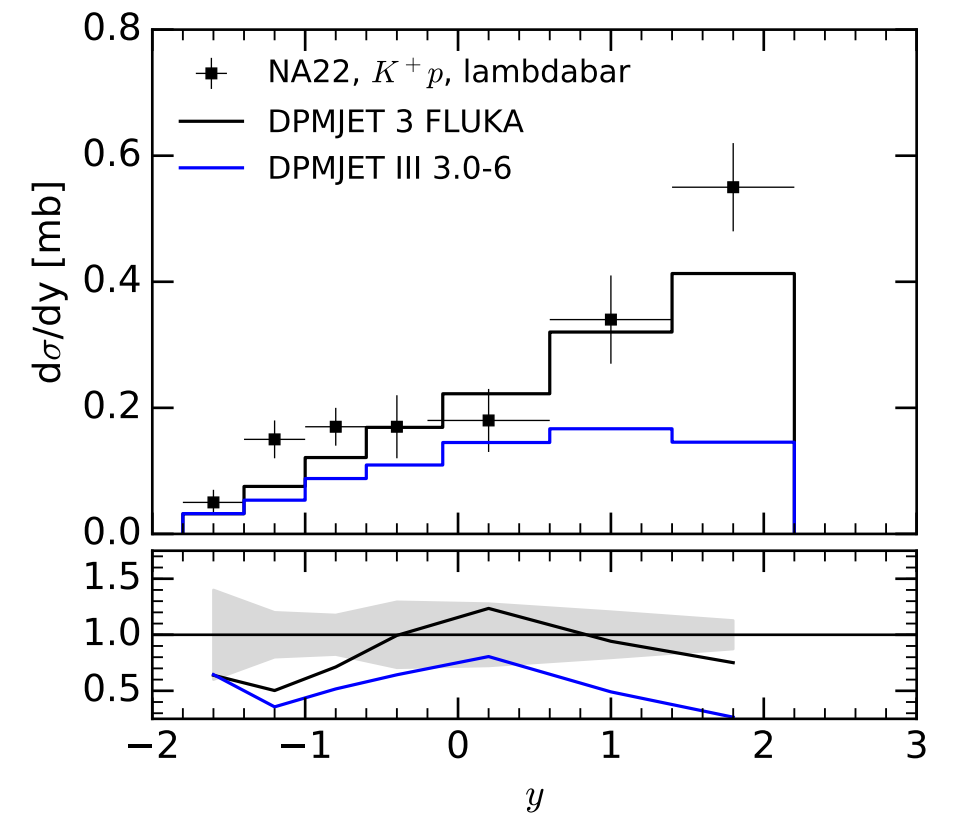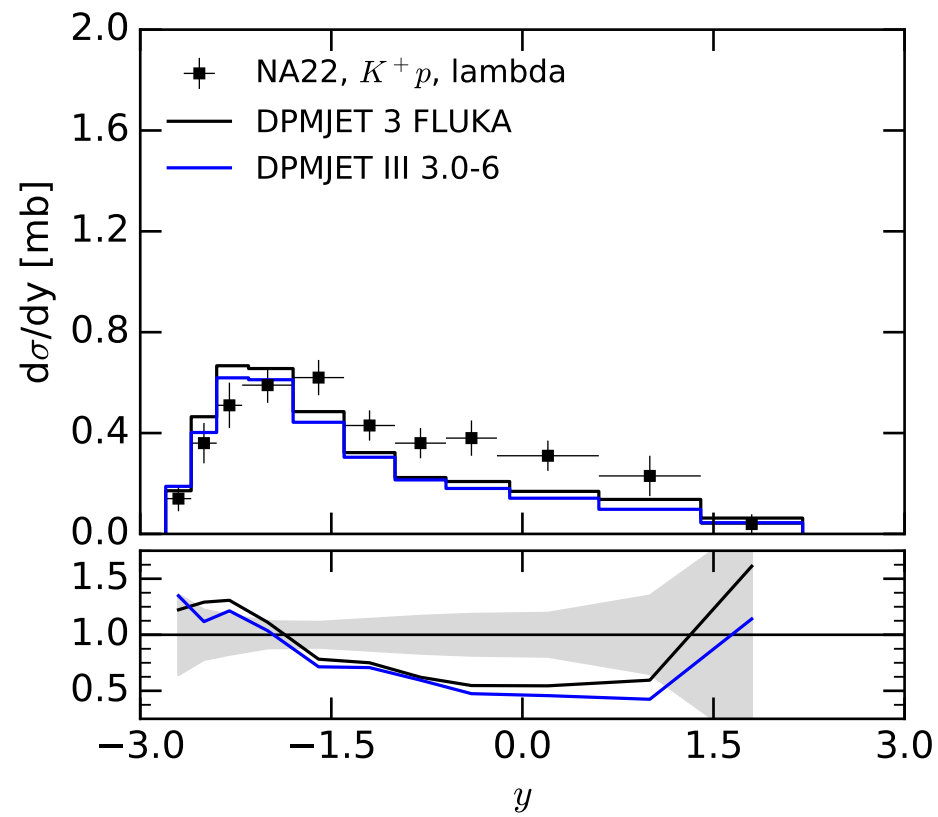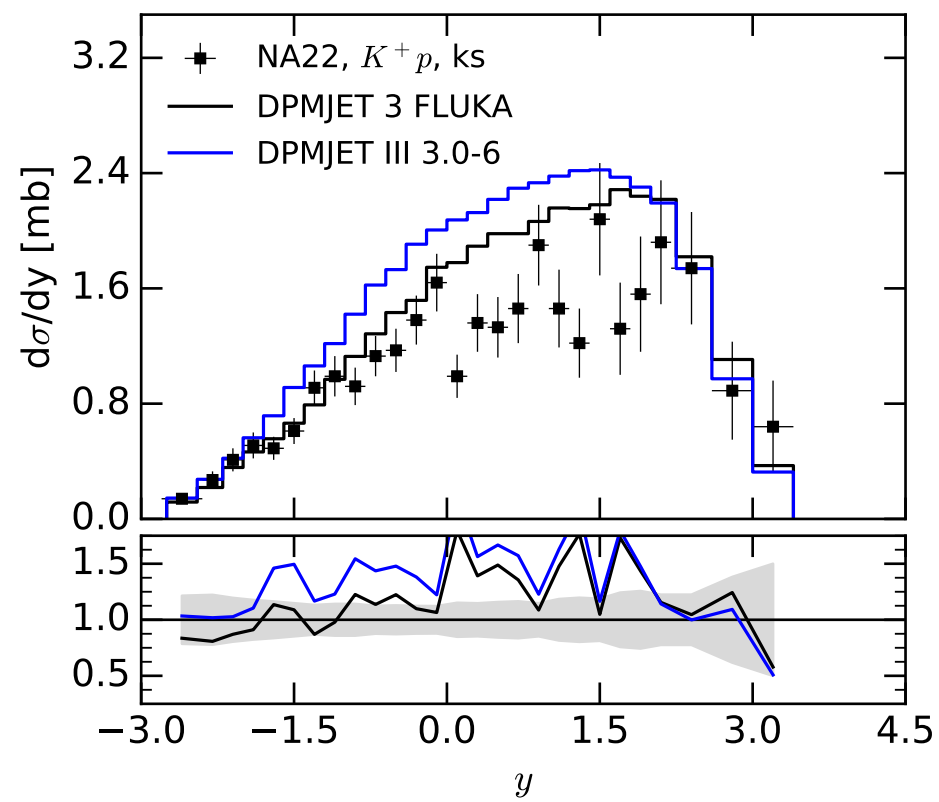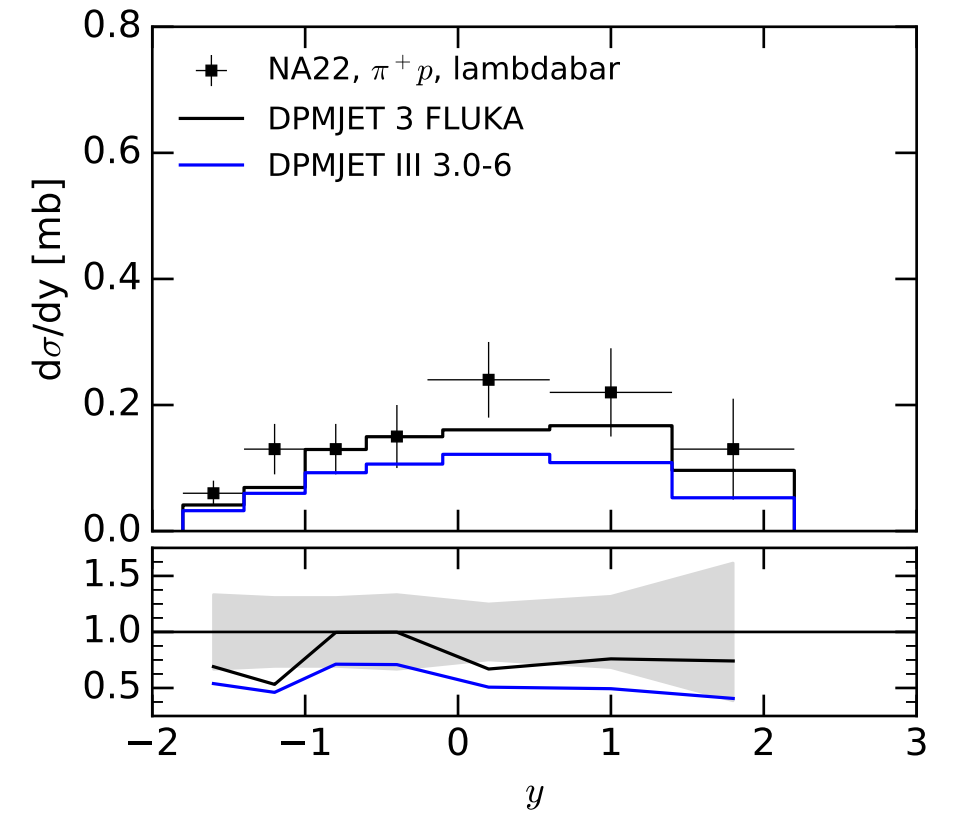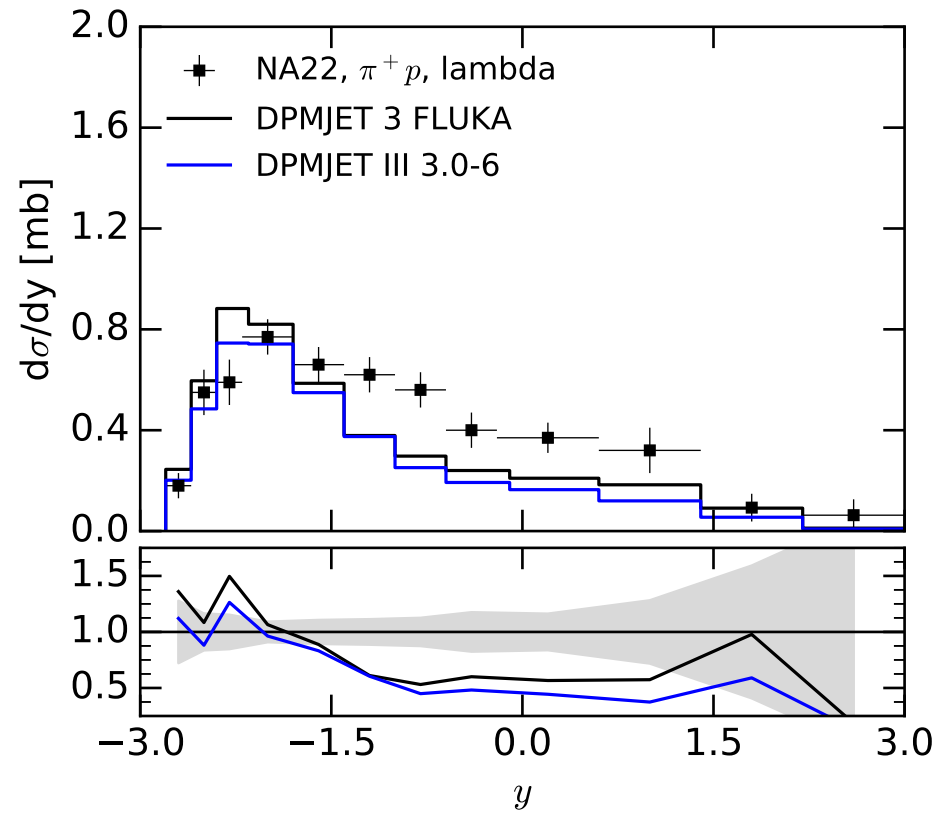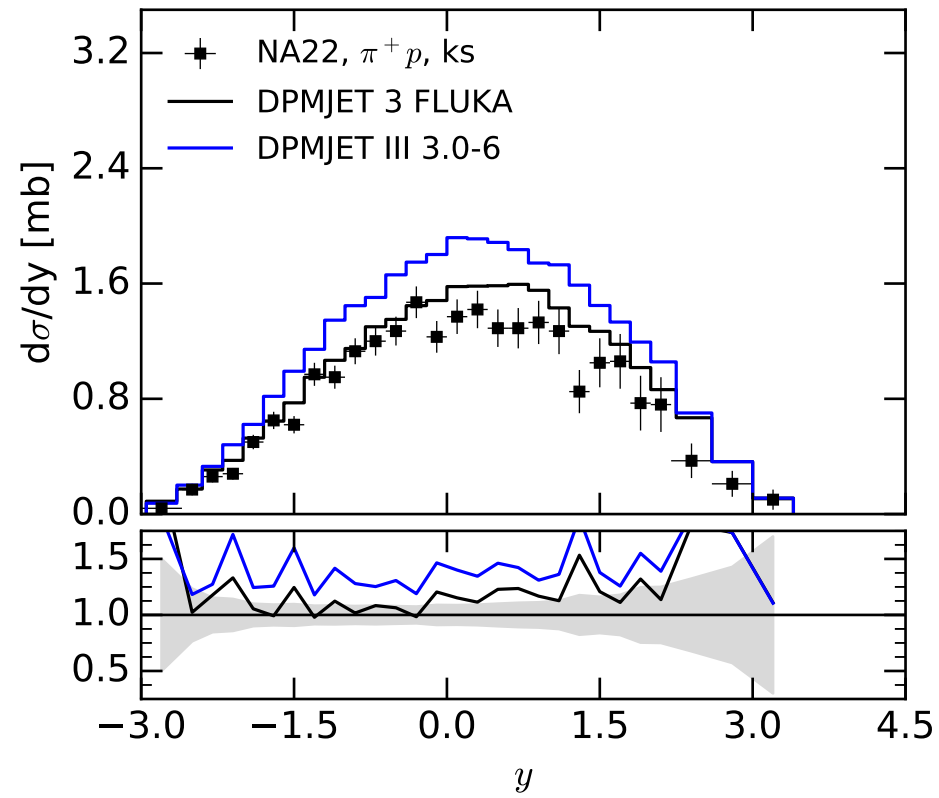
$f(x)$ - NA22 $\pi^+ p$ and $K^+ p$ collisions at 250 GeV
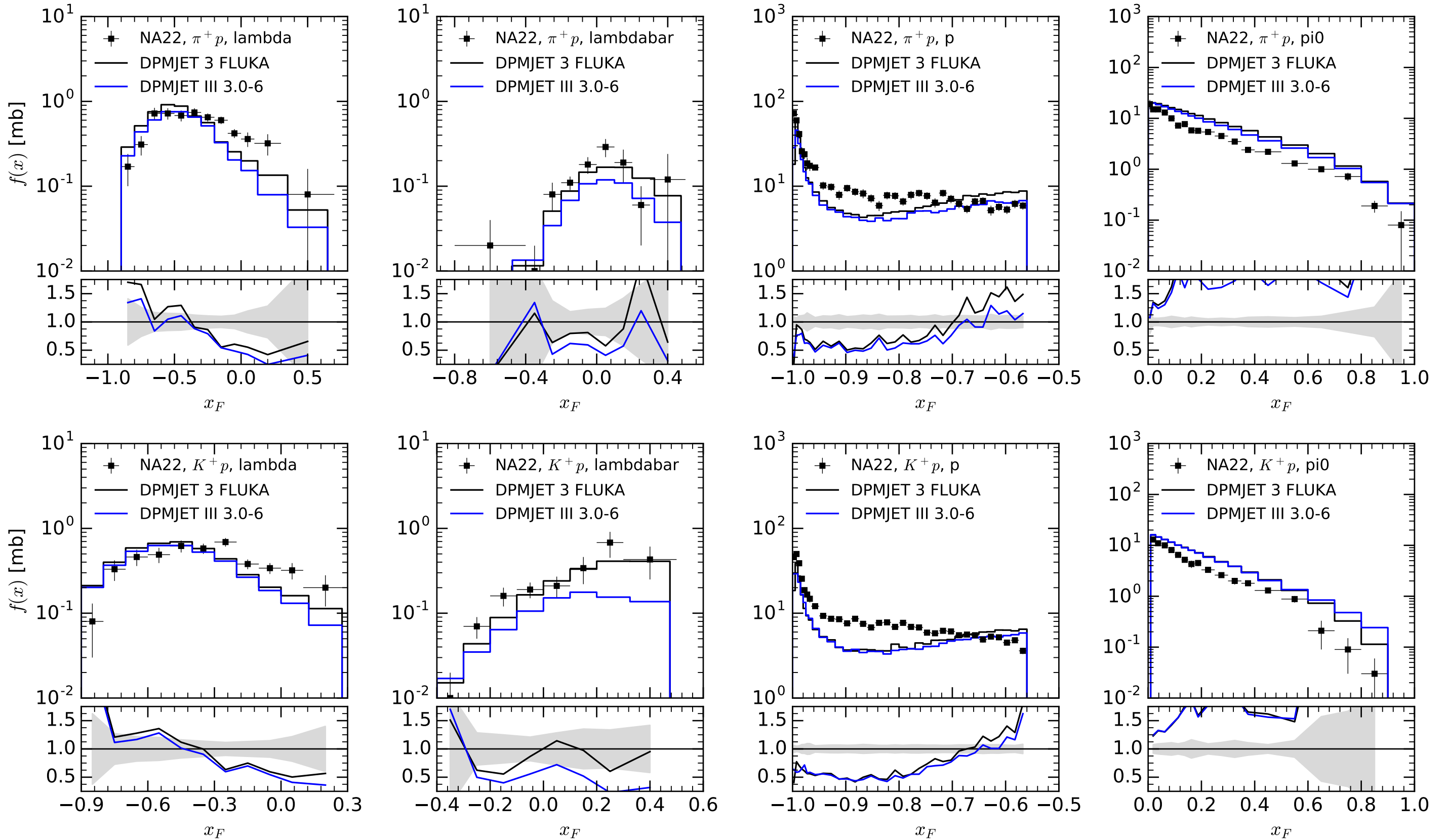
p_T^2 - NA22 $\pi^+ p$ and $K^+ p$ collisions at 250 GeV
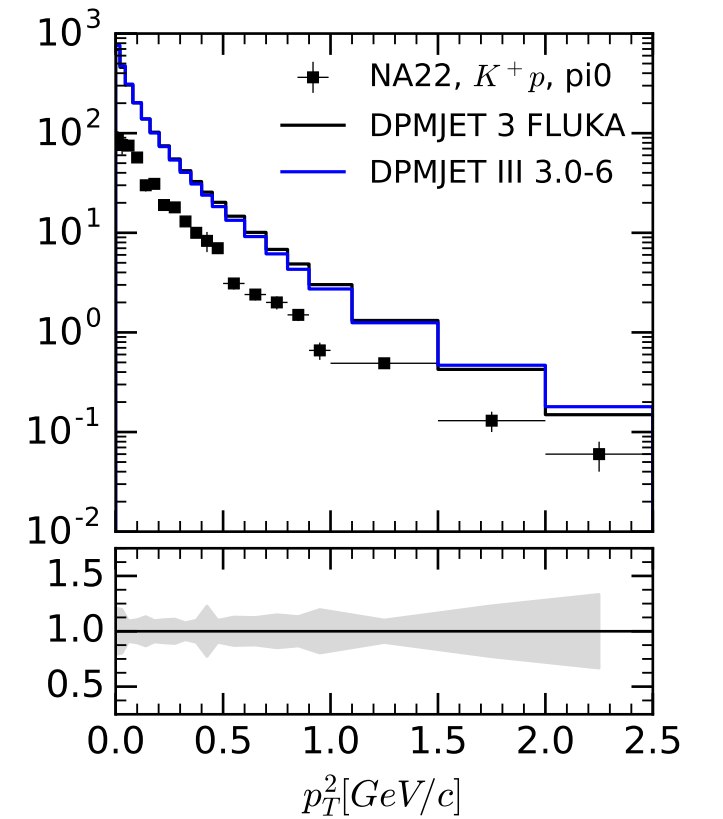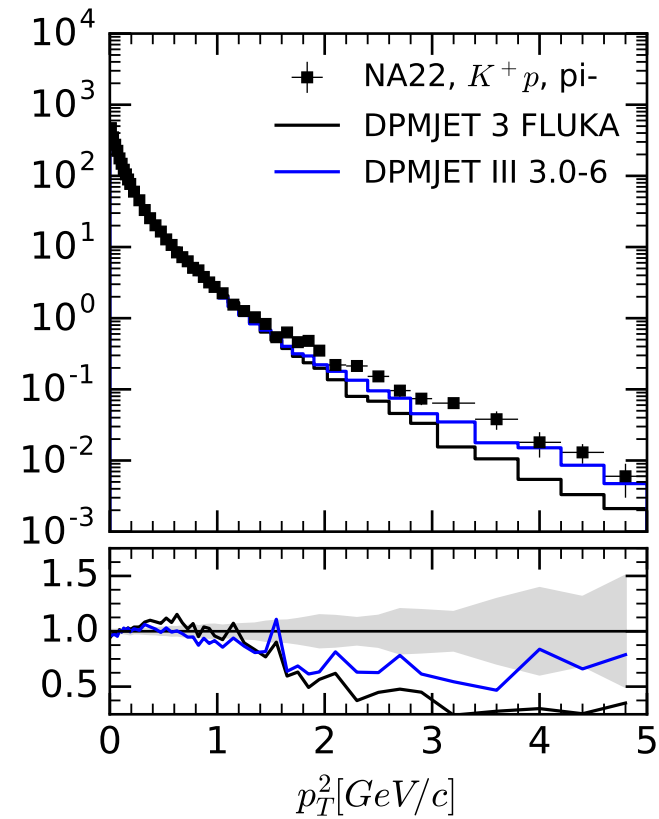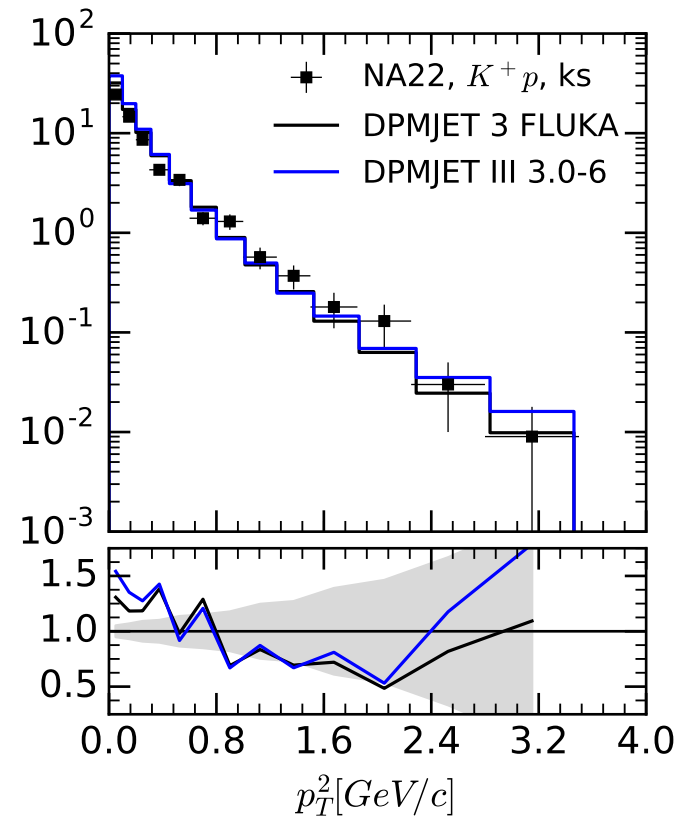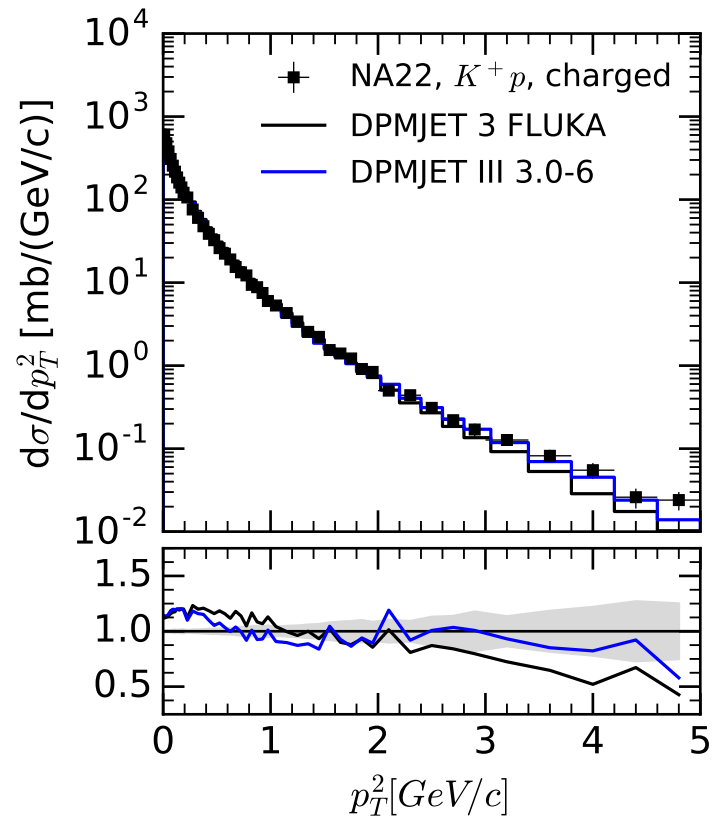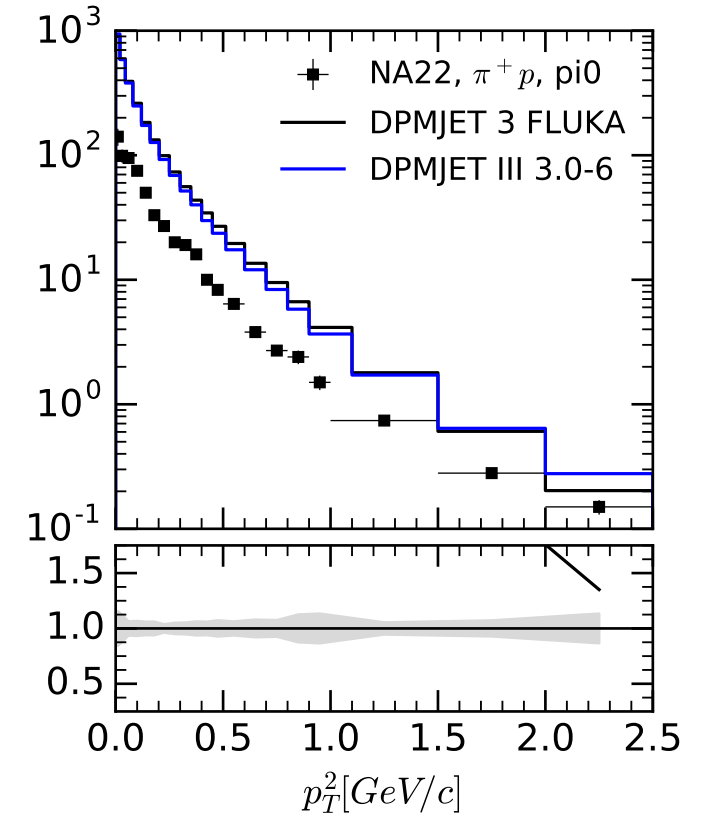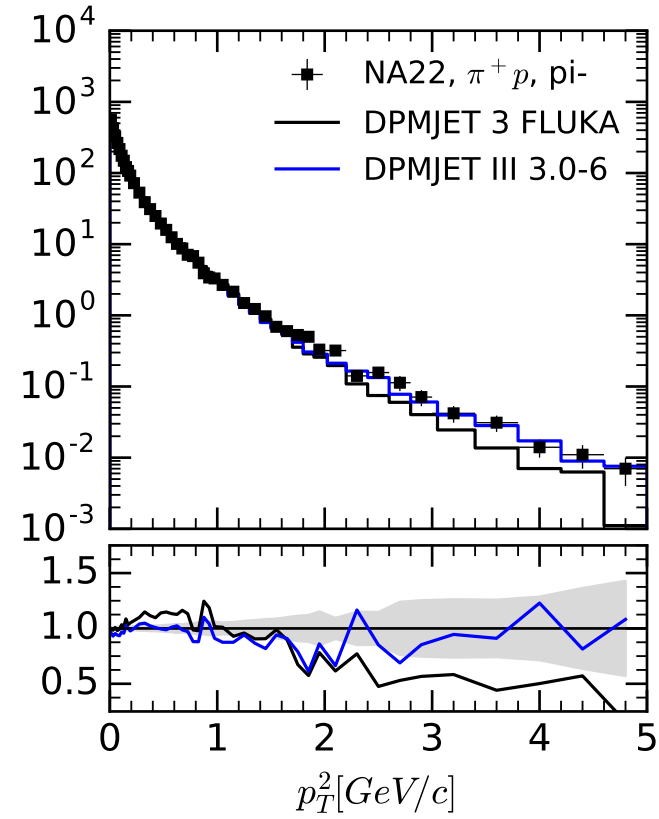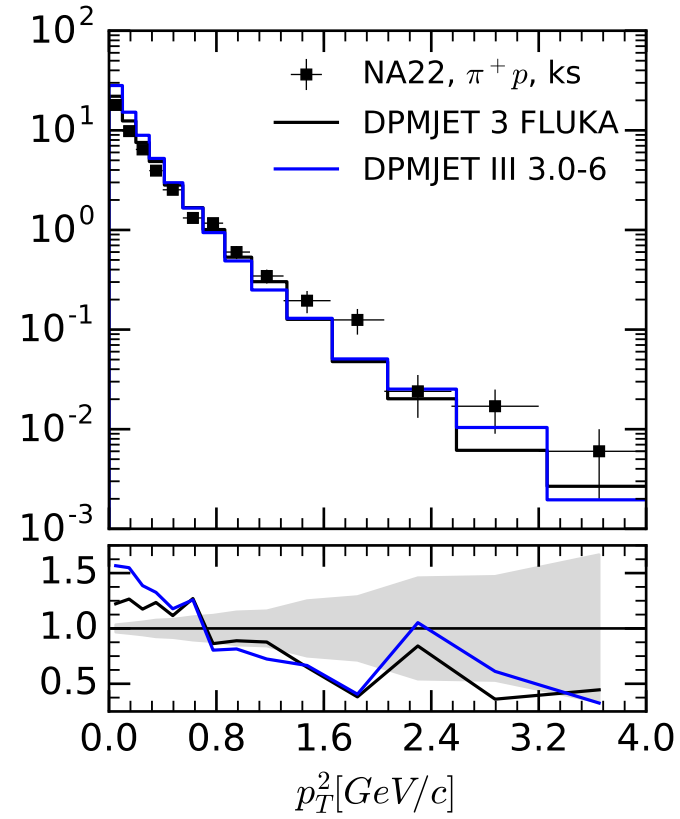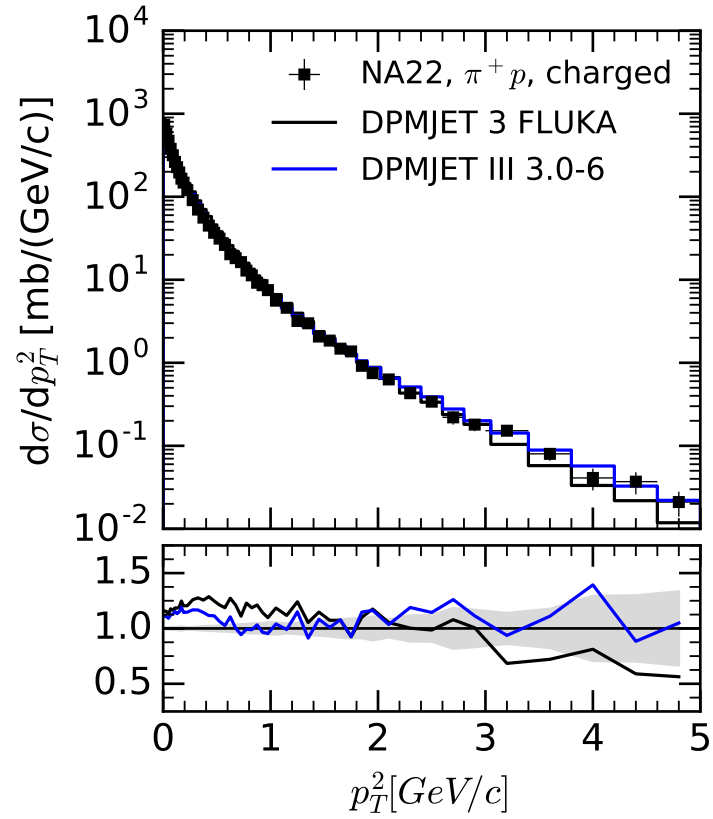
y - NA22 *pp* collisions at 250 GeV
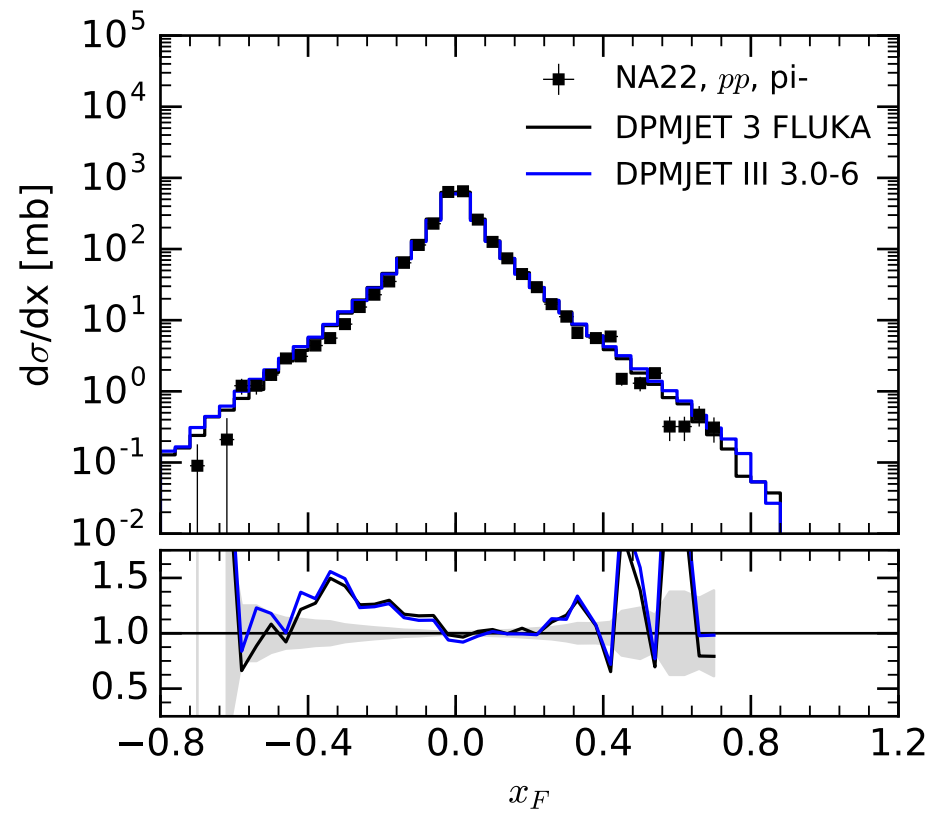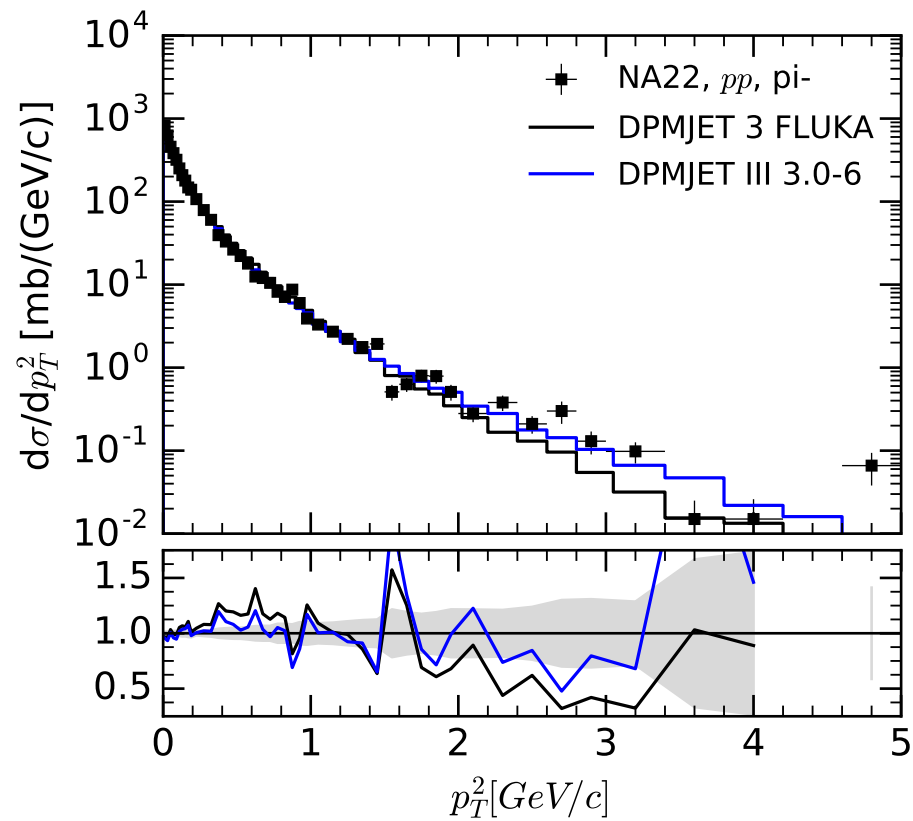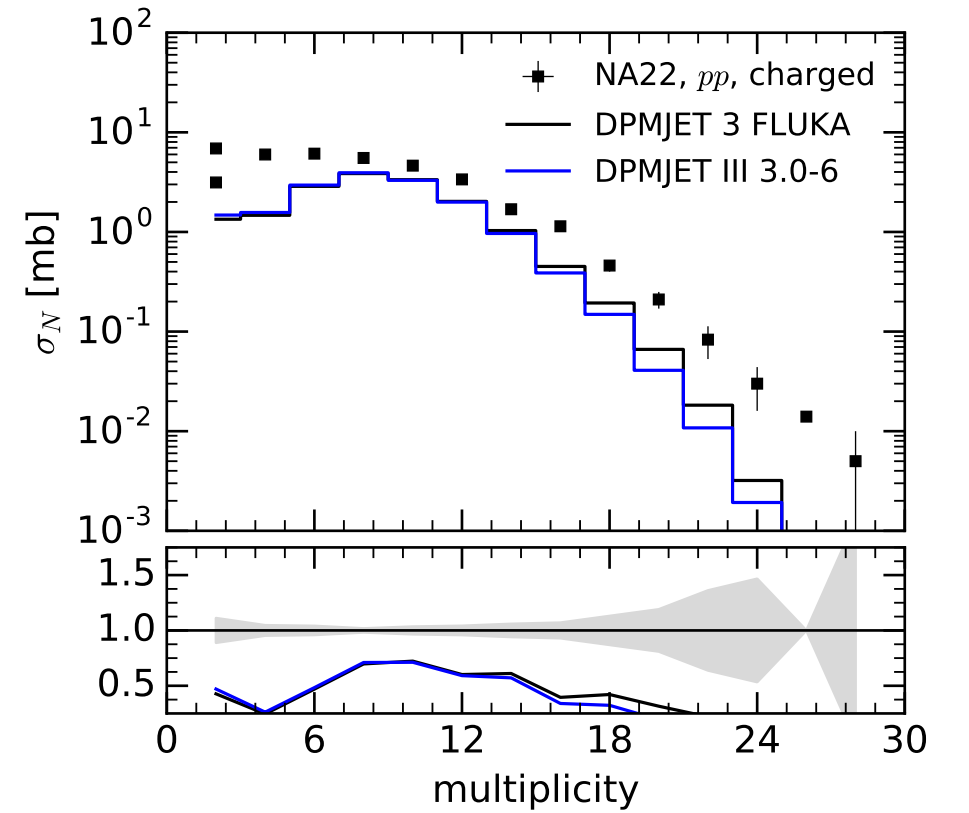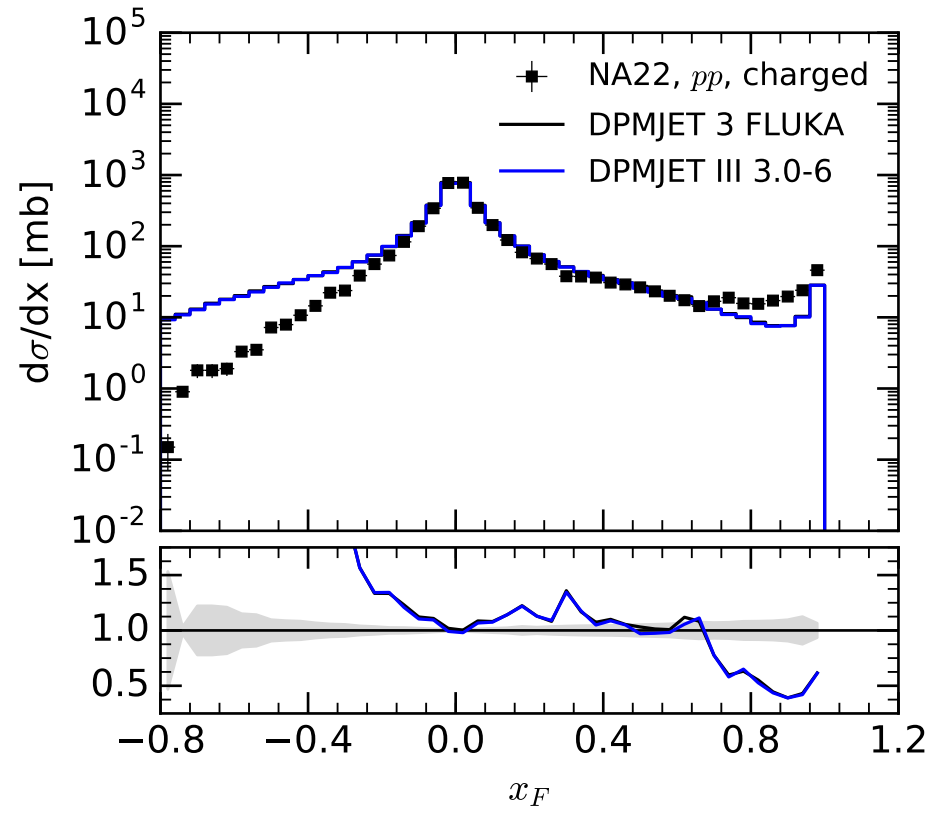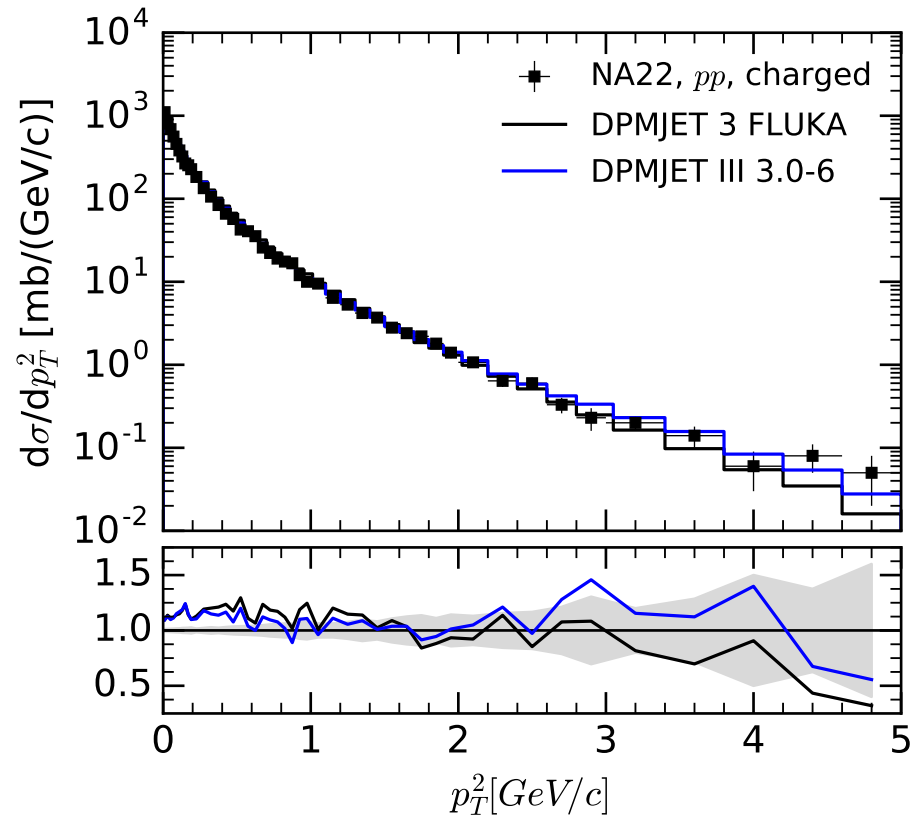
LHC: ATLAS Minimum Bias

ATLAS - Charged particle pseudorapidity density.
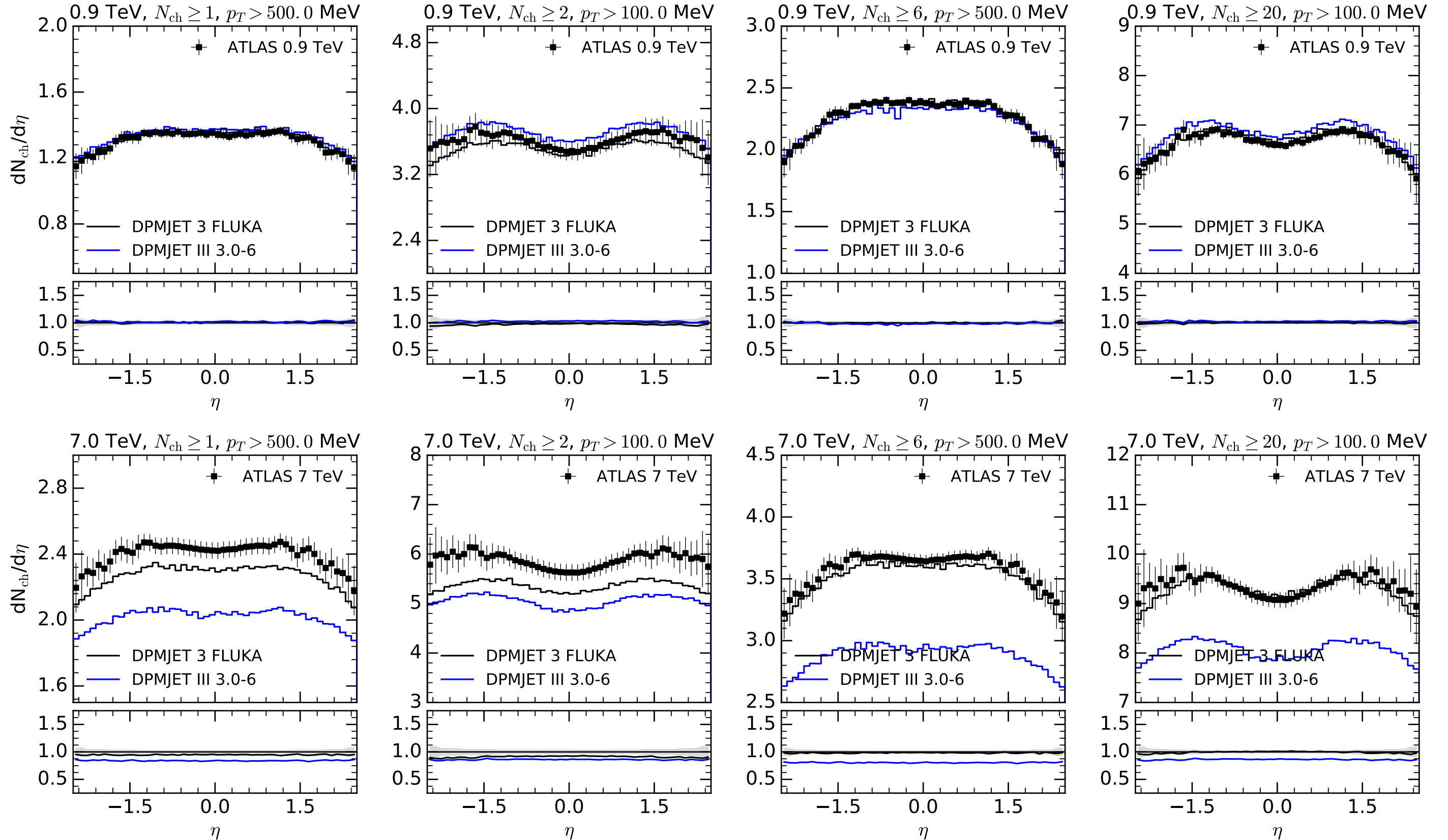
ATLAS - Charged particle multiplicity distributions.
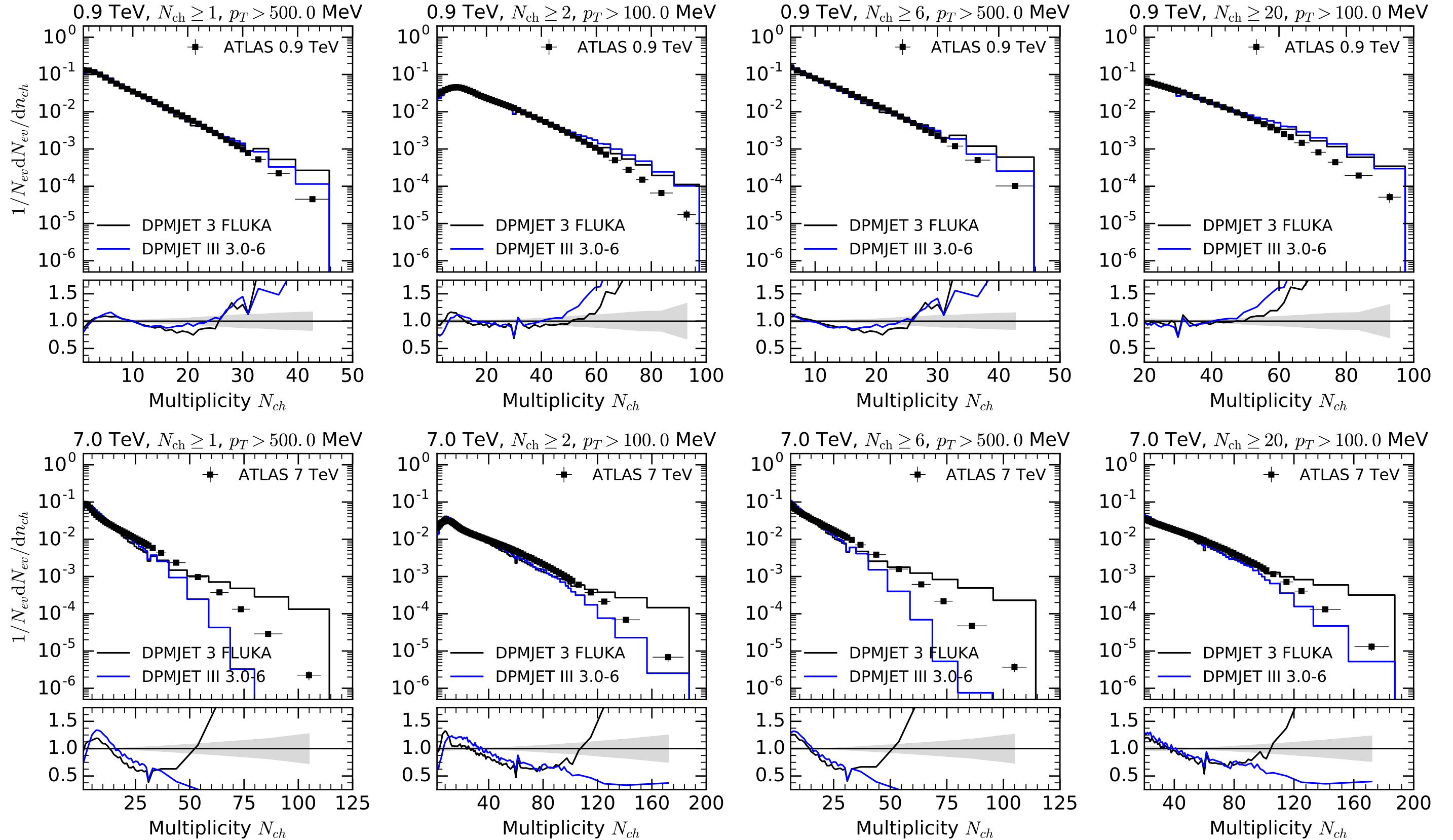
ATLAS - Transverse momentum distributions.

ATLAS - average p_T for multiplicity bins.

0.9 TeV, $N_{ch} \geq 1$, $p_T > 500.0$ MeV

0.9 TeV, $N_{ch} \geq 2$, $p_T > 100.0$ MeV

7.0 TeV, $N_{ch} \geq 1$, $p_T > 500.0$ MeV

7.0 TeV, $N_{ch} \geq 2$, $p_T > 100.0$ MeV
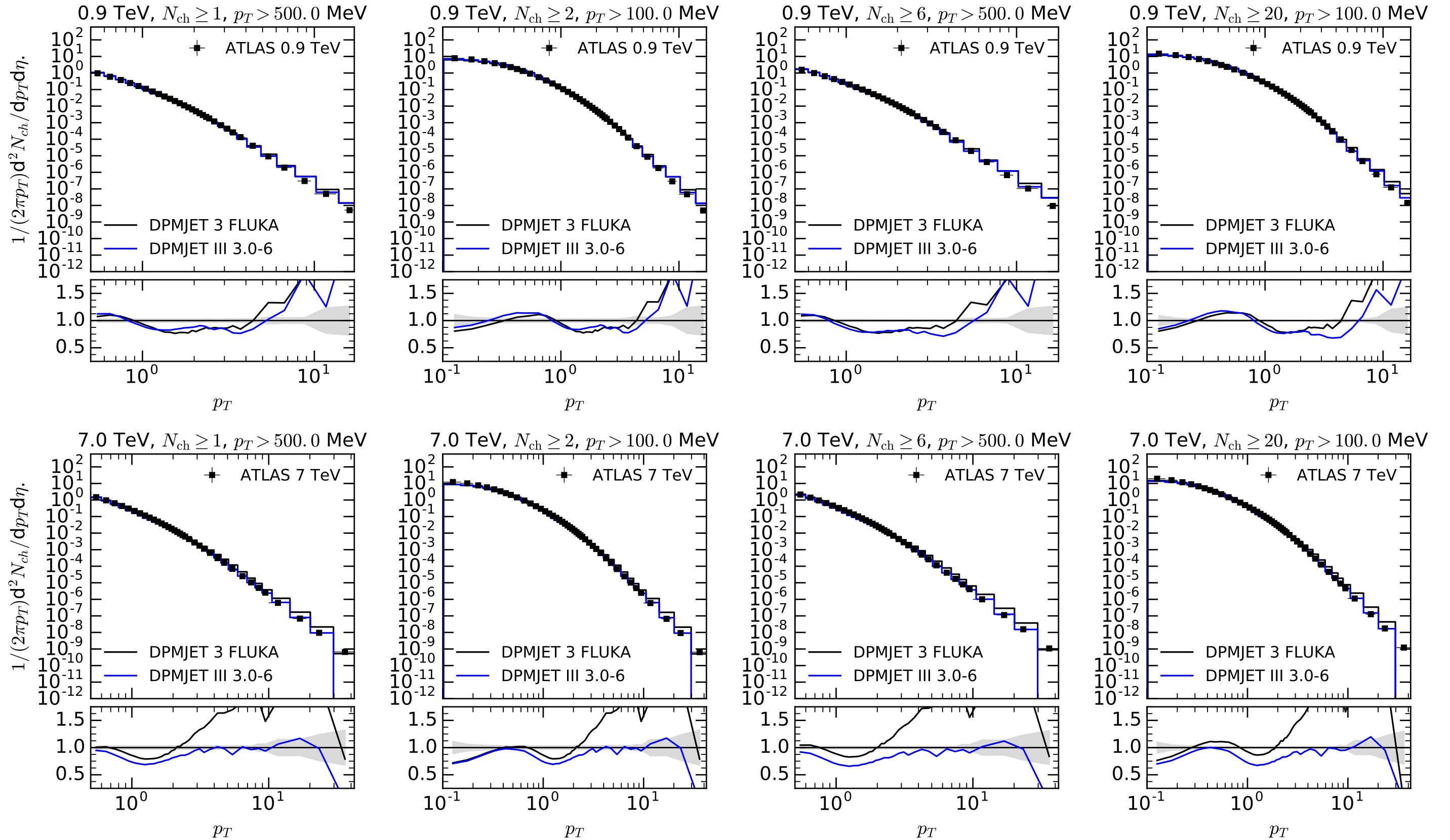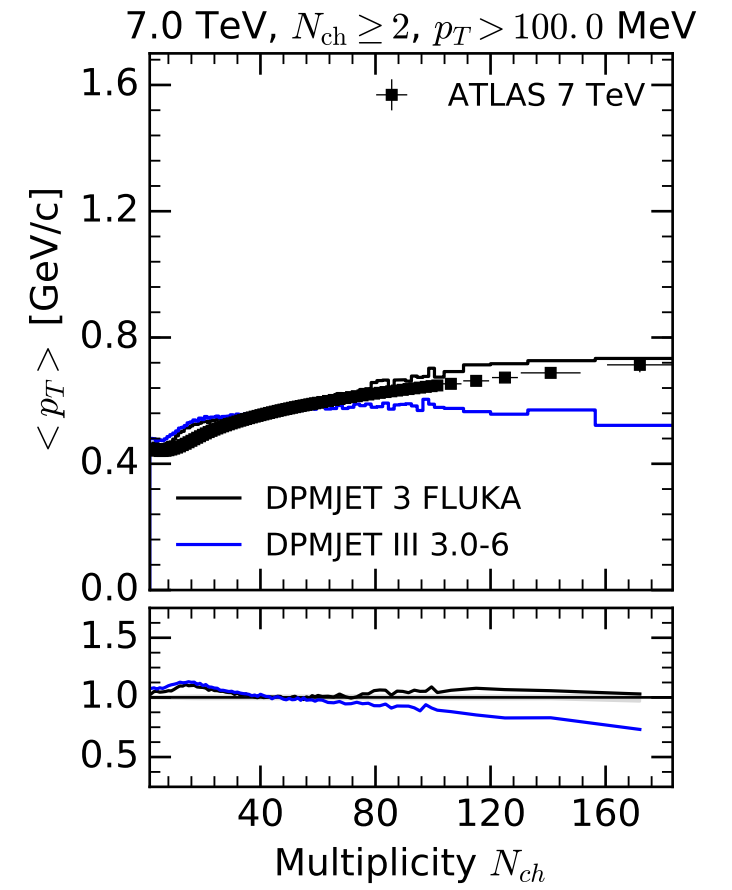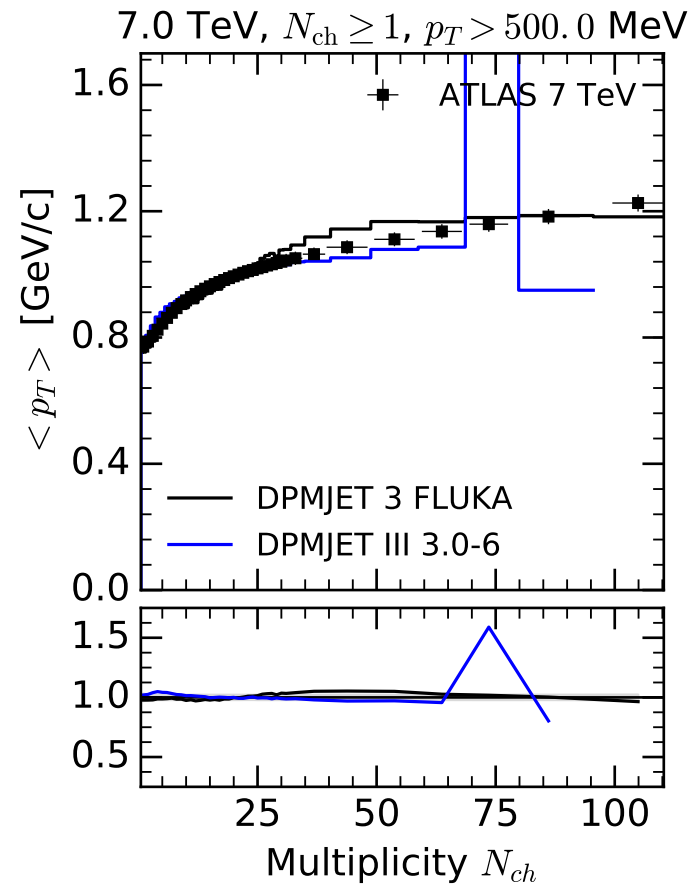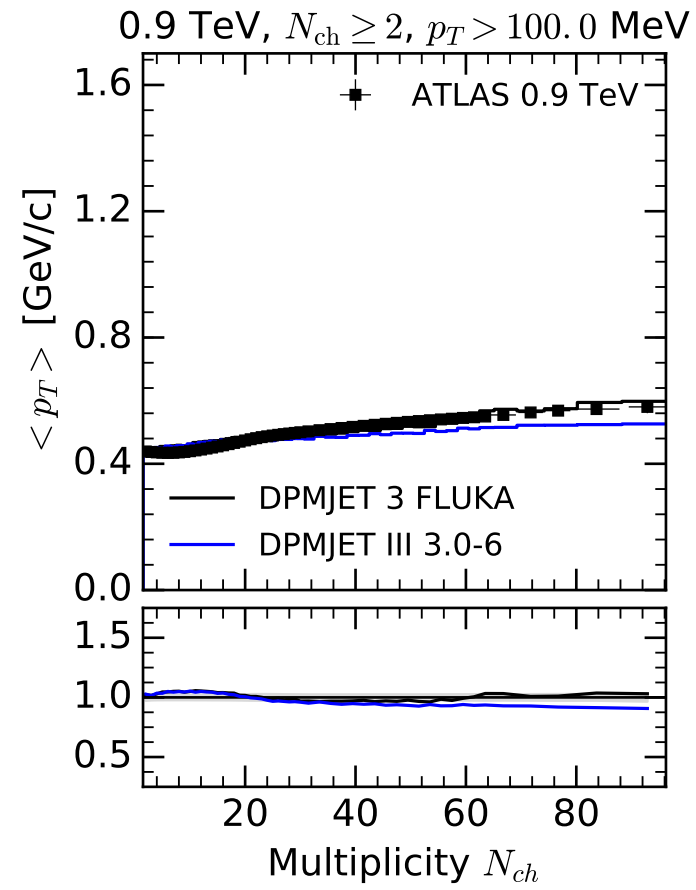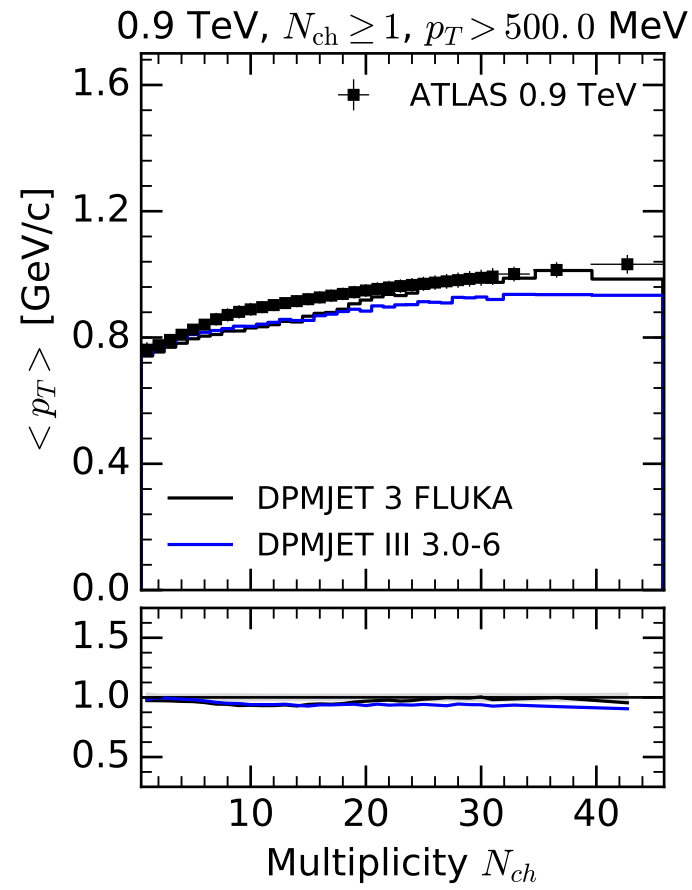
LHC: ALICE Minimum Bias

ALICE - NSD charged particle pseudorapidity density.
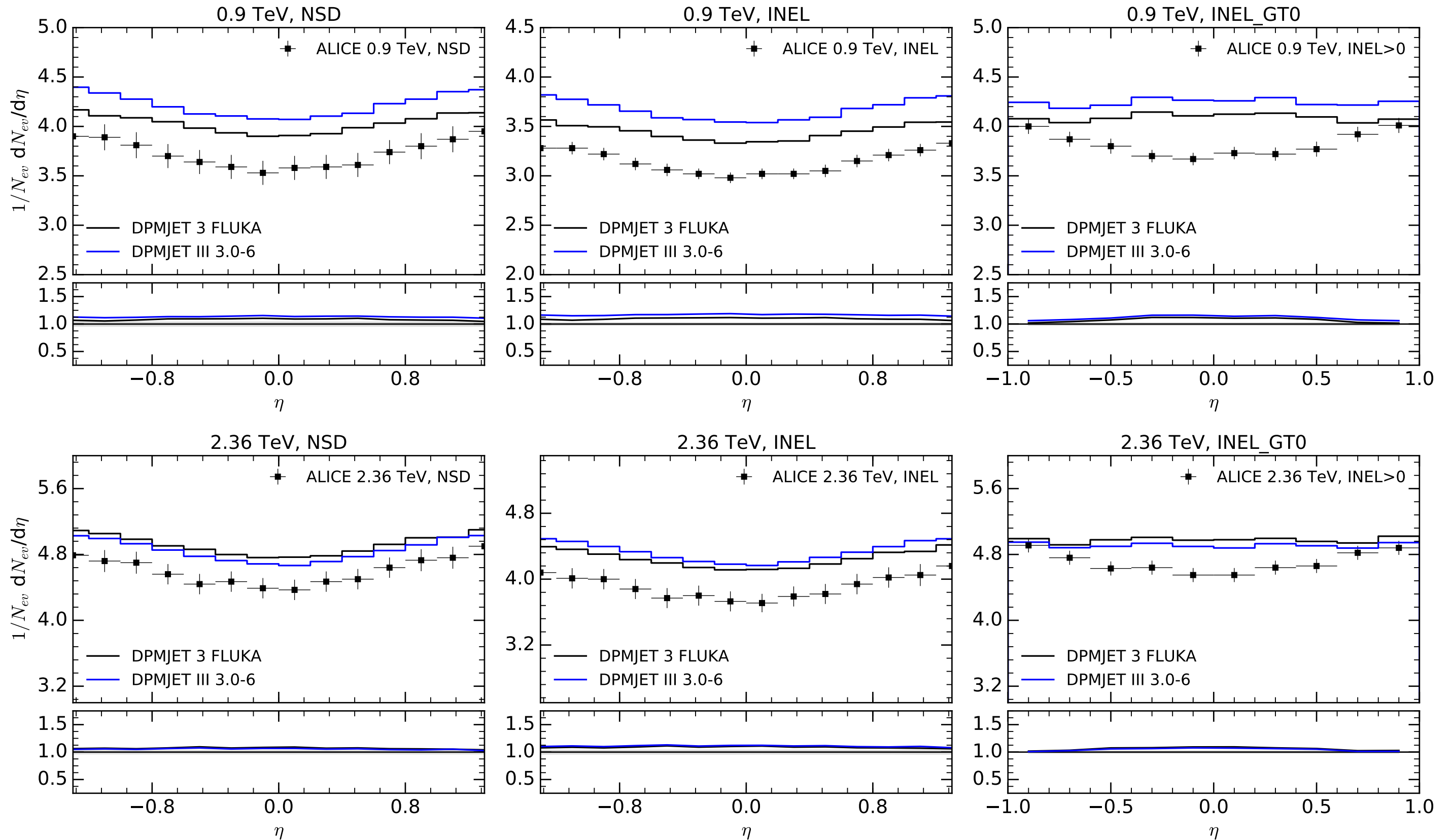
ALICE - INEL charged particle multiplicity.

ALICE - NSD charged particle multiplicity.

ALICE - 7 TeV.

Pseudorapidity 7 TeV, INEL$_{>0}$

$1/N_{ev}$ dN_{ev}/dη

ALICE 7 TeV, INEL>0

DPMJET 3 FLUKA

DPMJET III 3.0-6

η

Multipl. 7 TeV, INEL$_{>0}$, $|\eta| < 1$

$1/N_{ev}$dN_{ev}/dn_{ch}

ALICE 7 TeV, INEL > 0, $|\eta| < 1.0$

DPMJET 3 FLUKA

DPMJET III 3.0-6
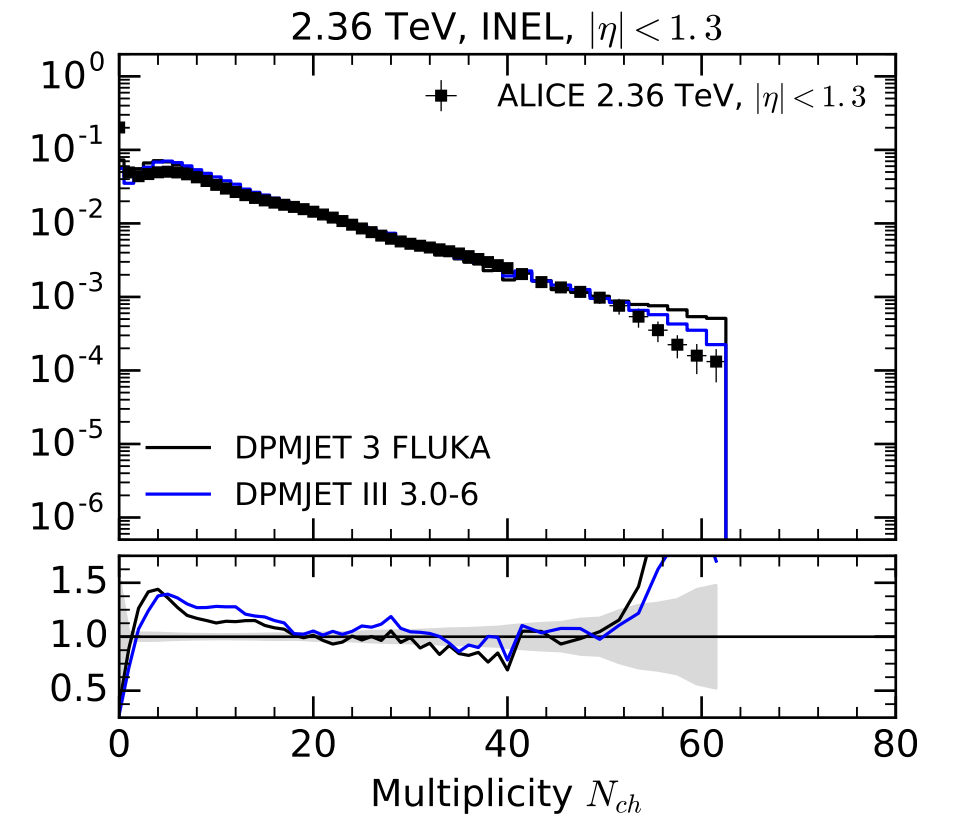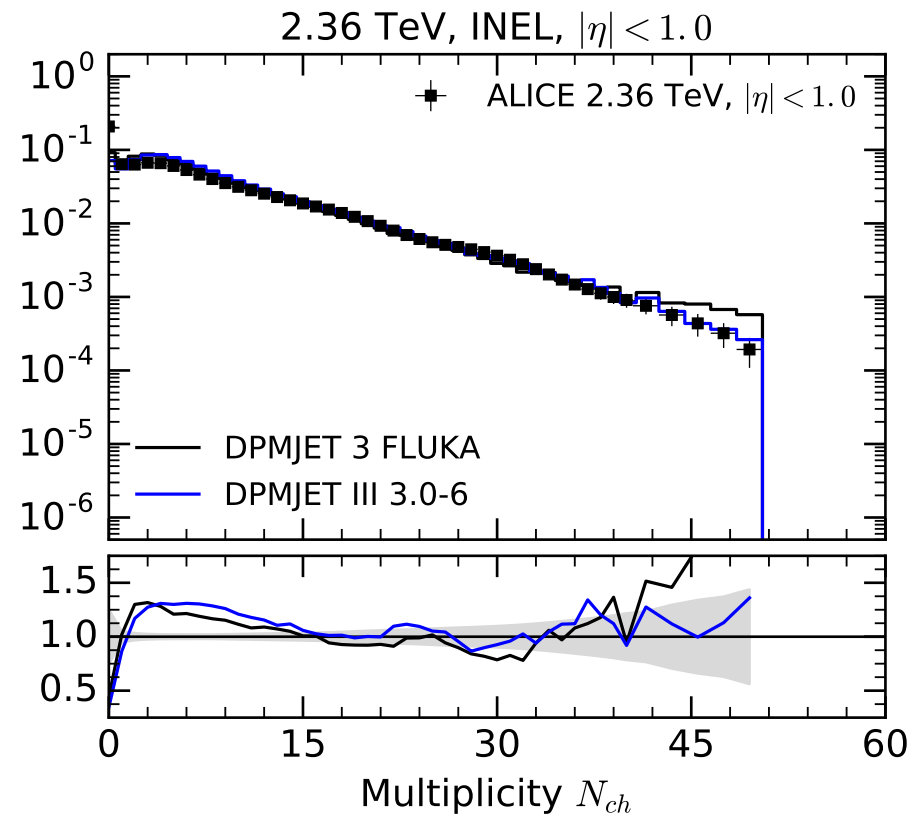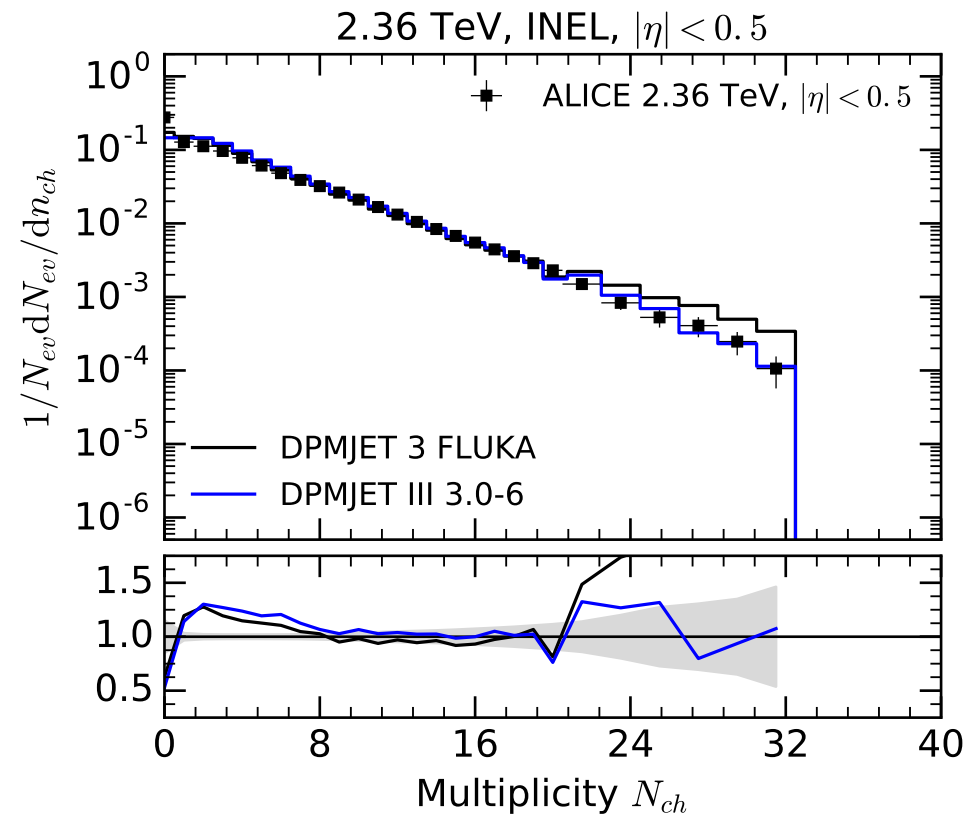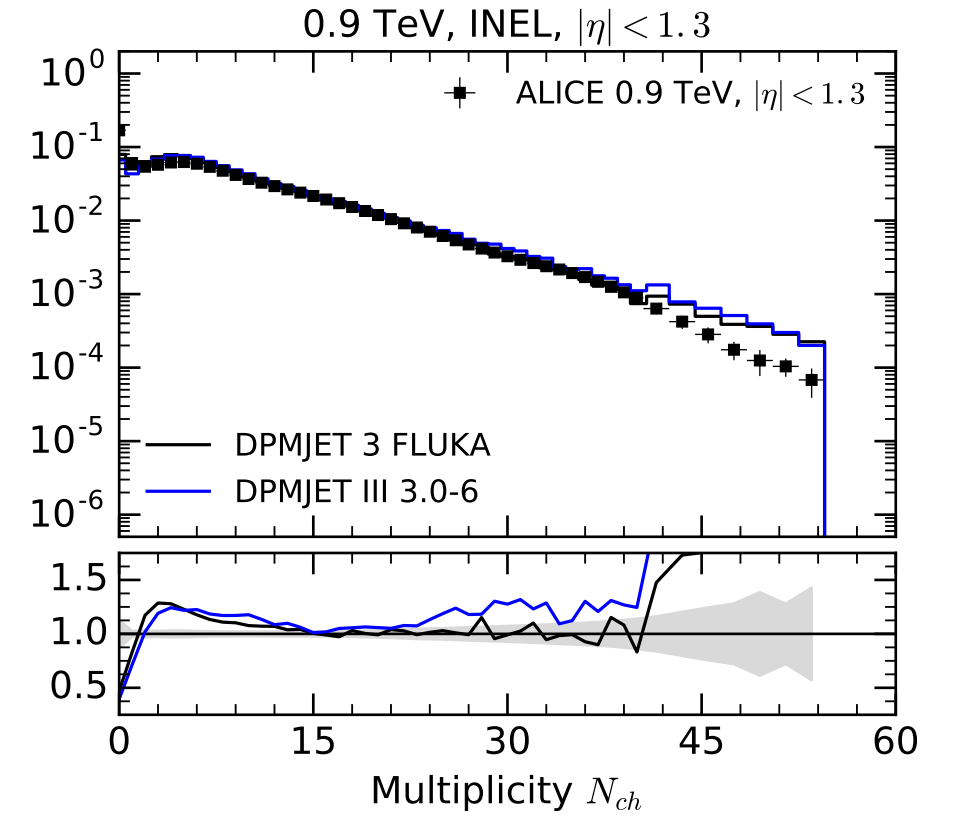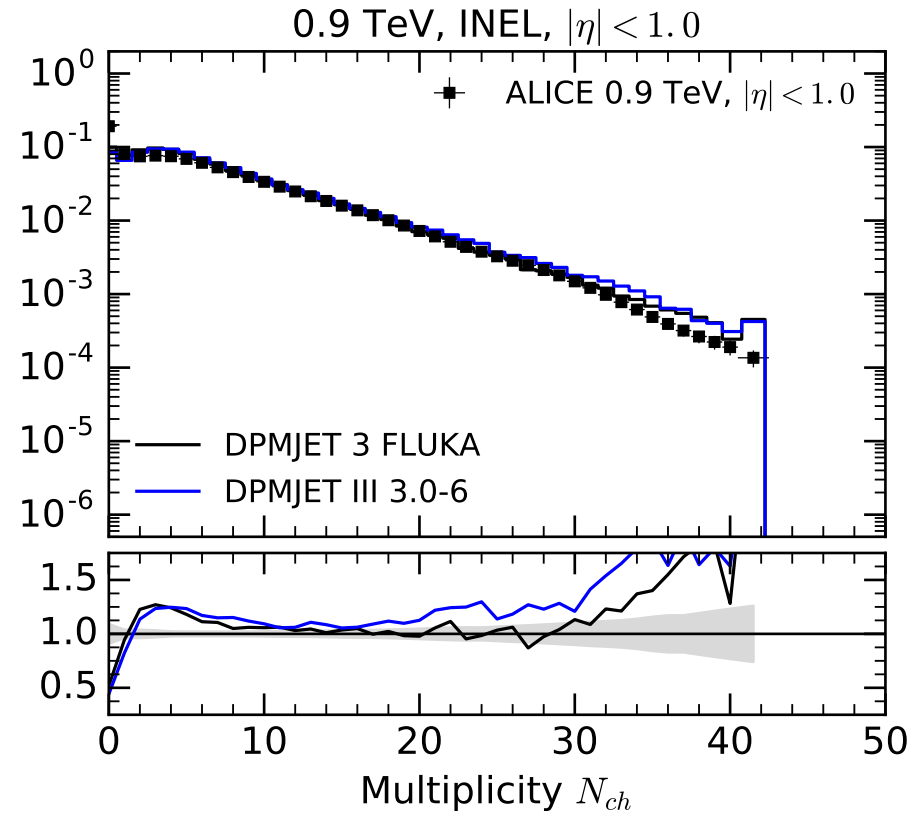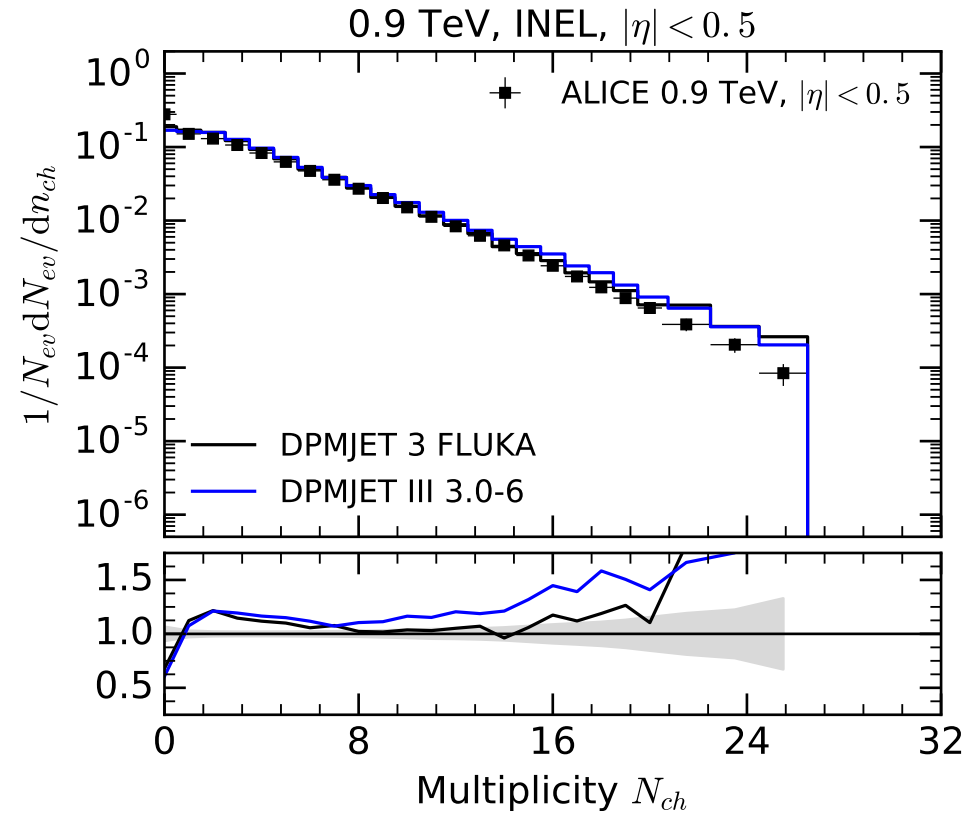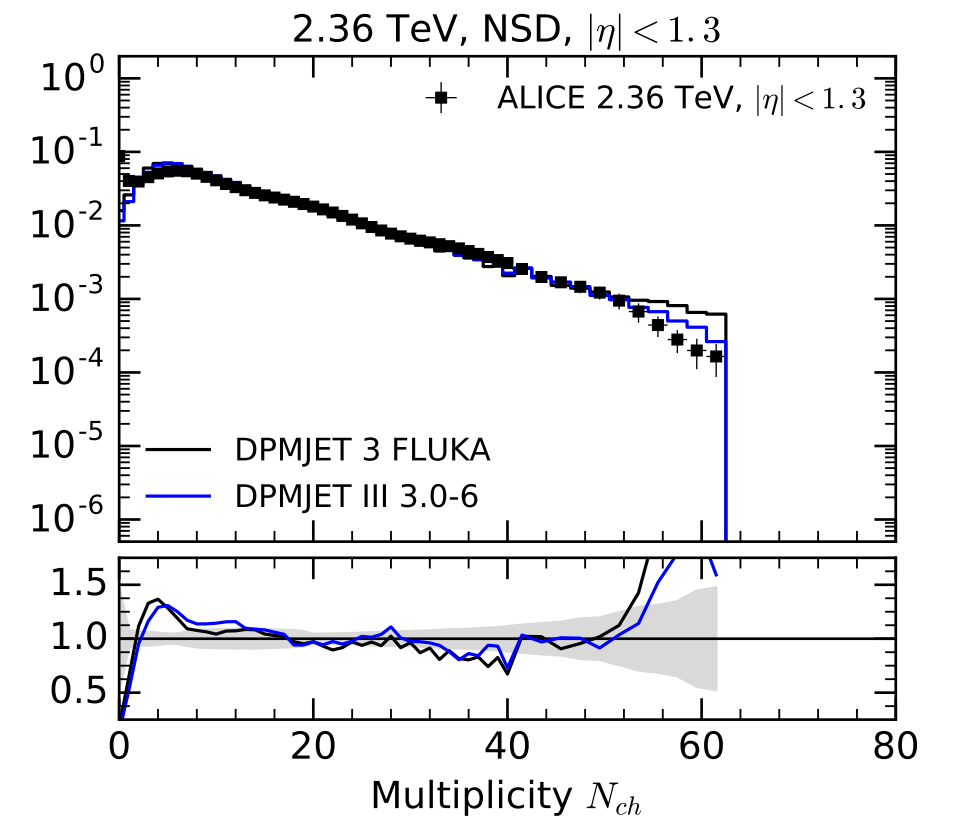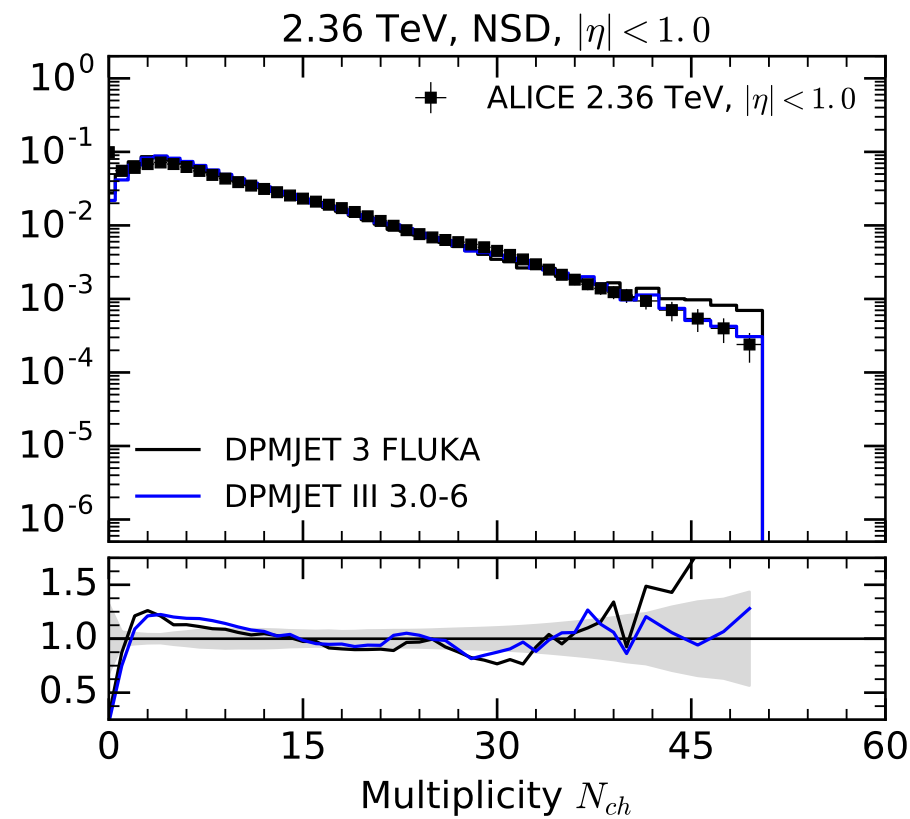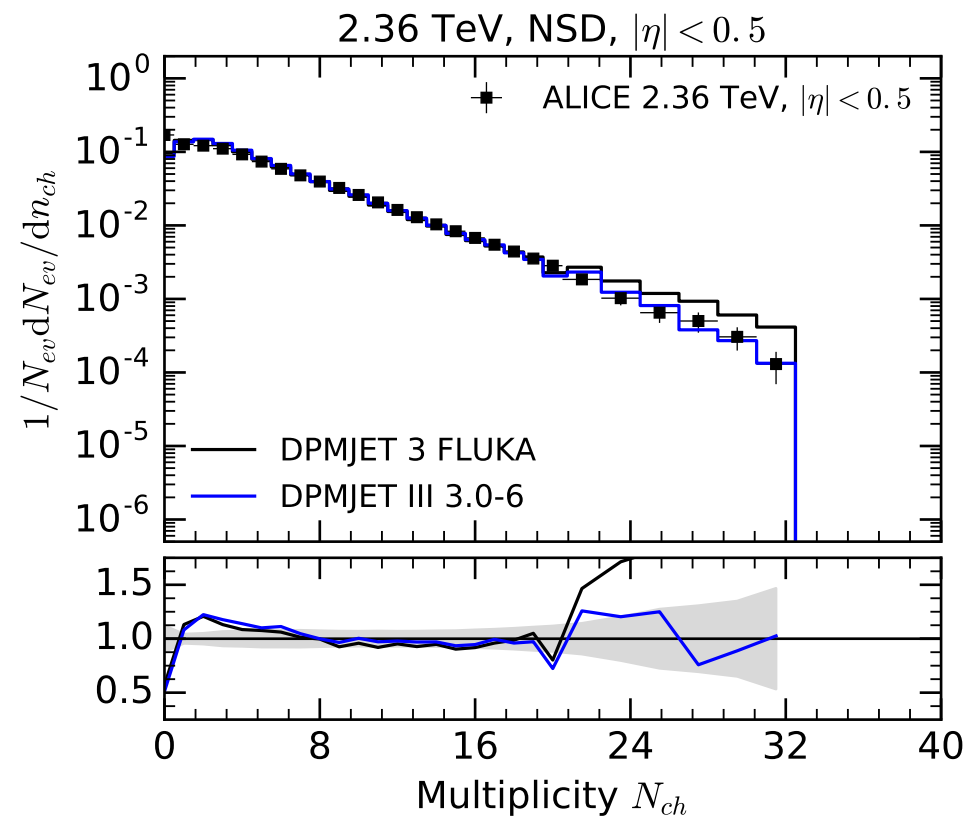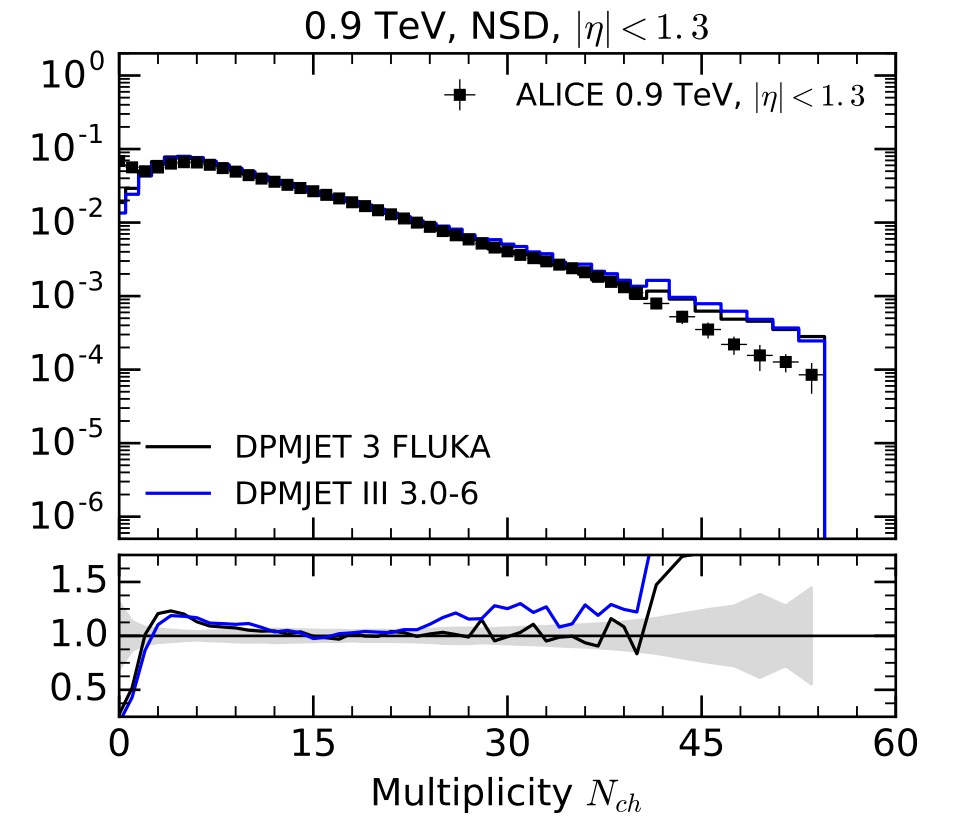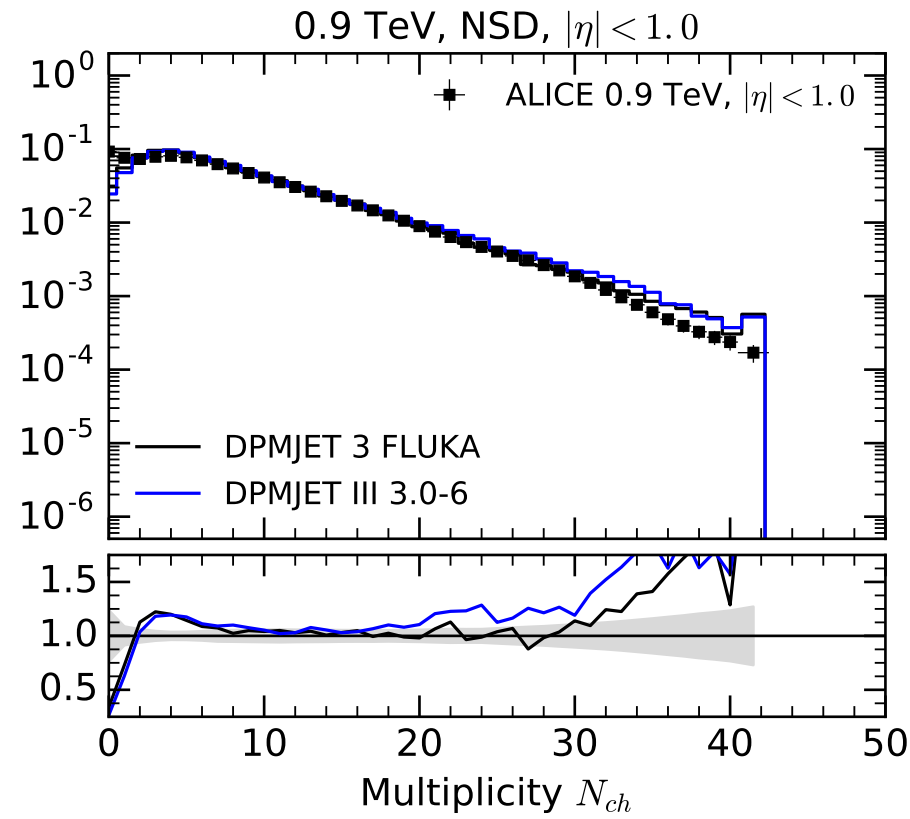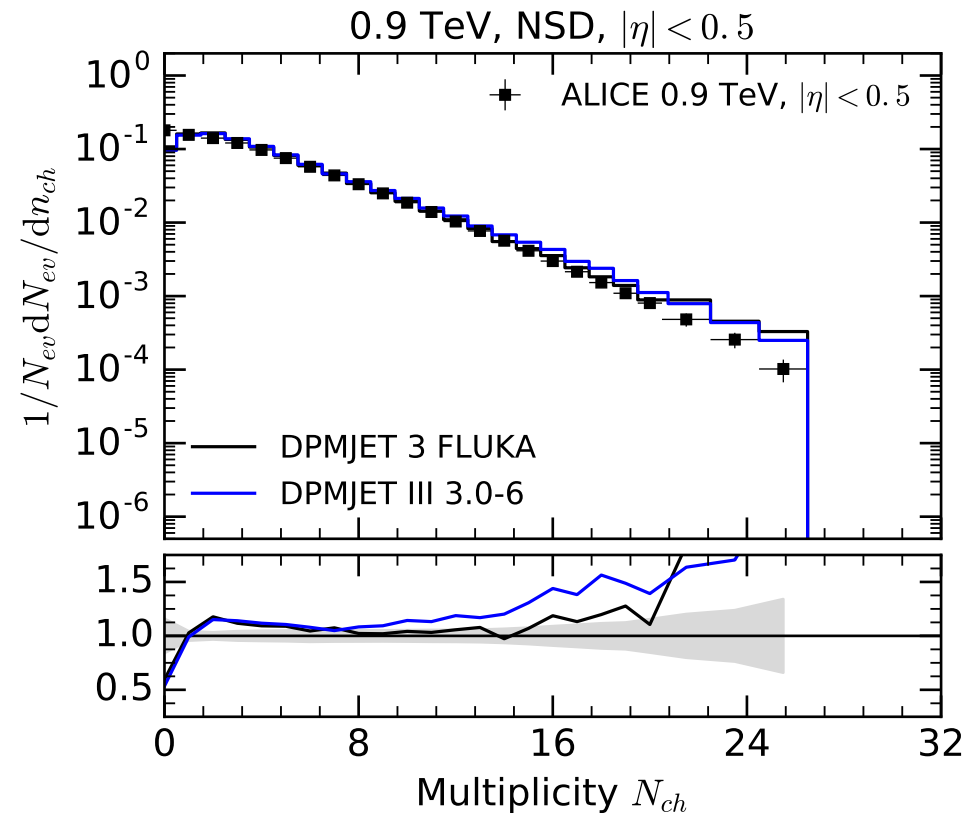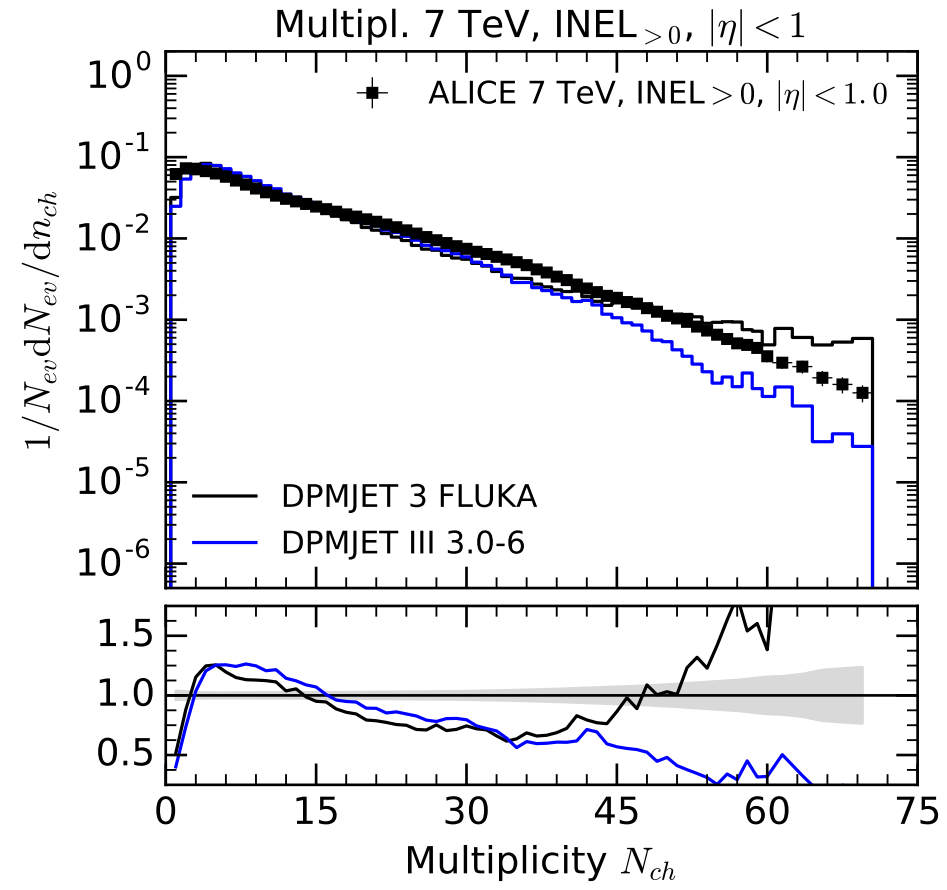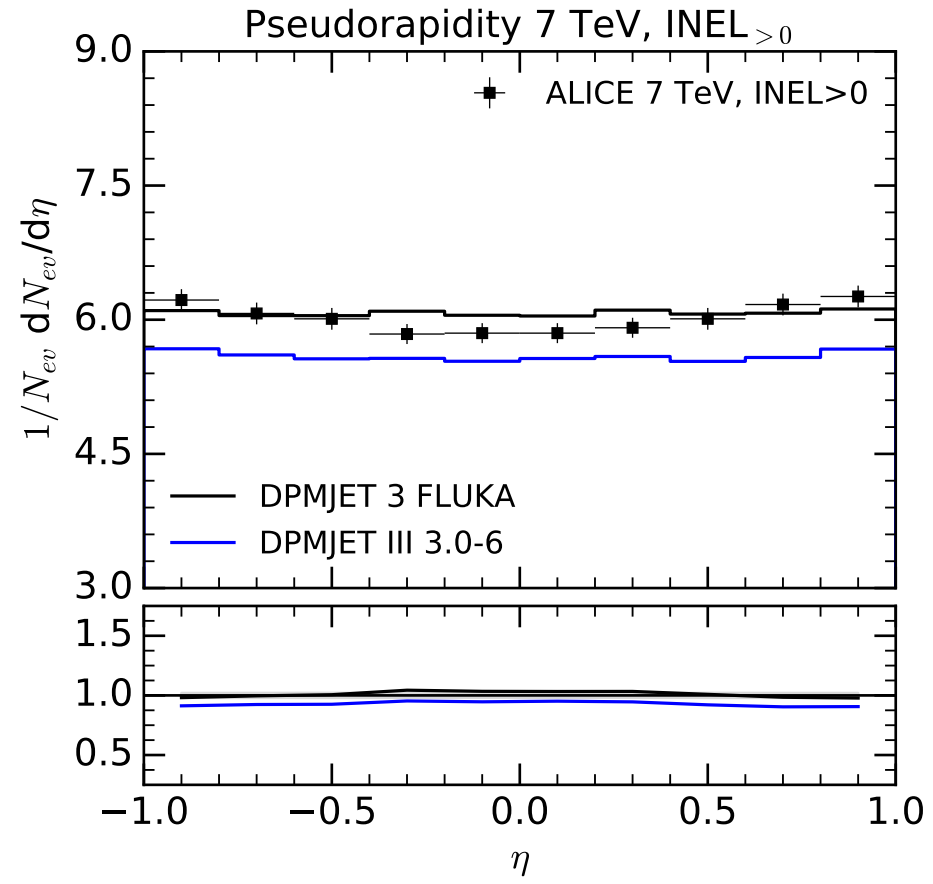
Multiplicity N_{ch}

LHC: CMS Minimum Bias

CMS 900 GeV - NSD charged particle multiplicity.
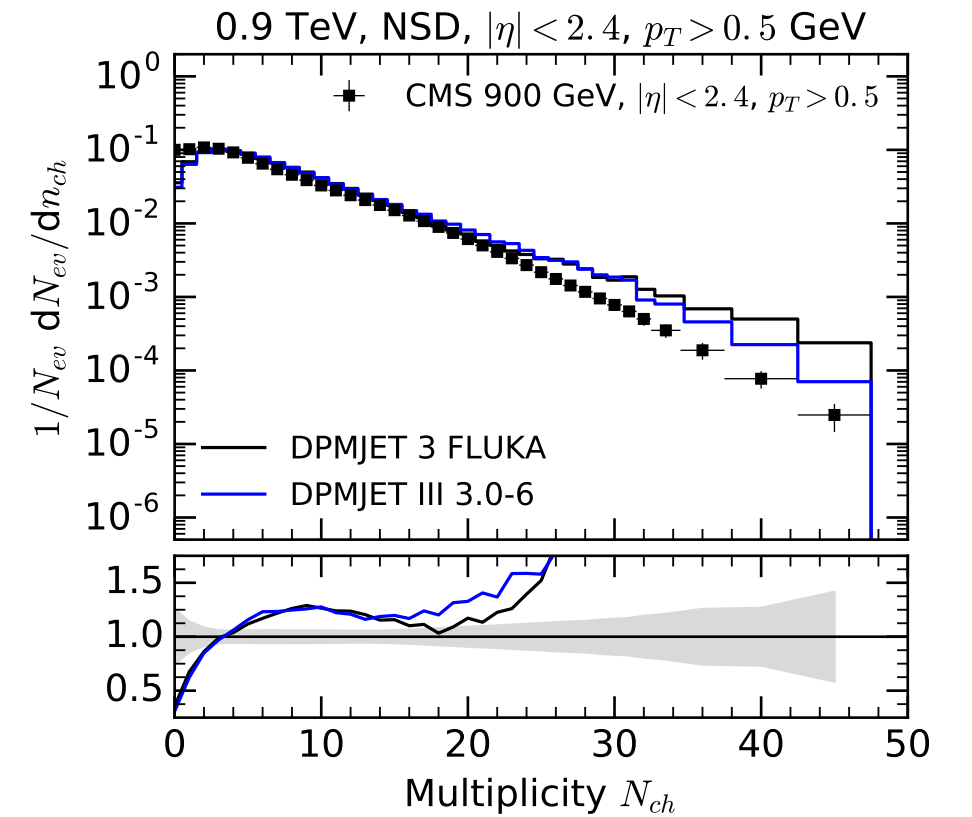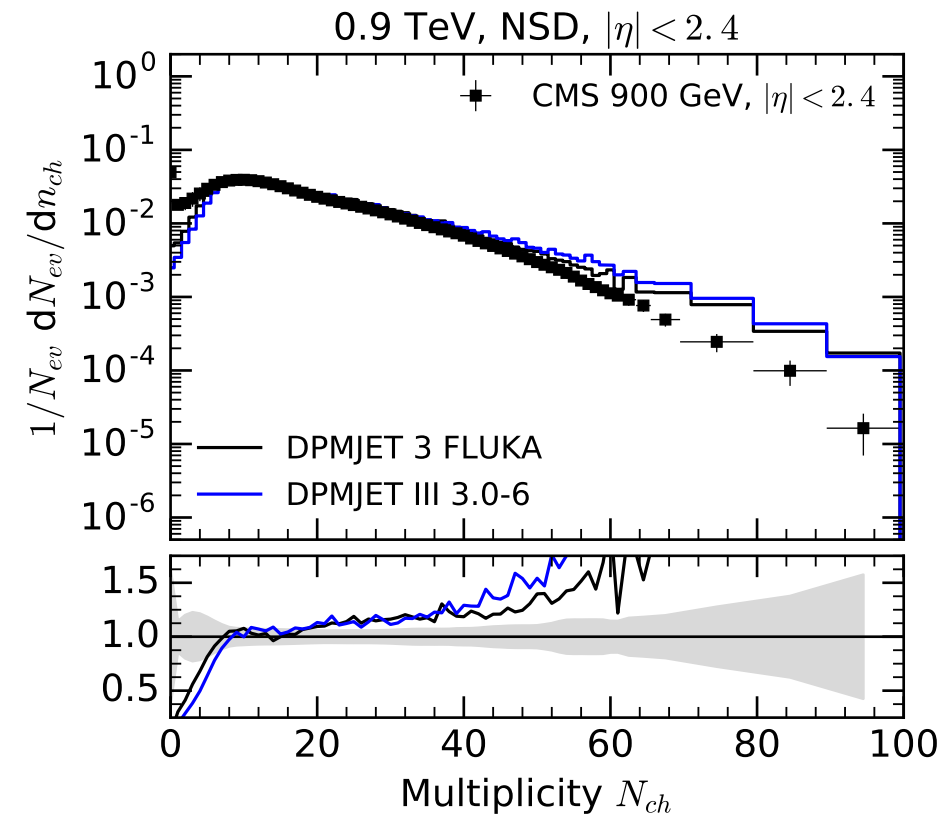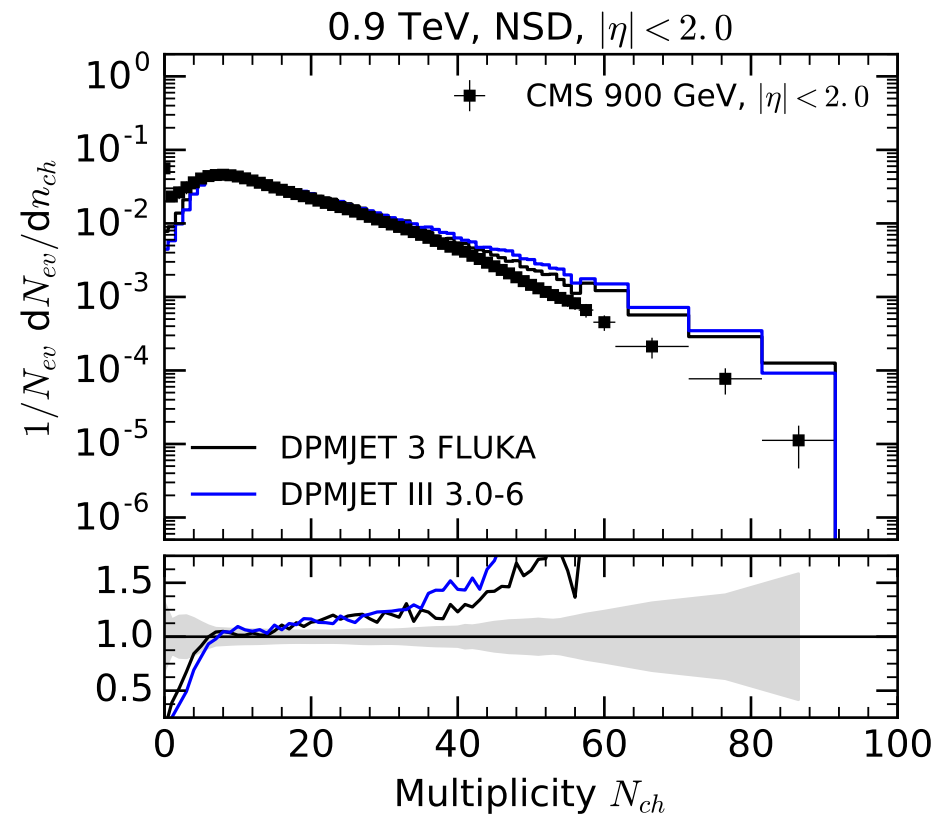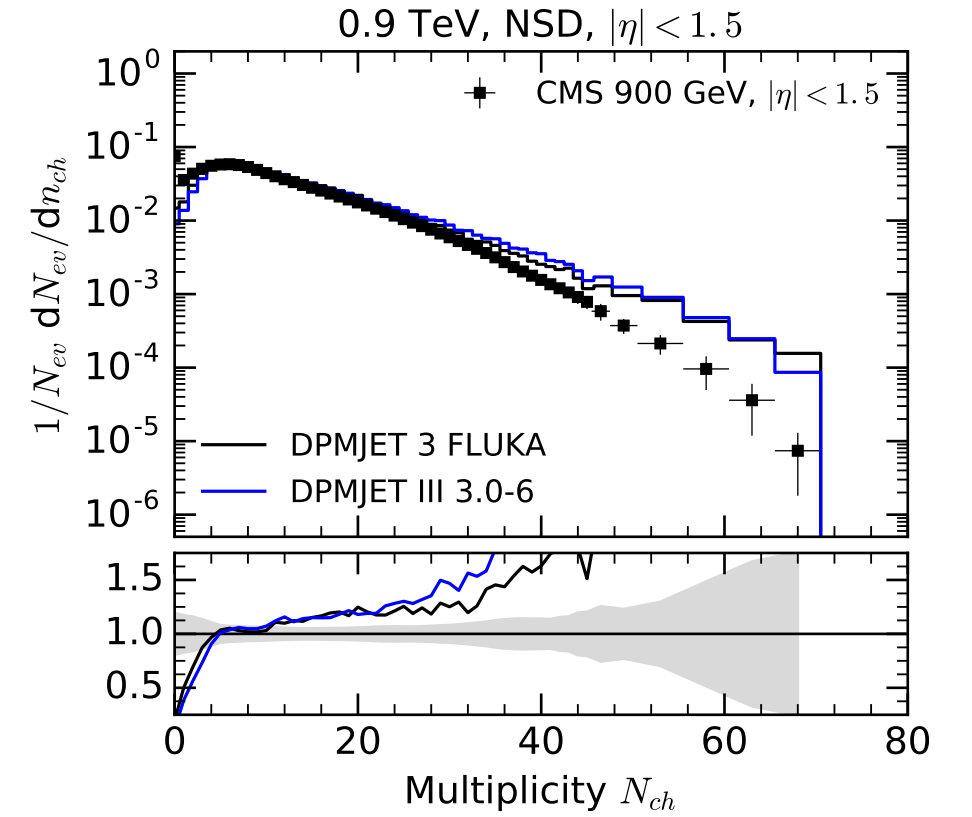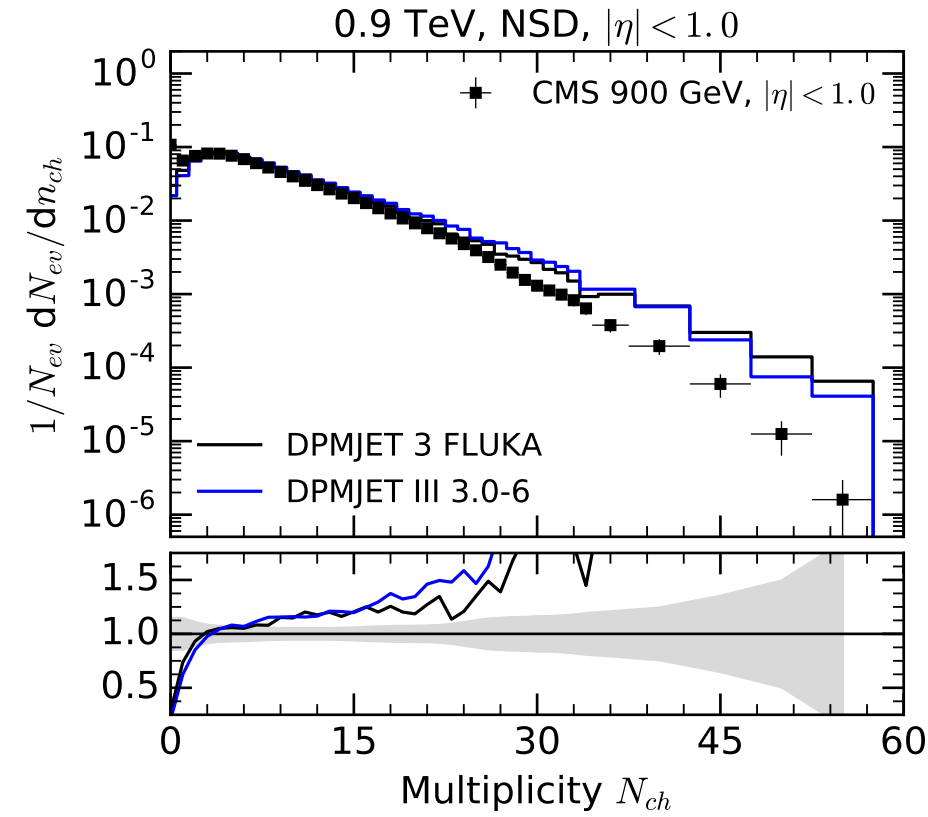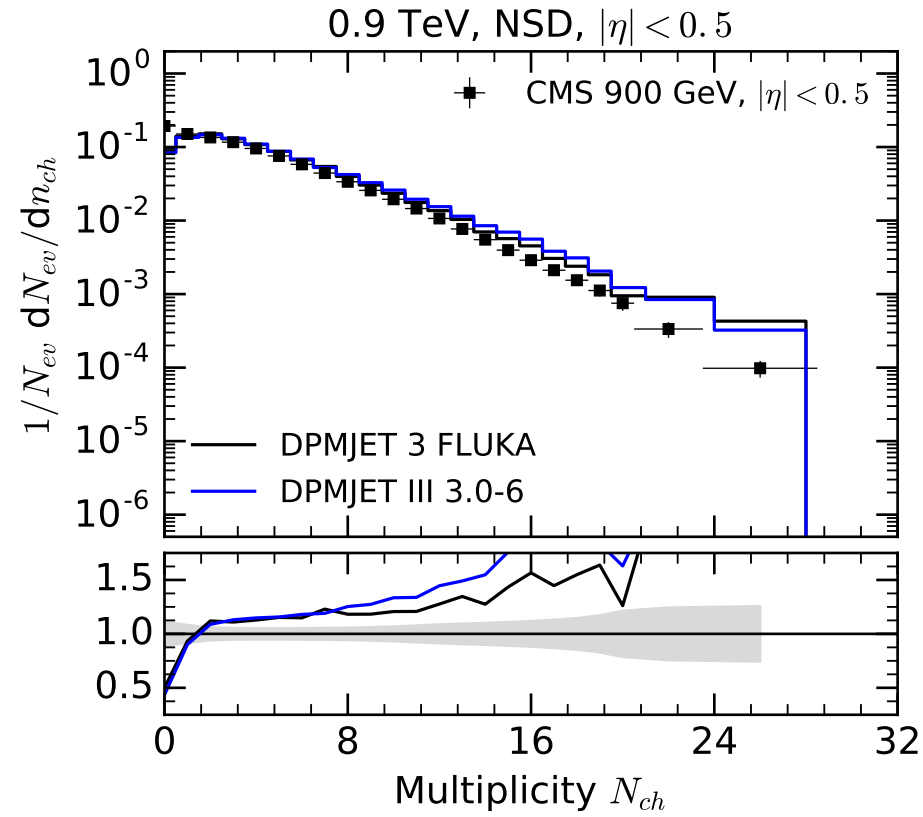
CMS 2360 GeV - NSD charged particle multiplicity.
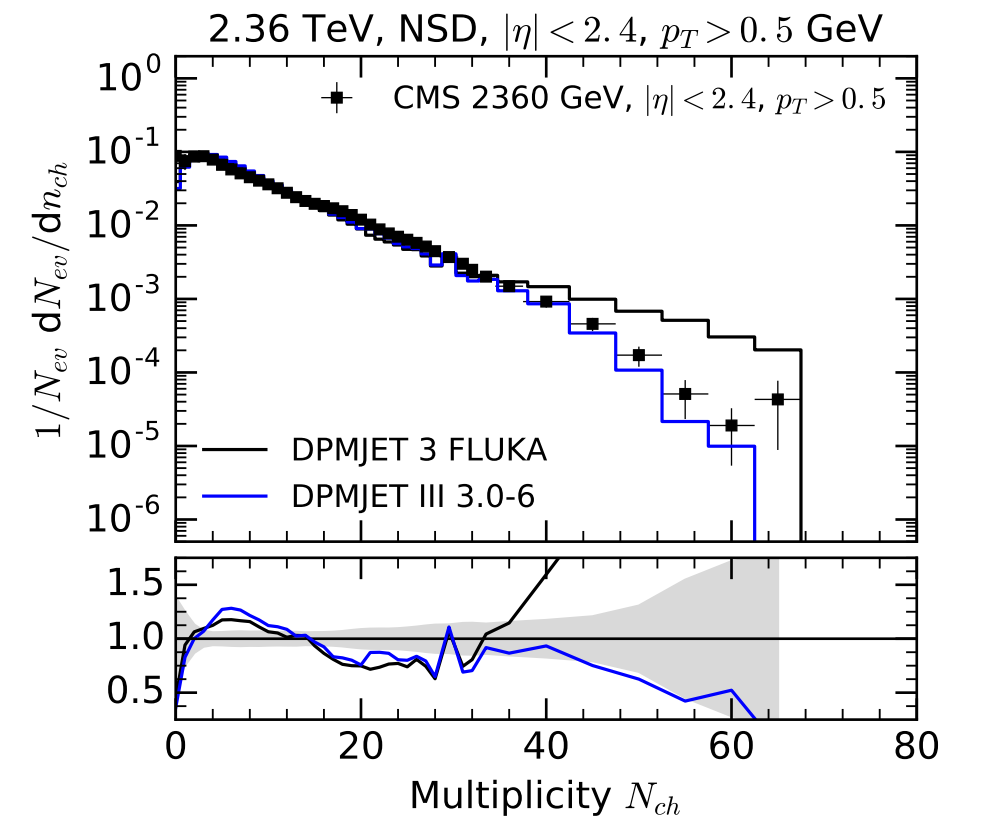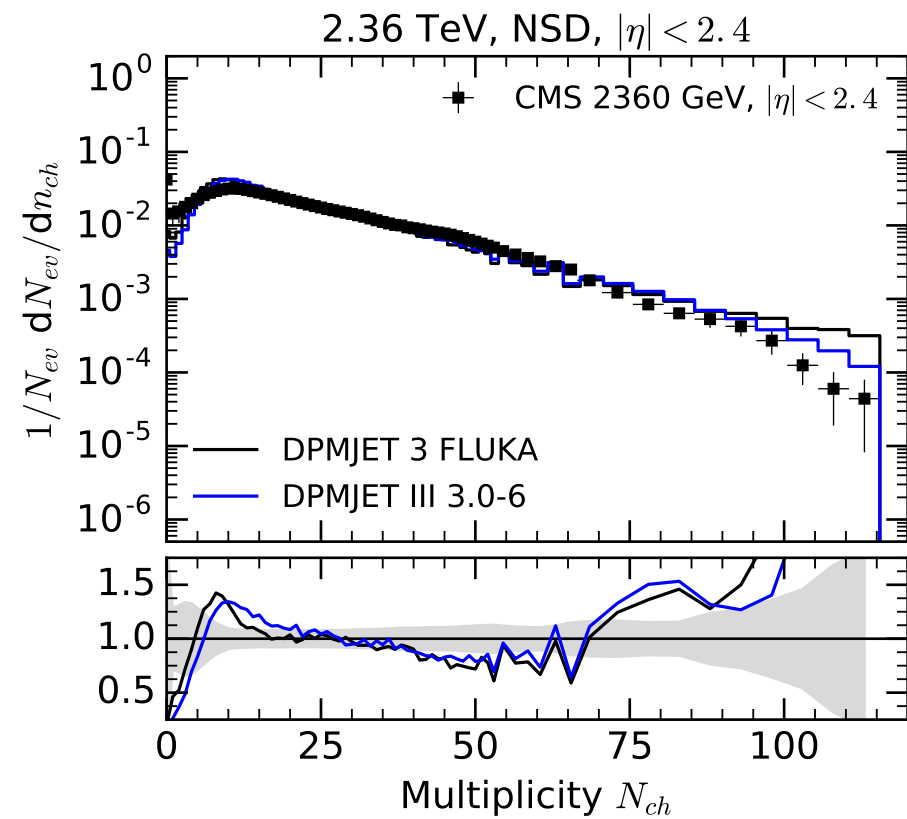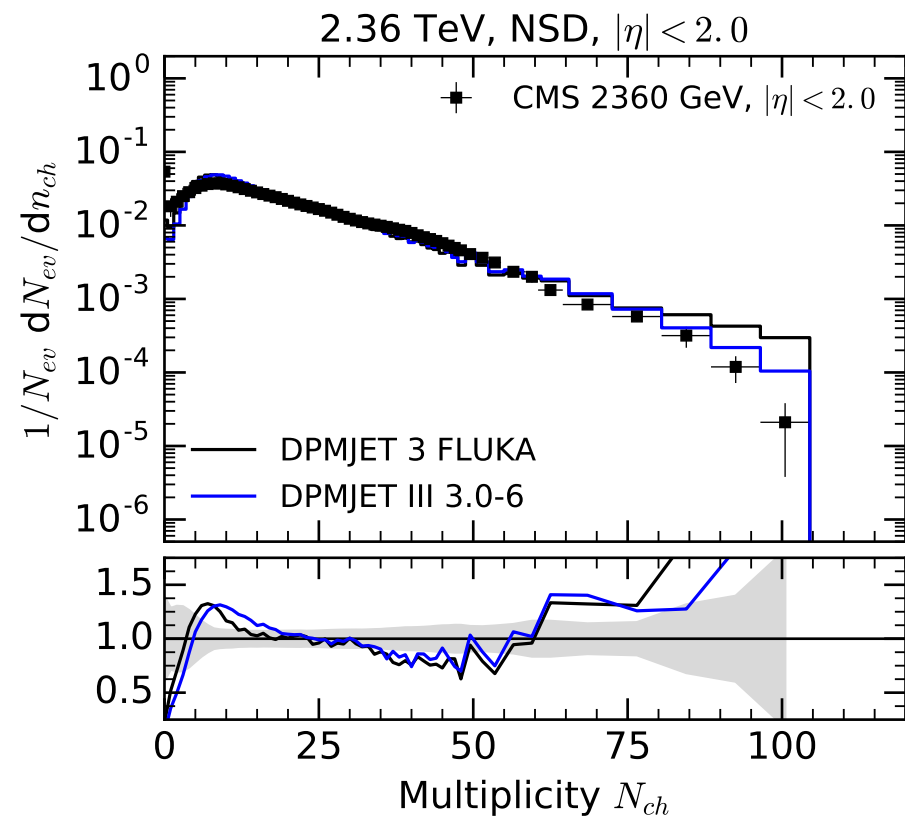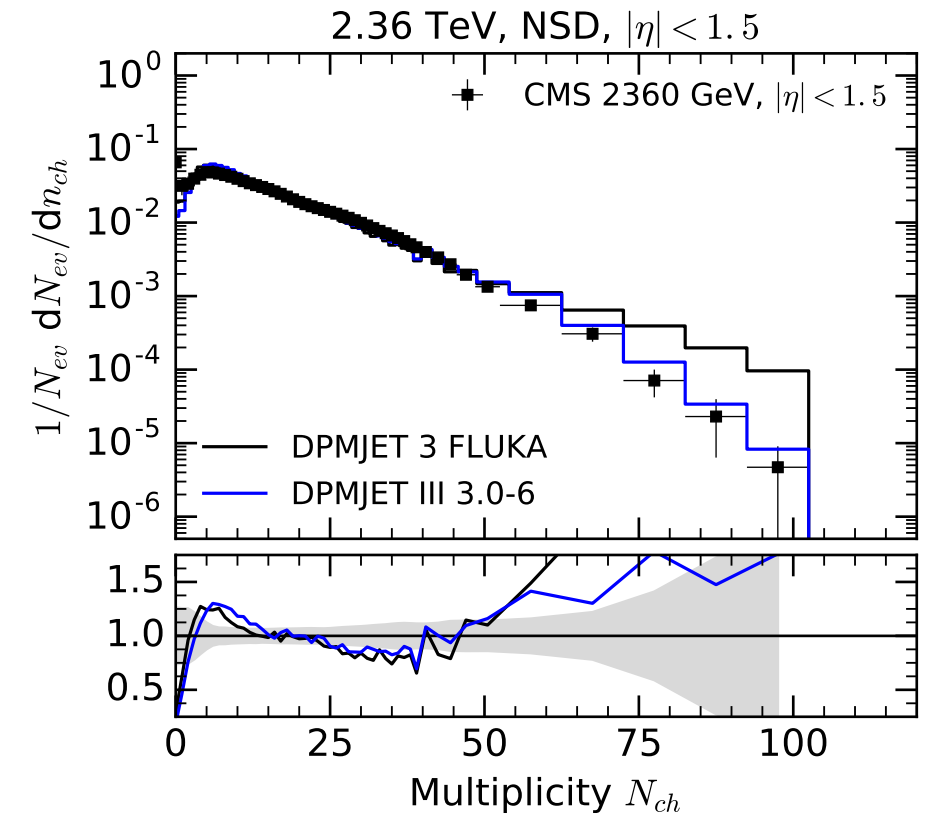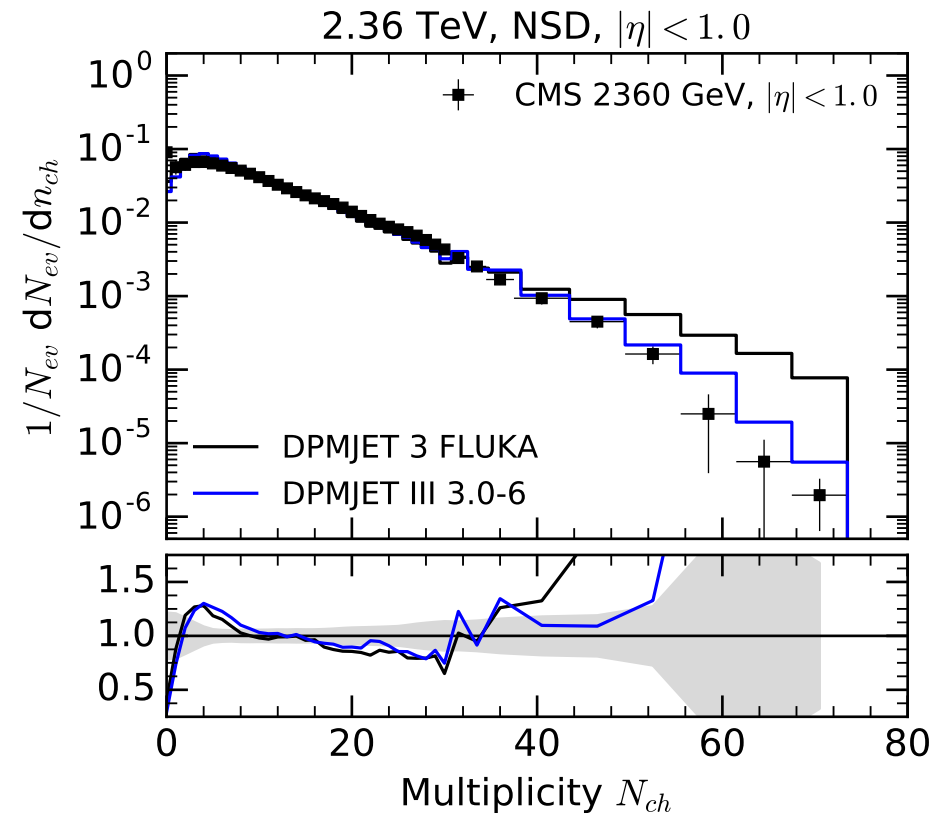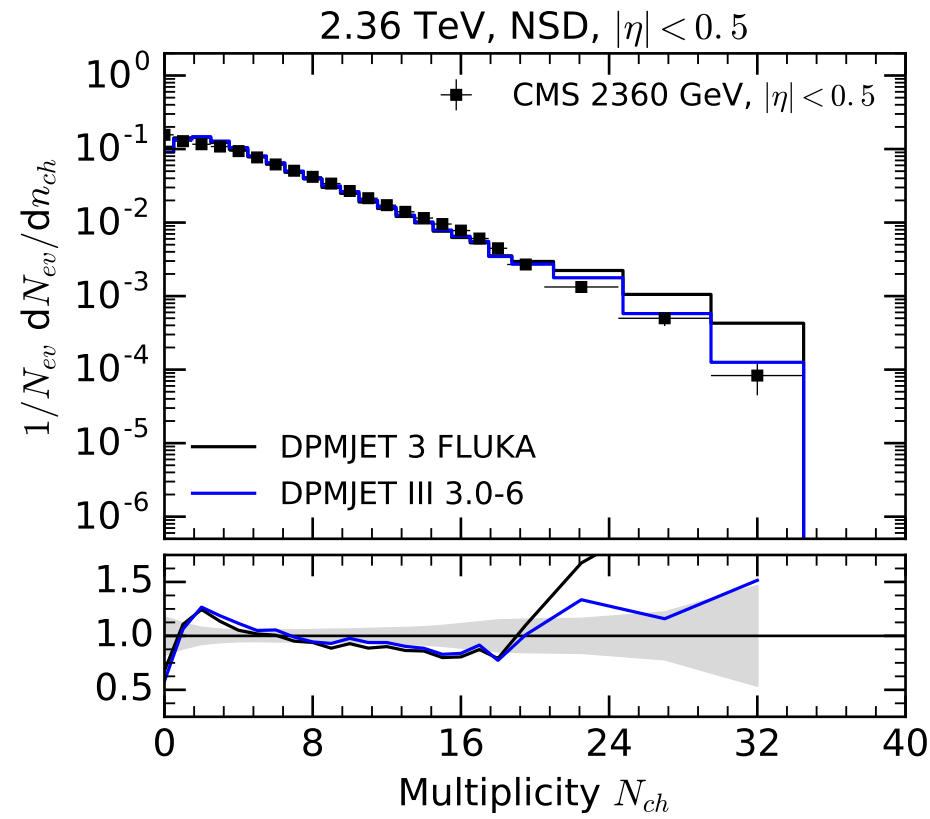
CMS 7000 GeV - NSD charged particle multiplicity.

CMS - average p_T for multiplicity bins.

0.9 TeV

CMS 900 GeV, $|\eta| < 2.4$

DPMJET 3 FLUKA
DPMJET III 3.0-6

$<p_T>$ [GeV/c]

Multiplicity N_{ch}

2.36 TeV

CMS 2360 GeV, $|\eta| < 2.4$

DPMJET 3 FLUKA
DPMJET III 3.0-6

$<p_T>$ [GeV/c]

Multiplicity N_{ch}

7.0 TeV

CMS 7000 GeV, $|\eta| < 2.4$

DPMJET 3 FLUKA
DPMJET III 3.0-6
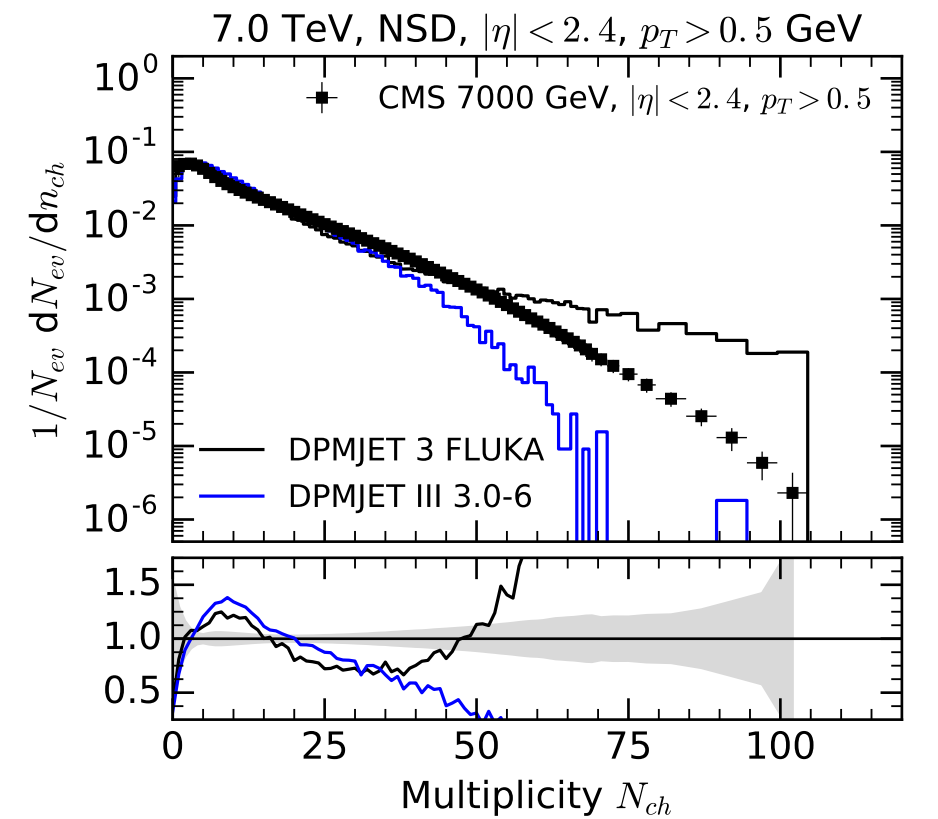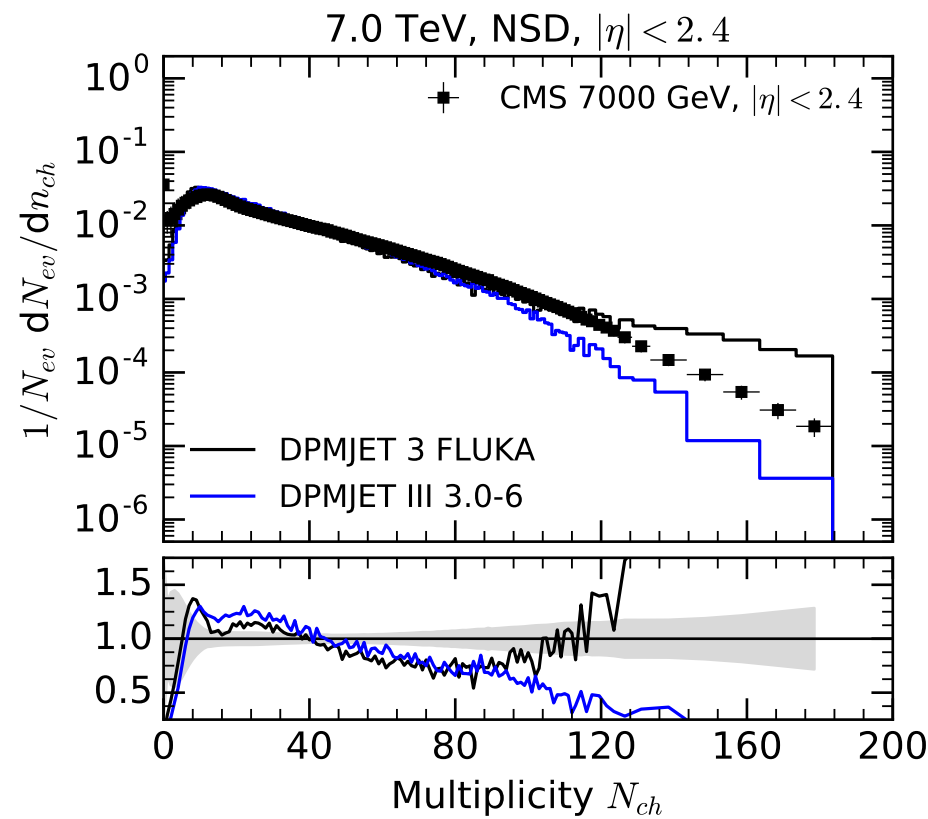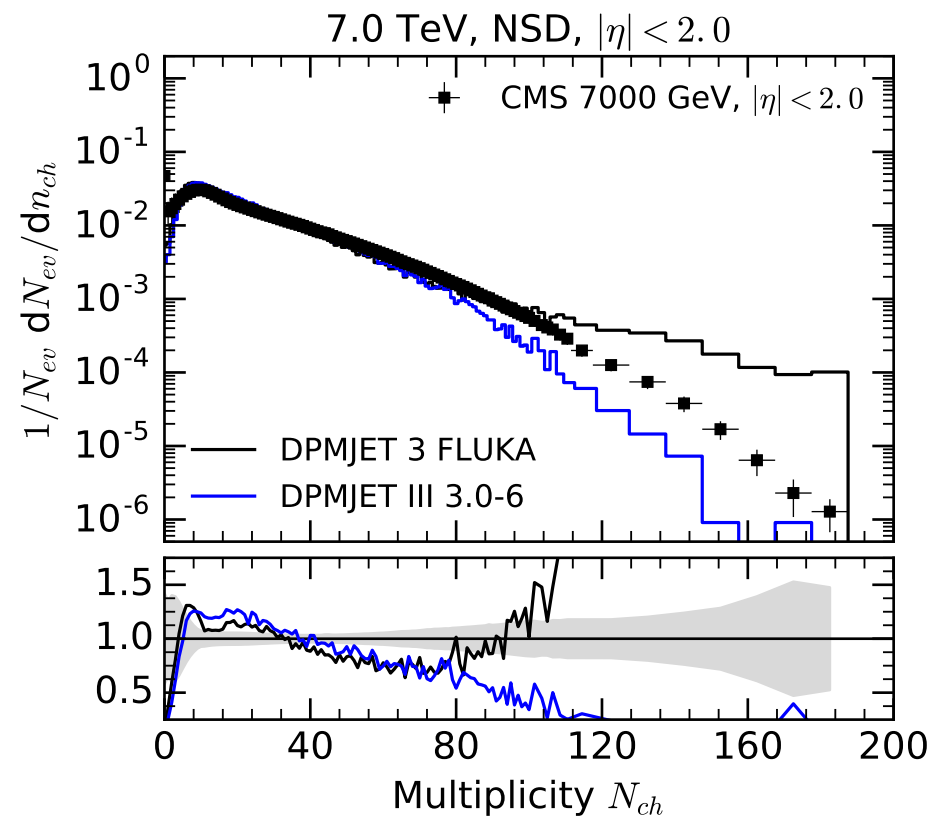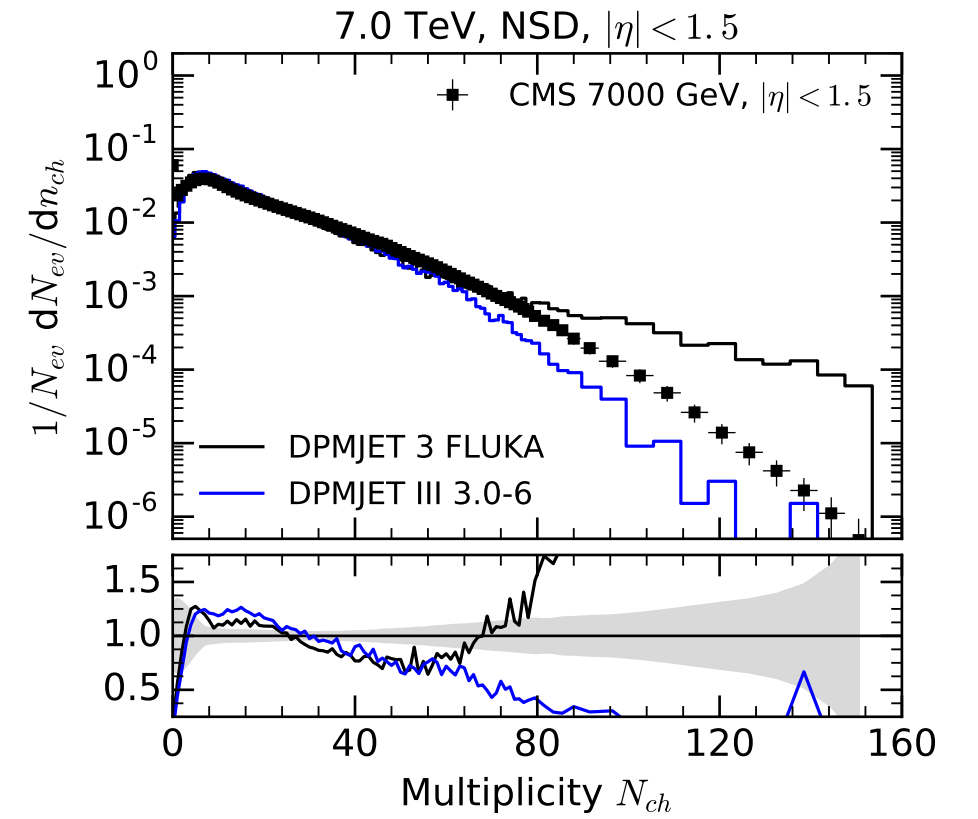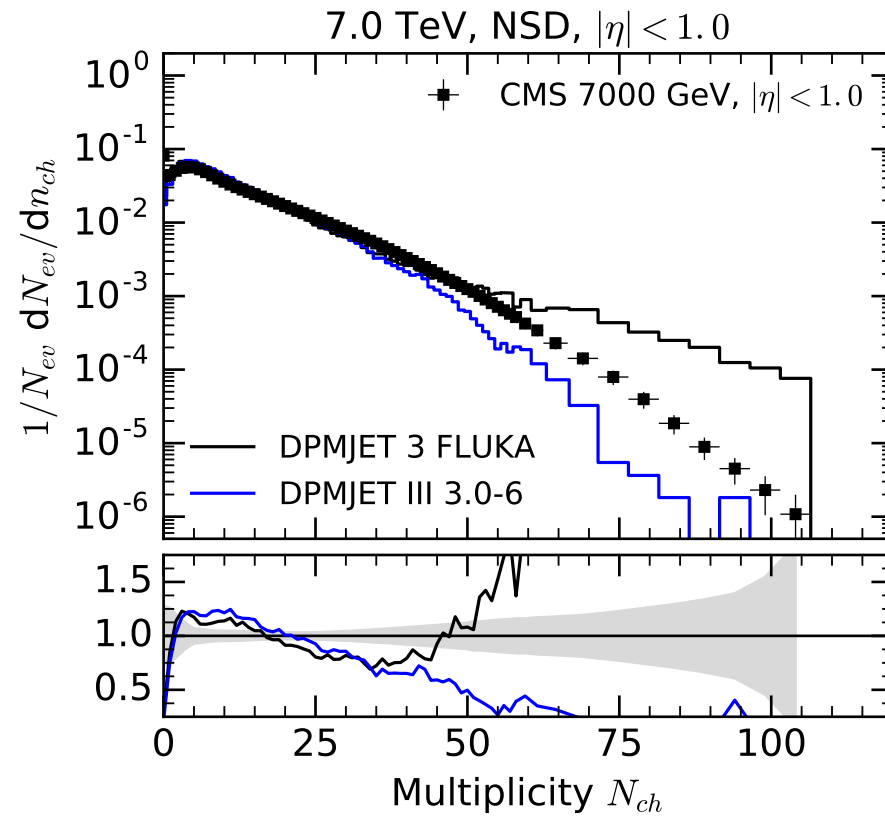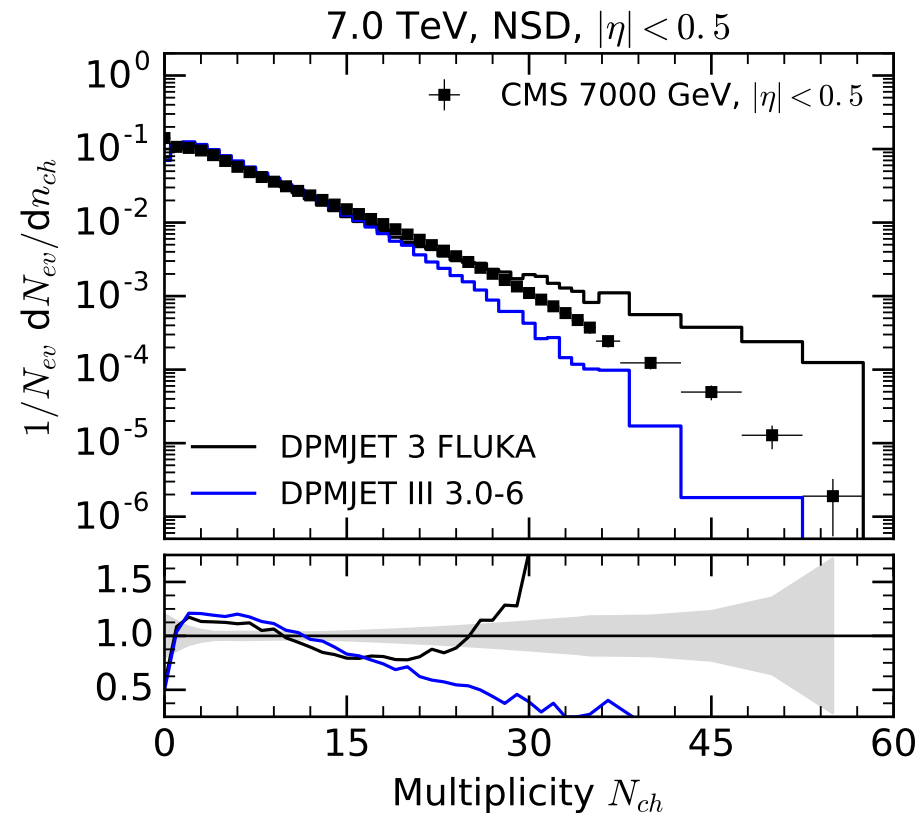
$<p_T>$ [GeV/c]

Multiplicity N_{ch}
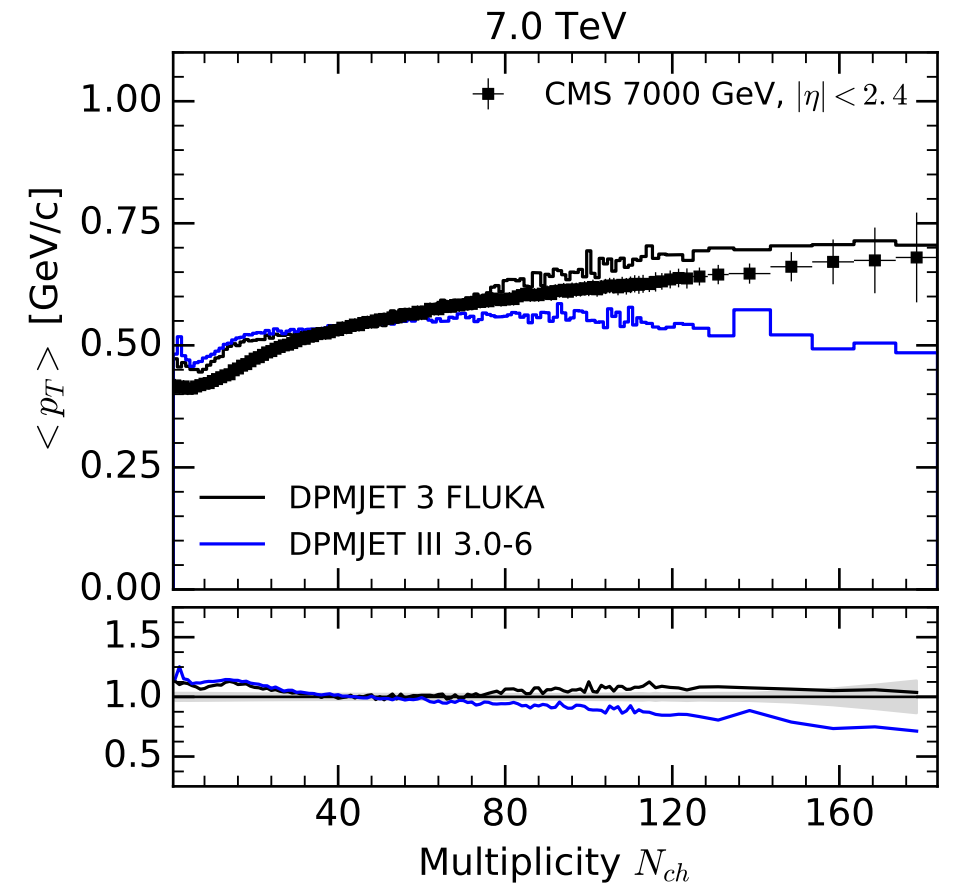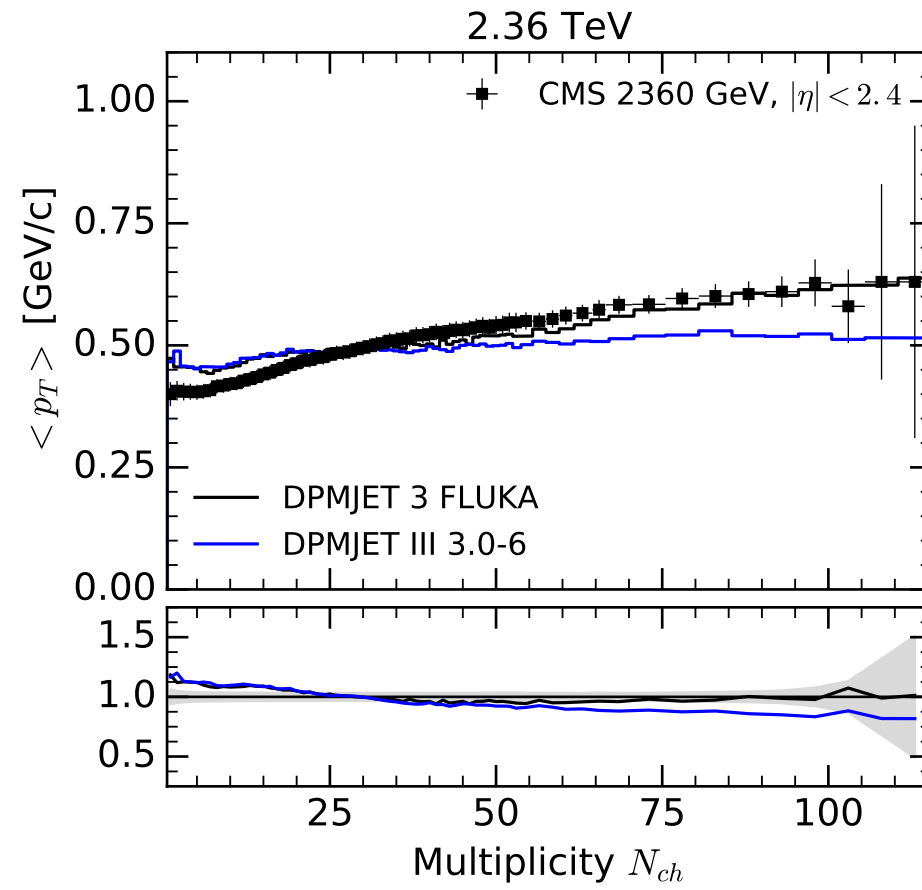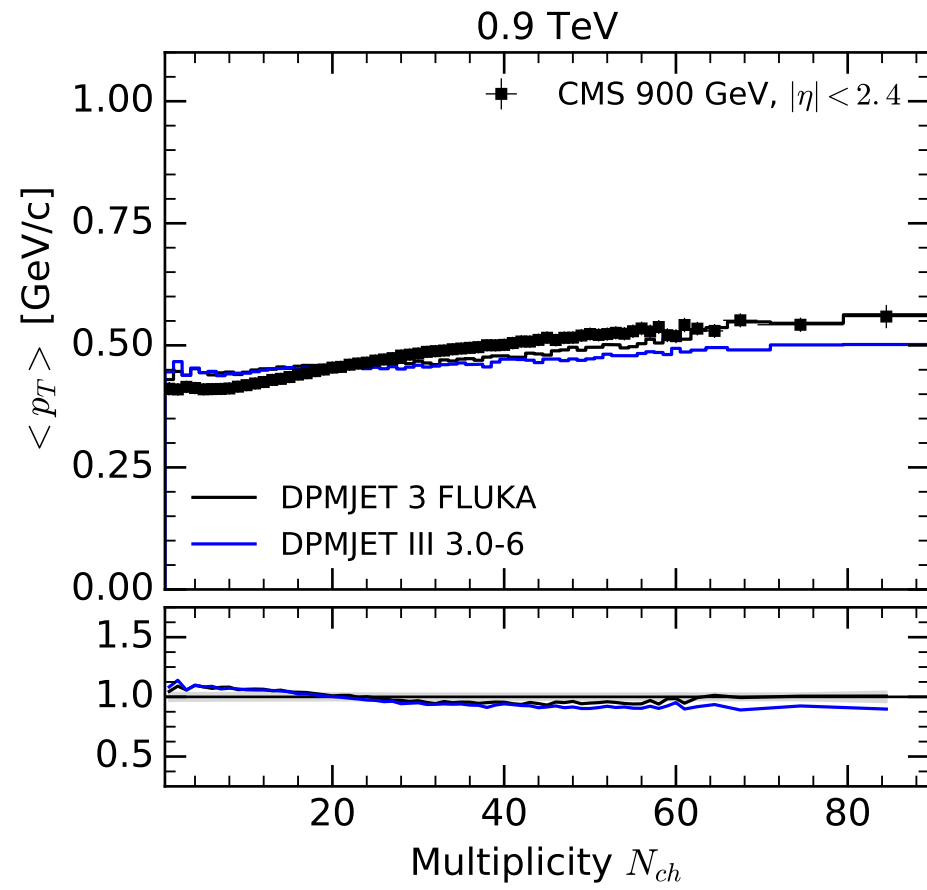
CMS - NSD p_T and η distributions.
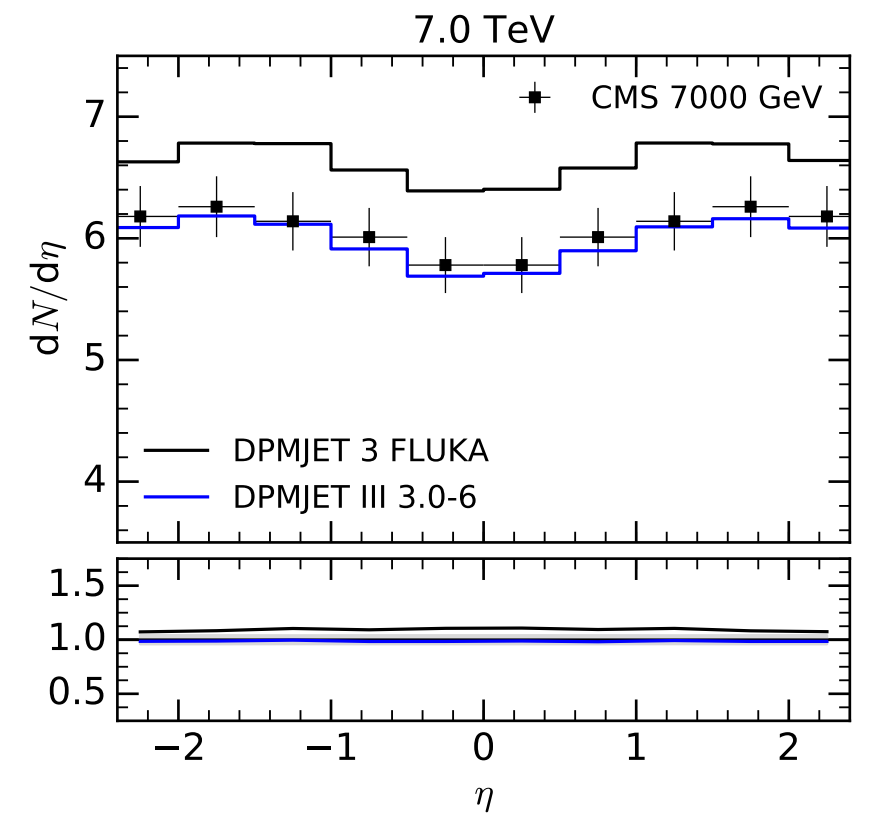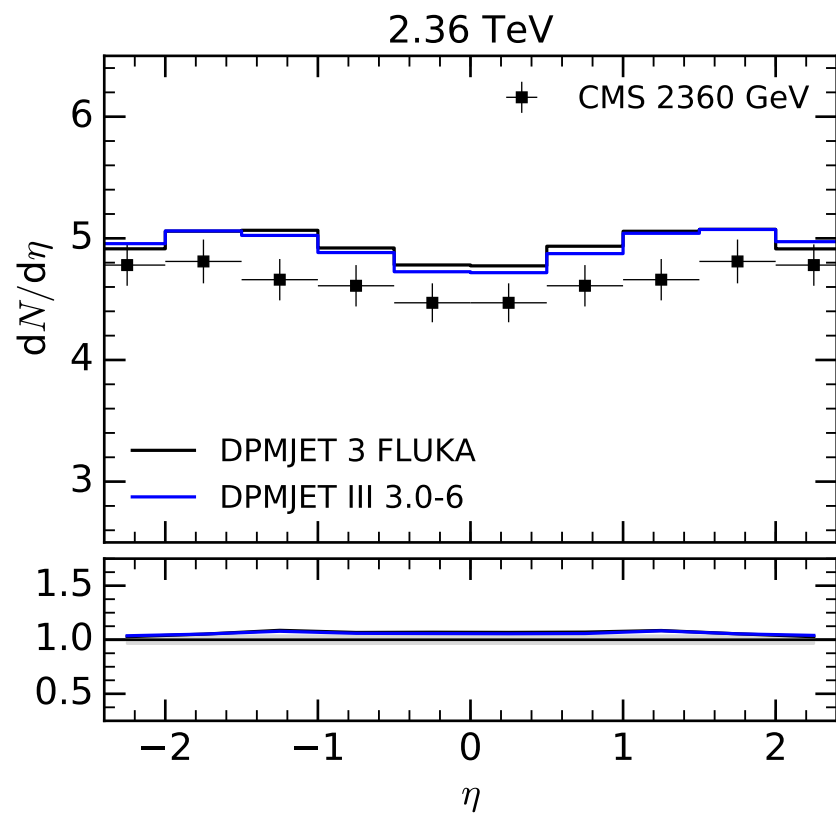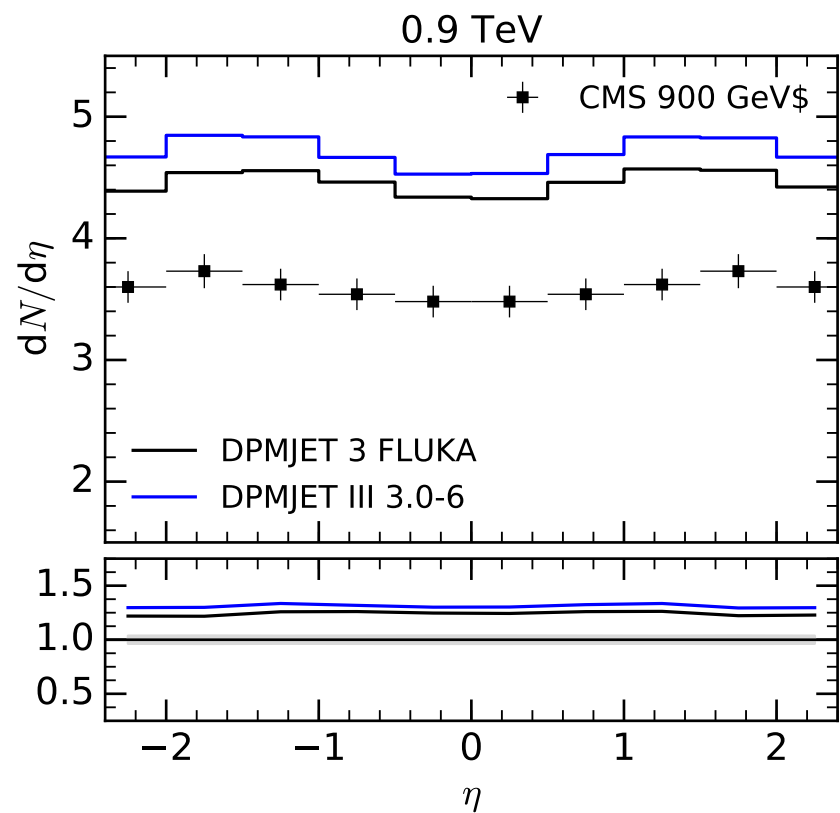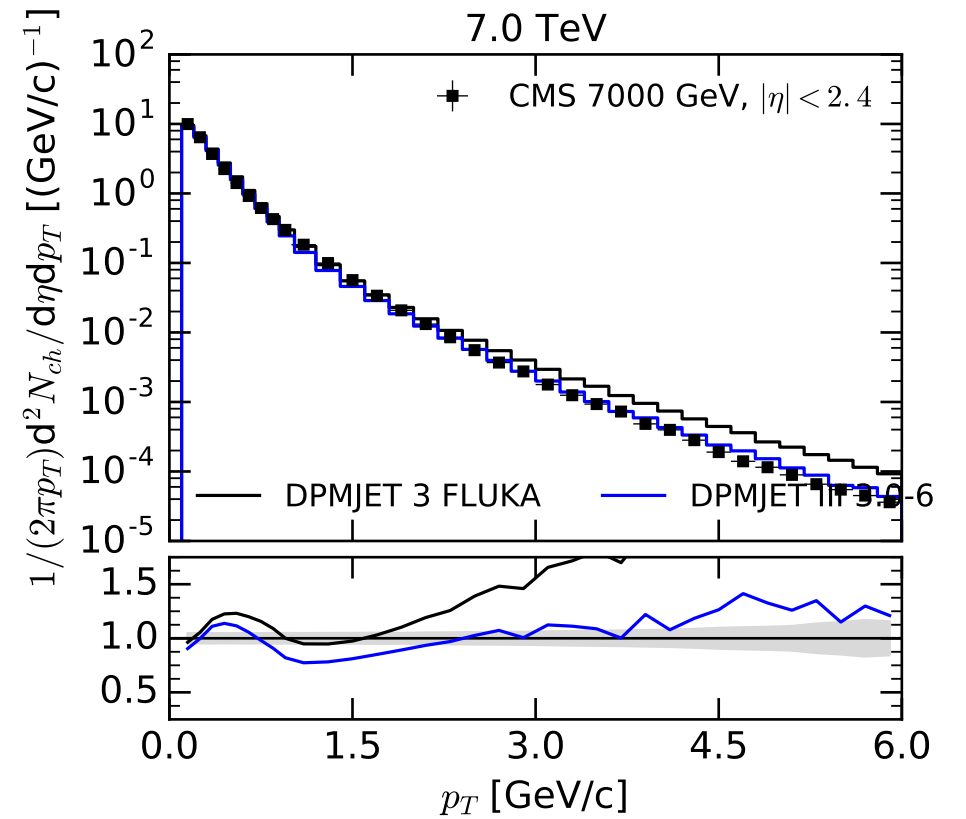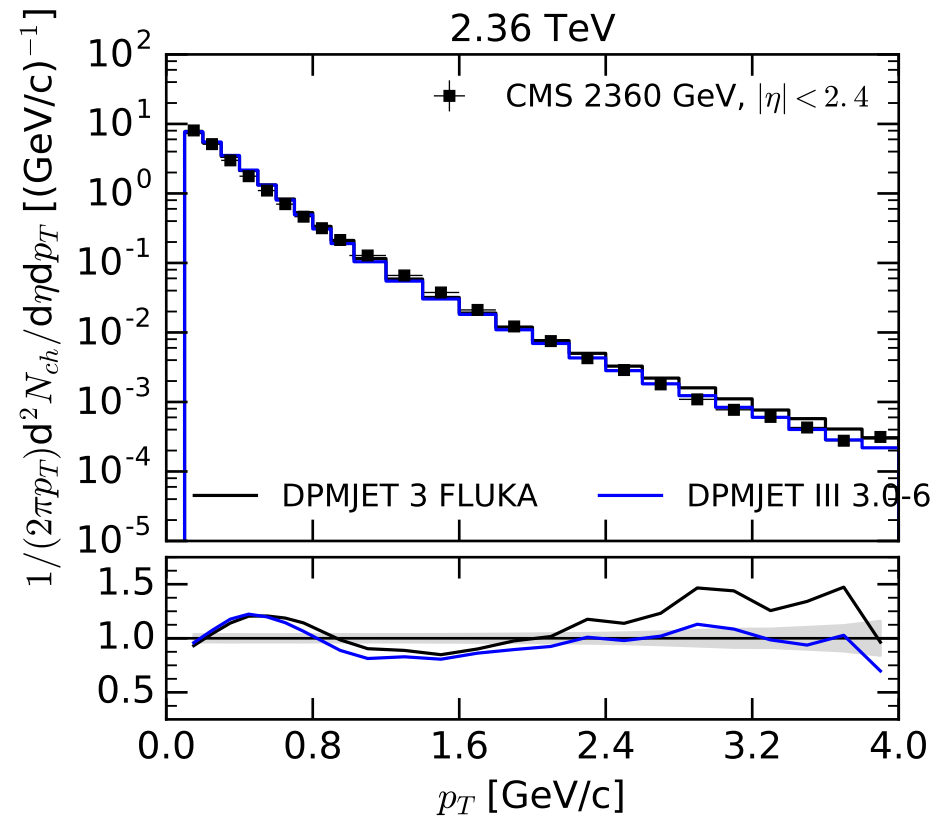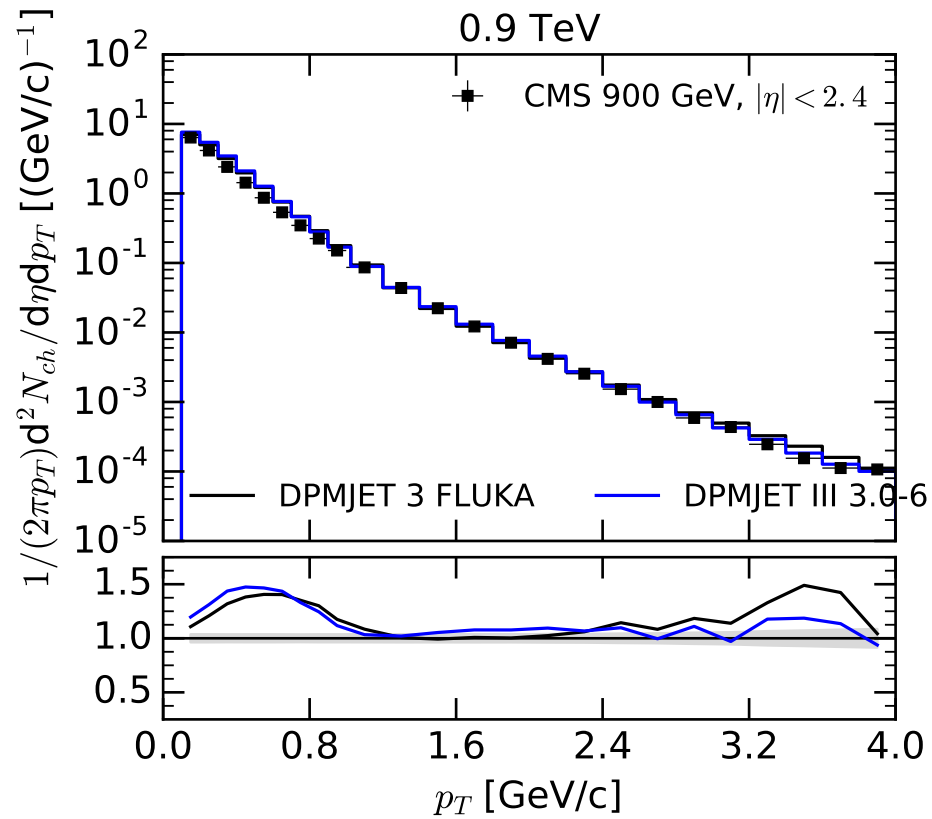
CMS - identified particle spectra in $|y| < 1$ for pp at 900 GeV.
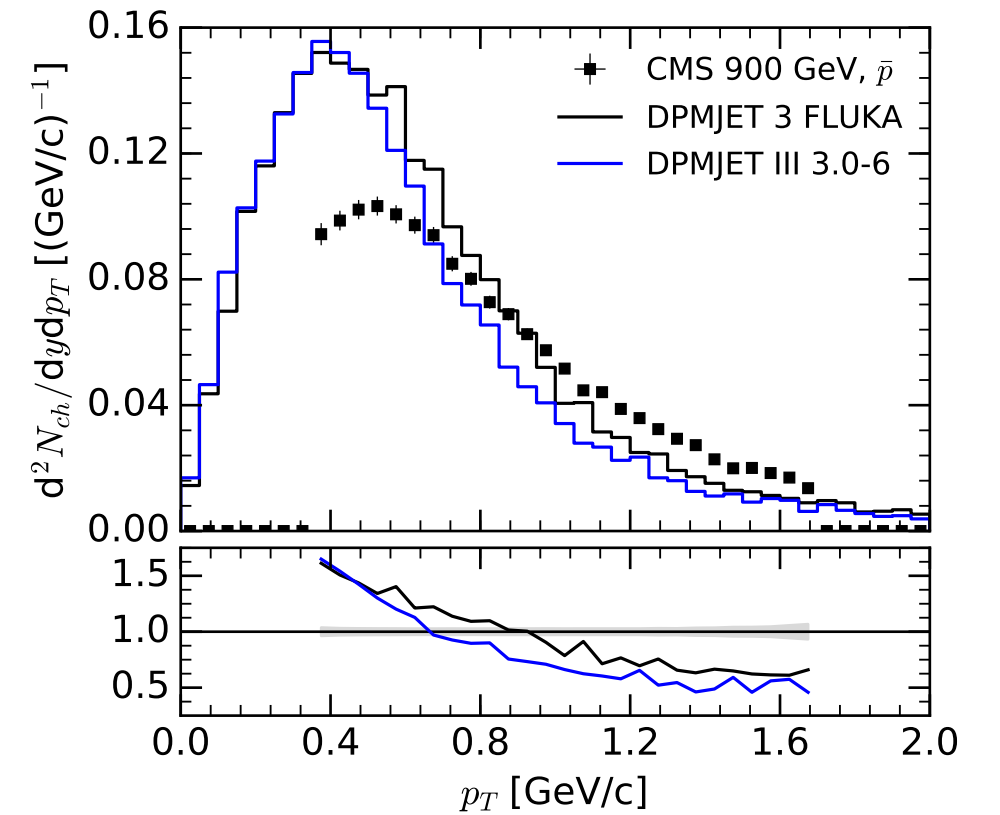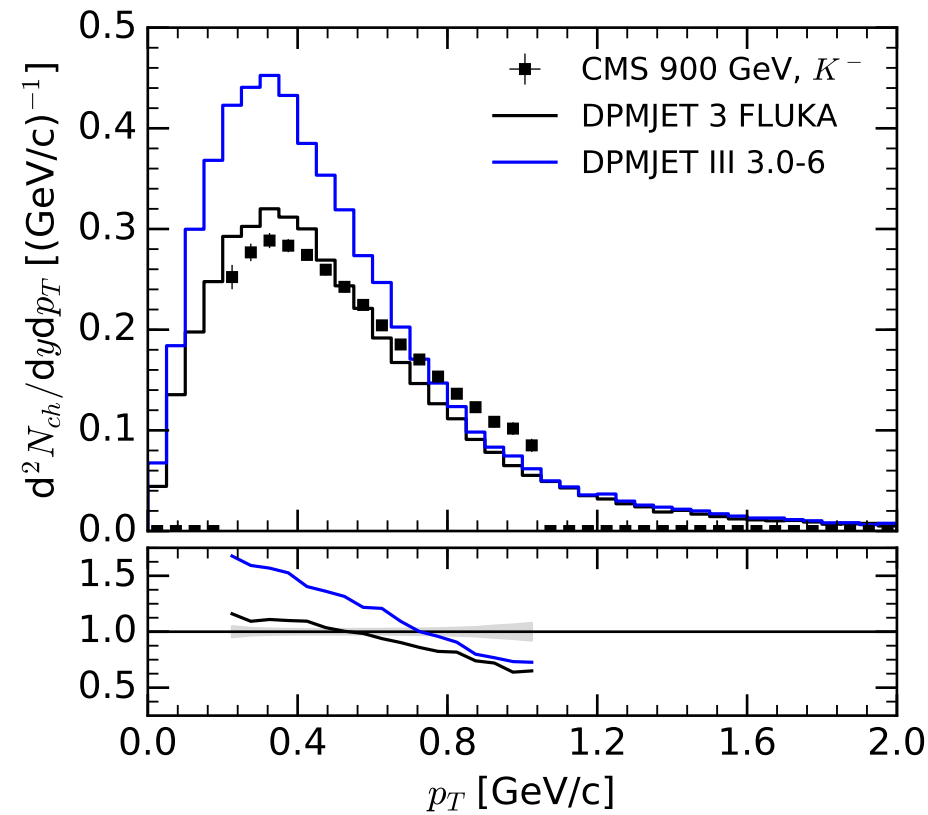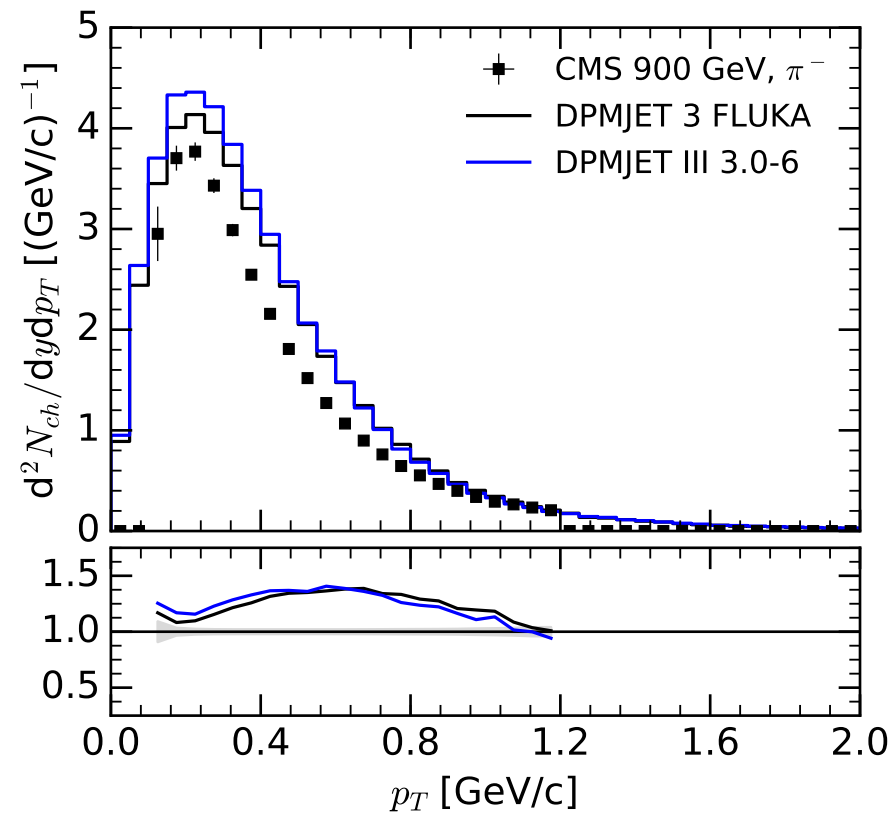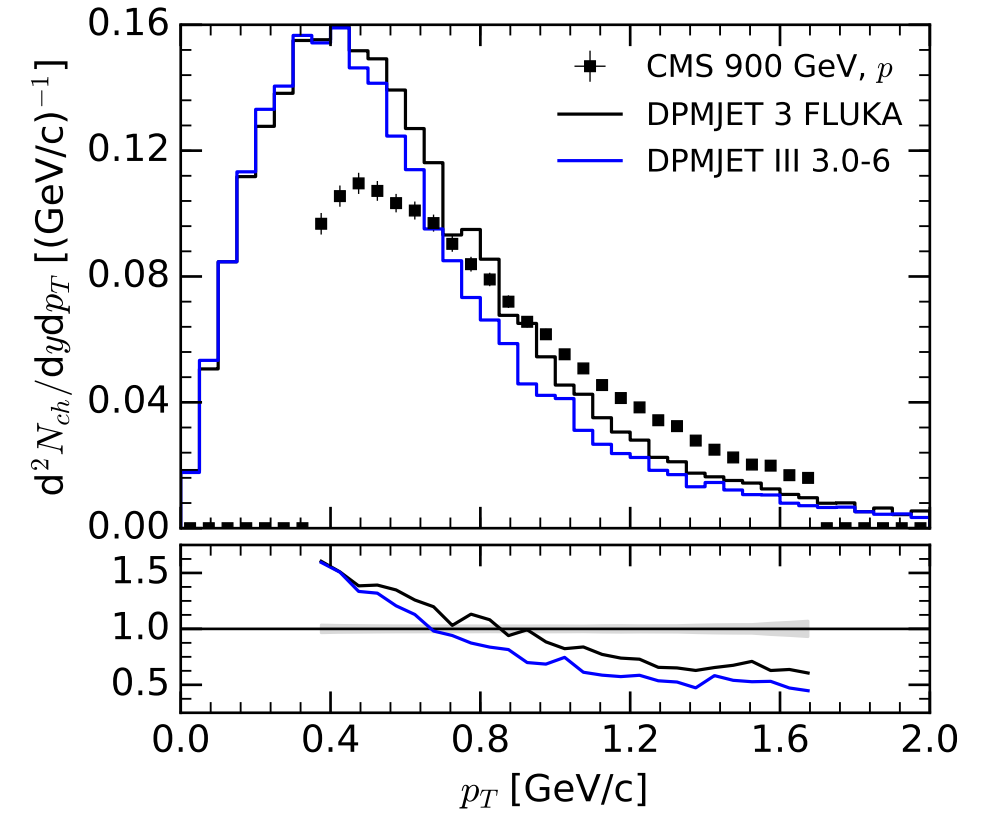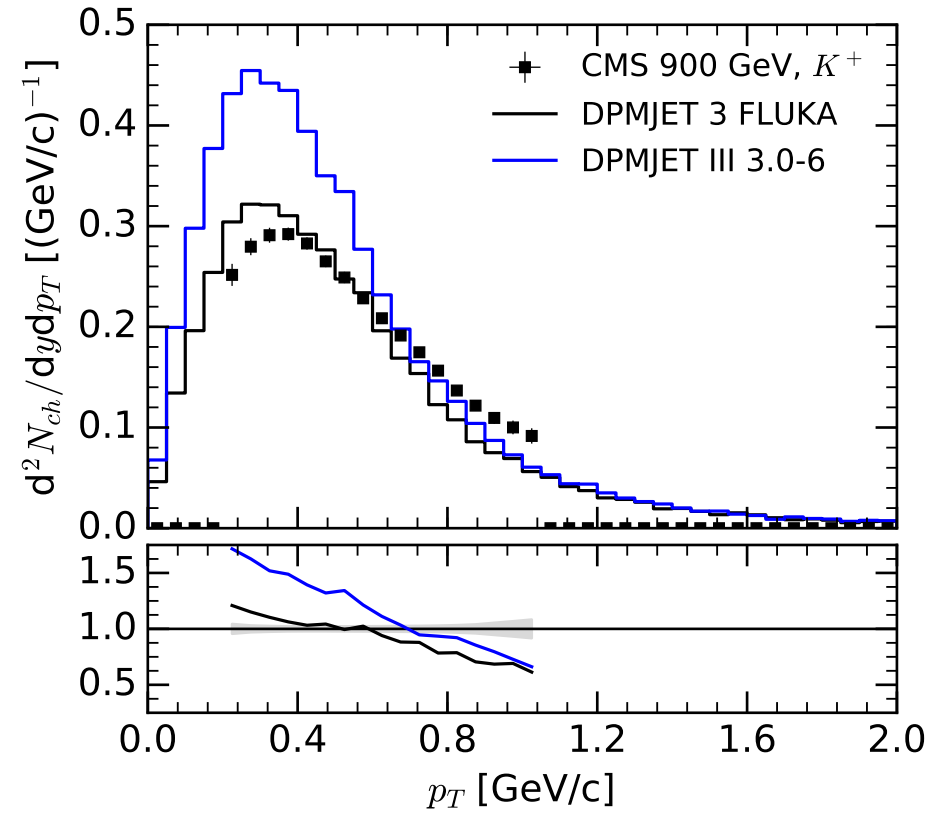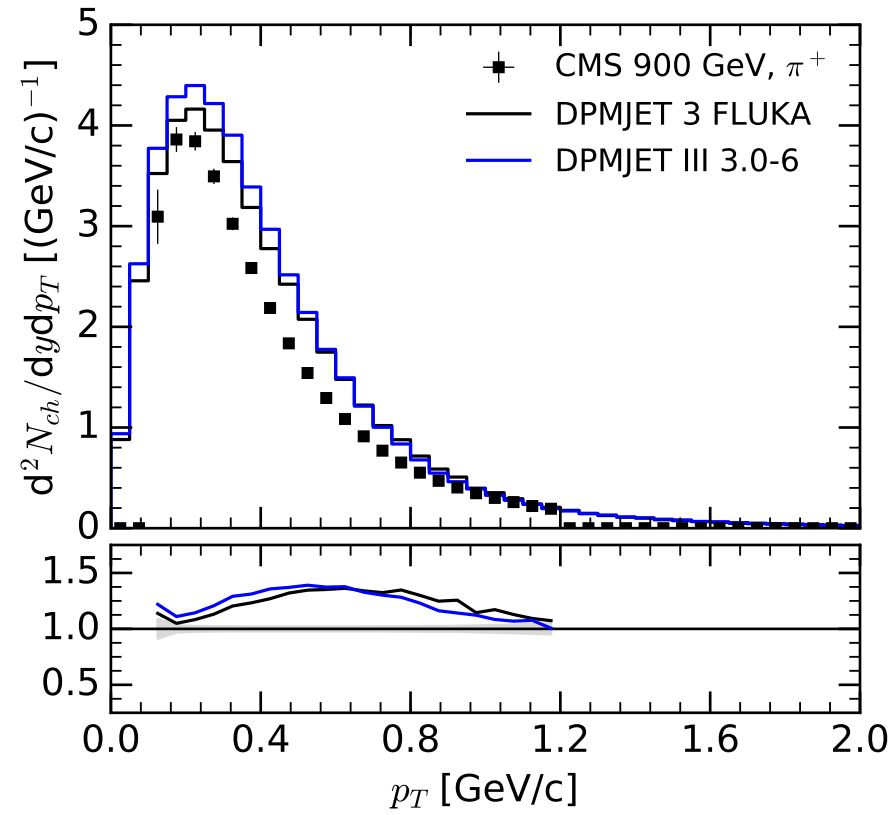
CMS - identified particle spectra in $|y| < 1$ for pp at 2760 GeV.
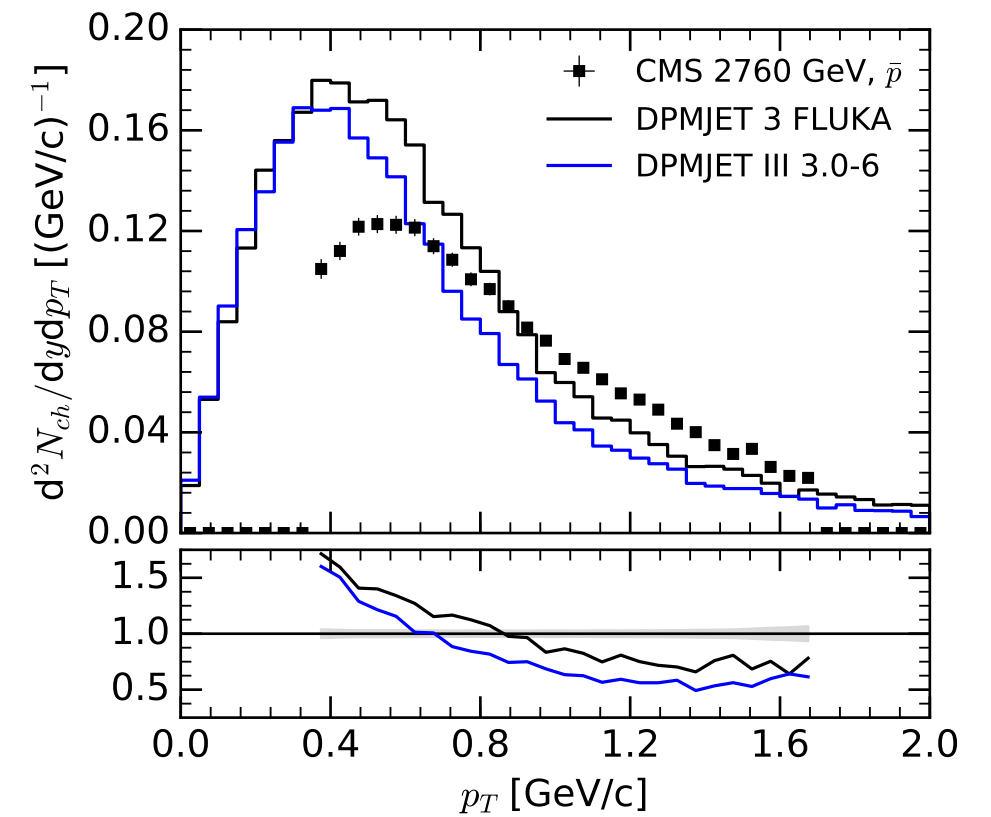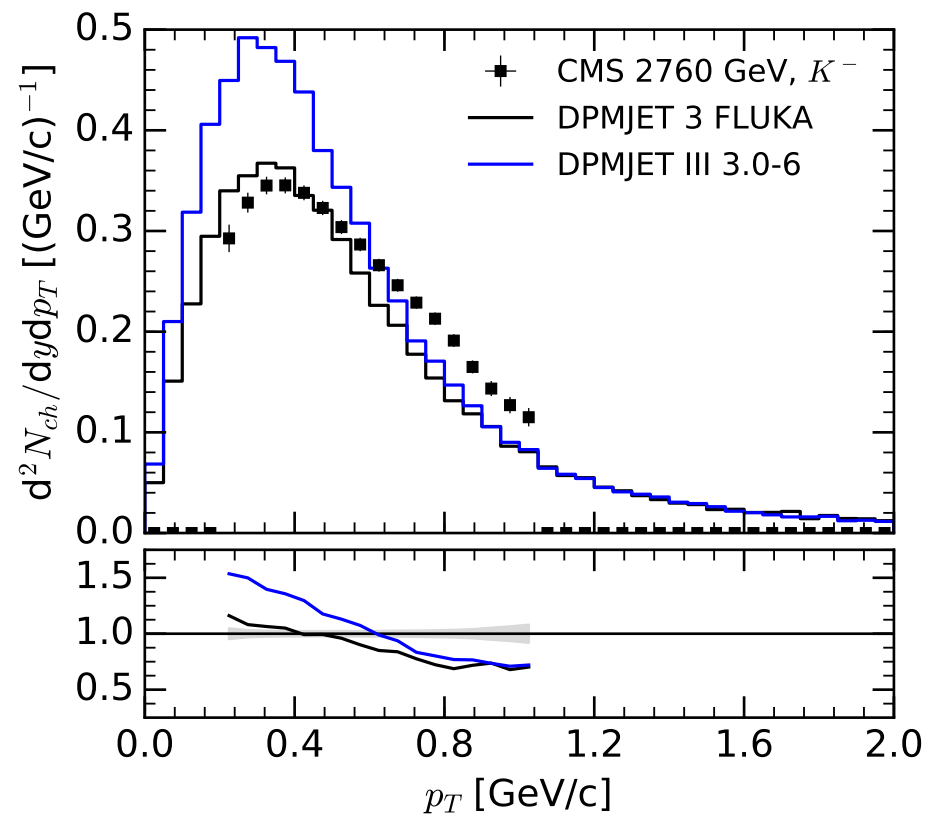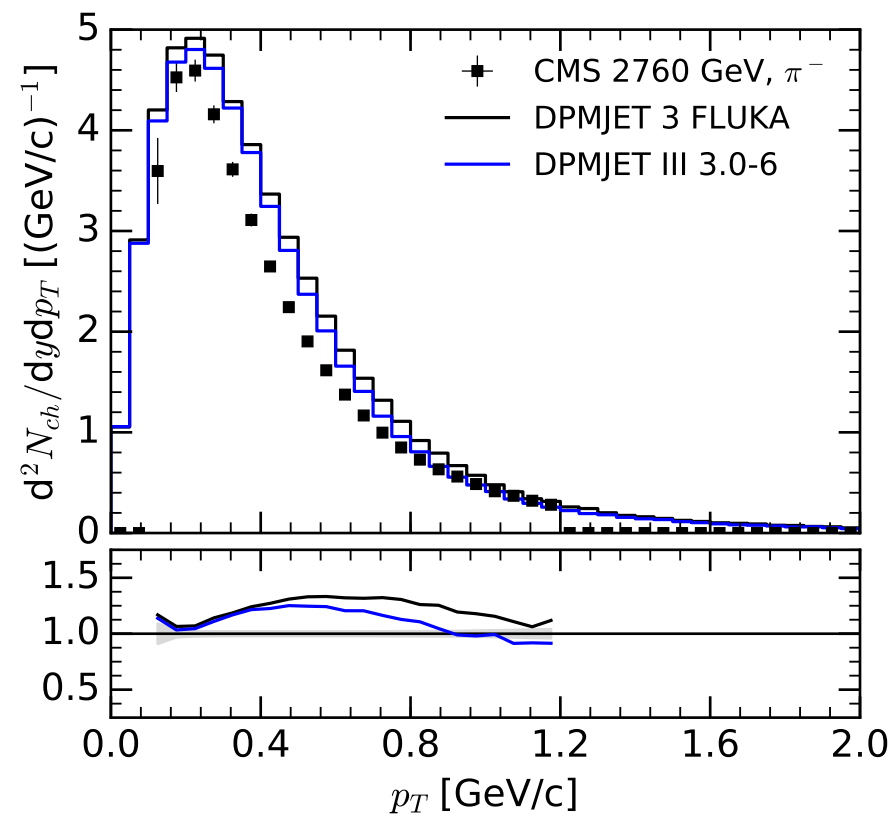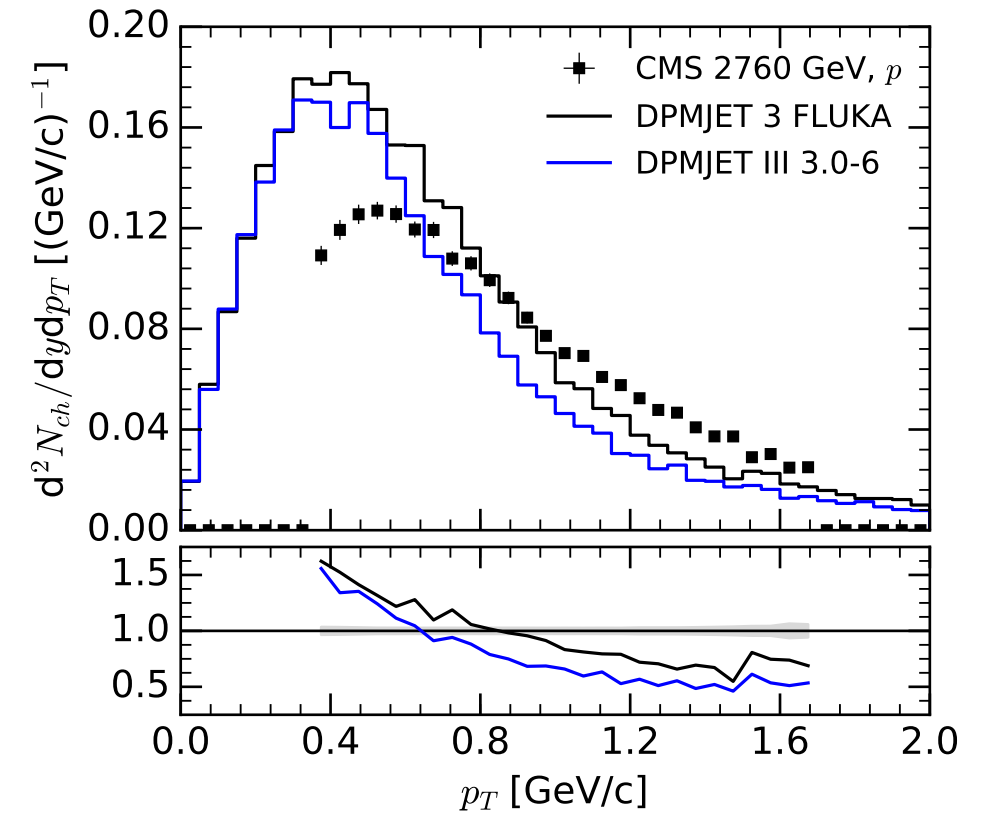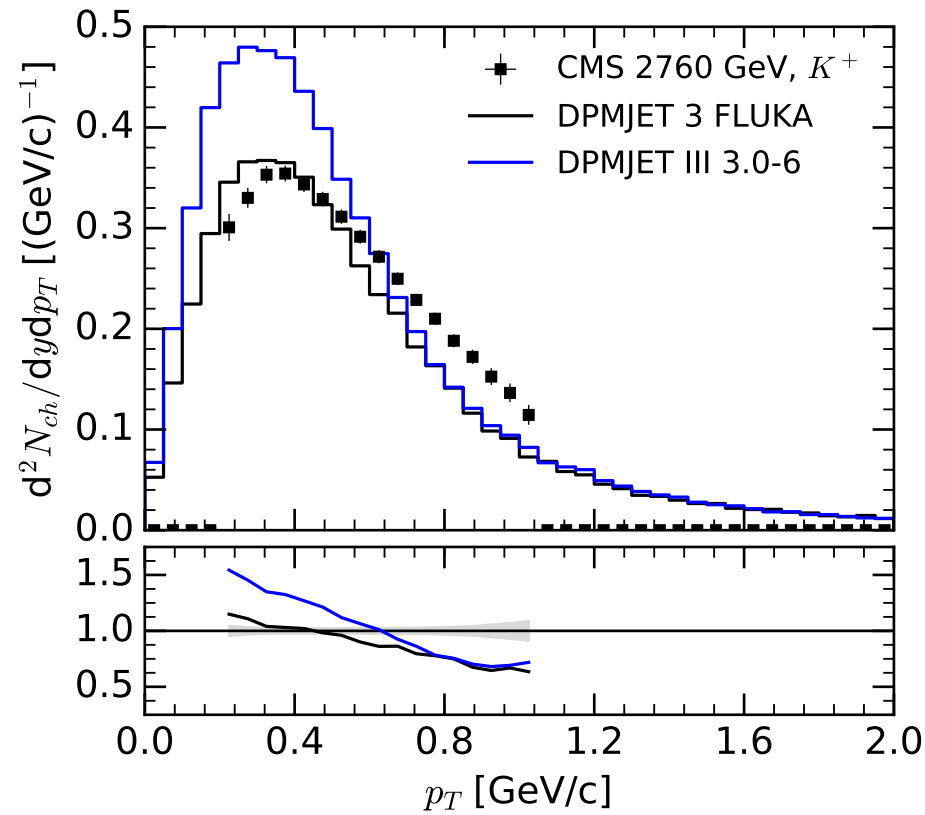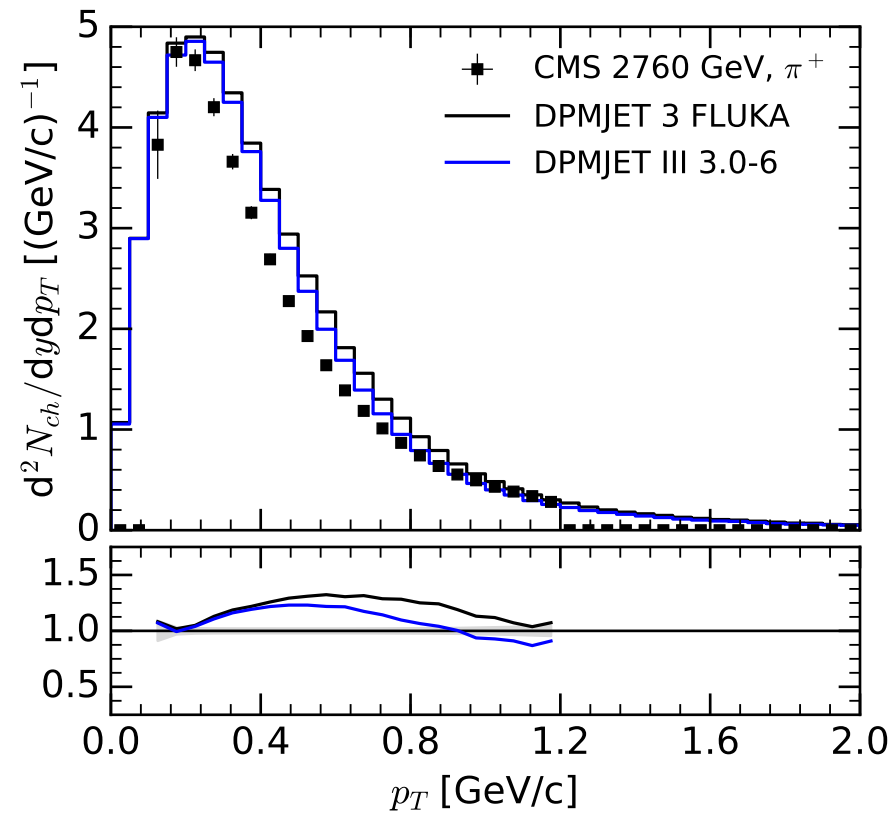
CMS - identified particle spectra in $|y| < 1$ for pp at 7000 GeV.
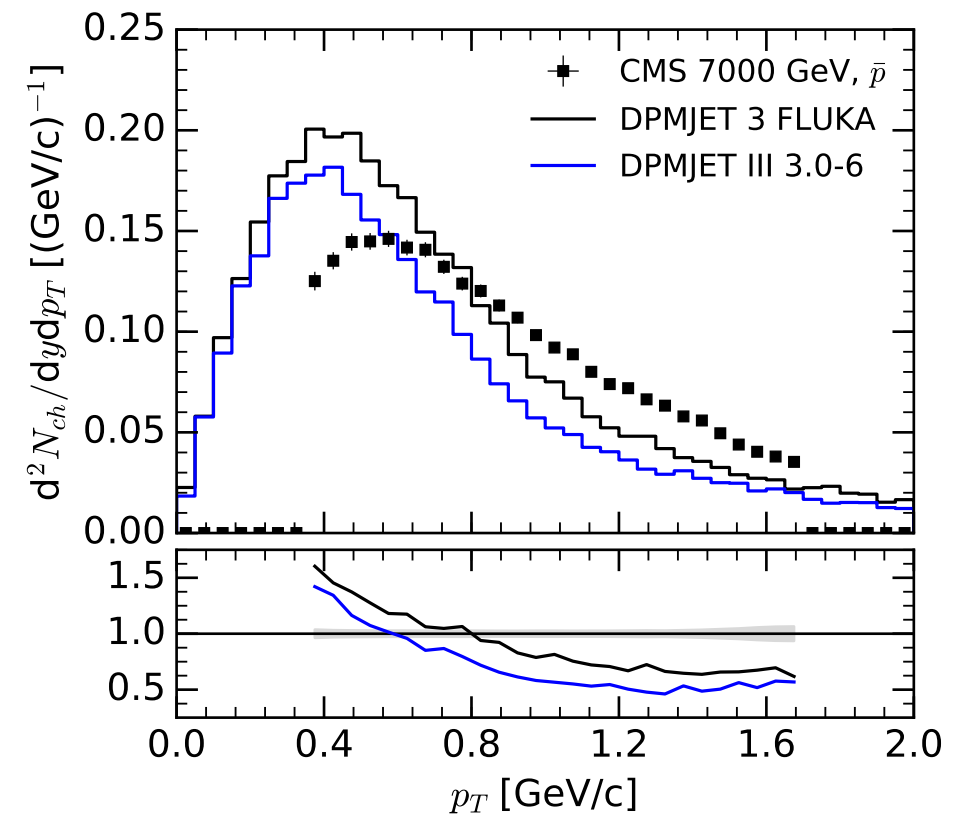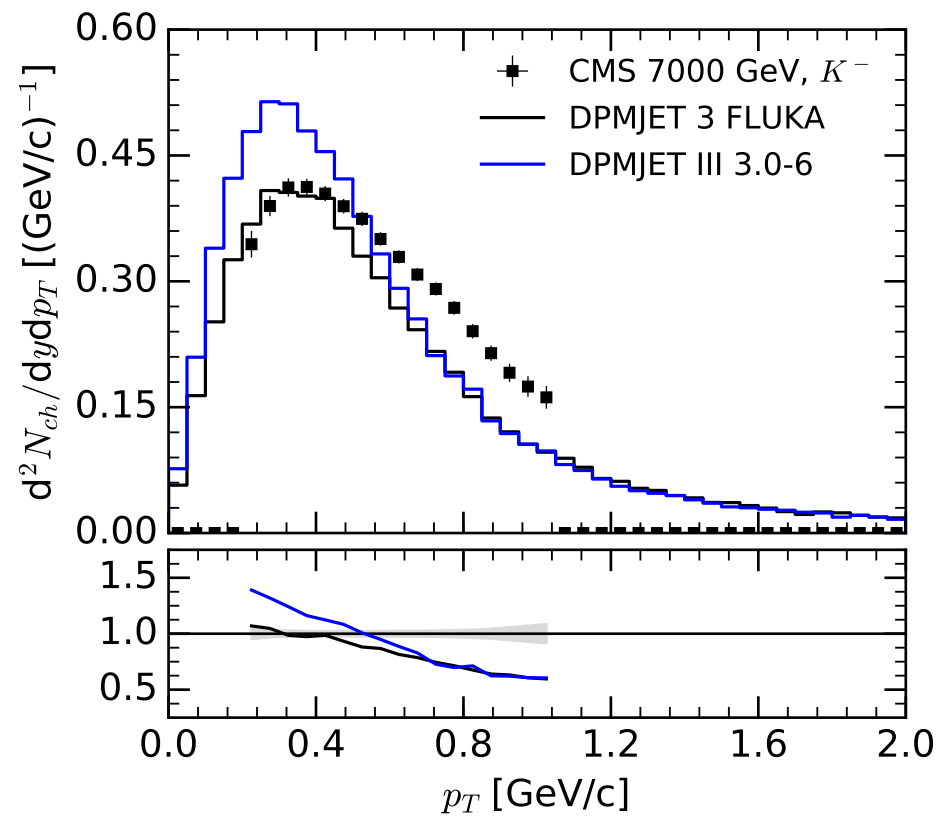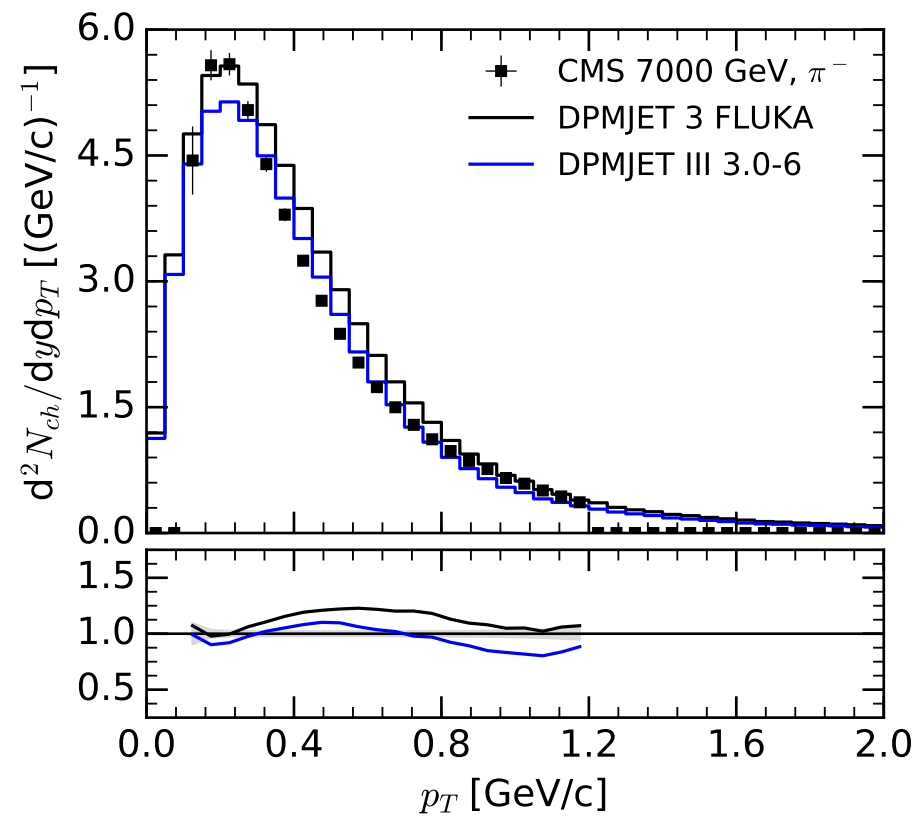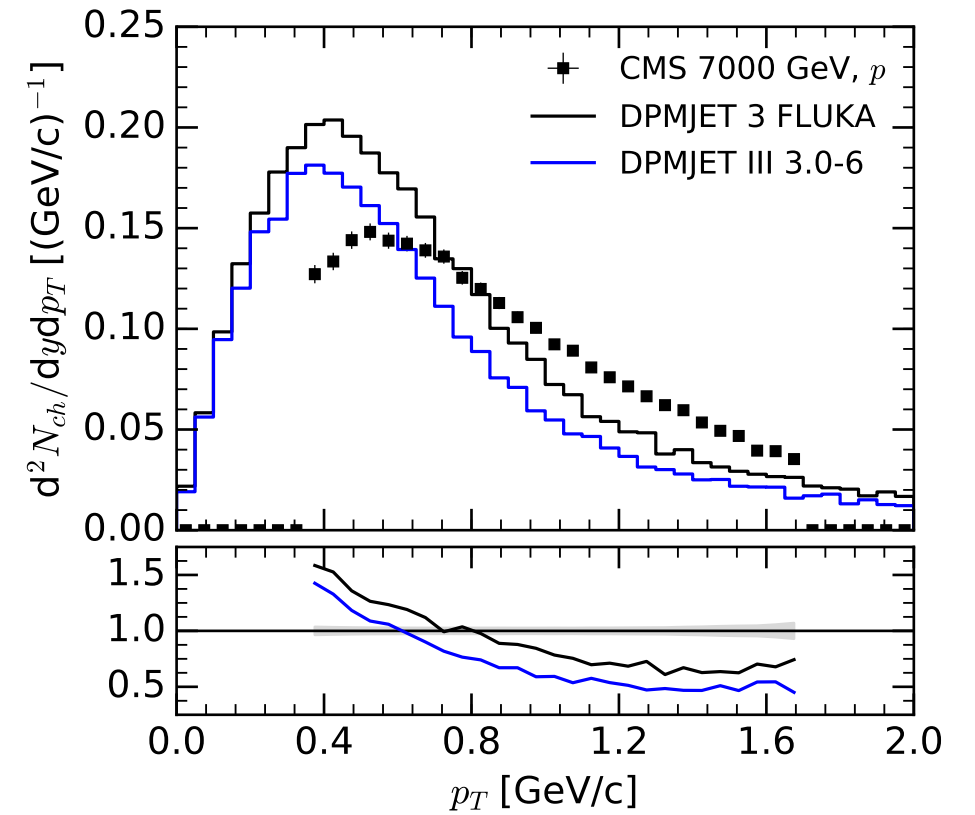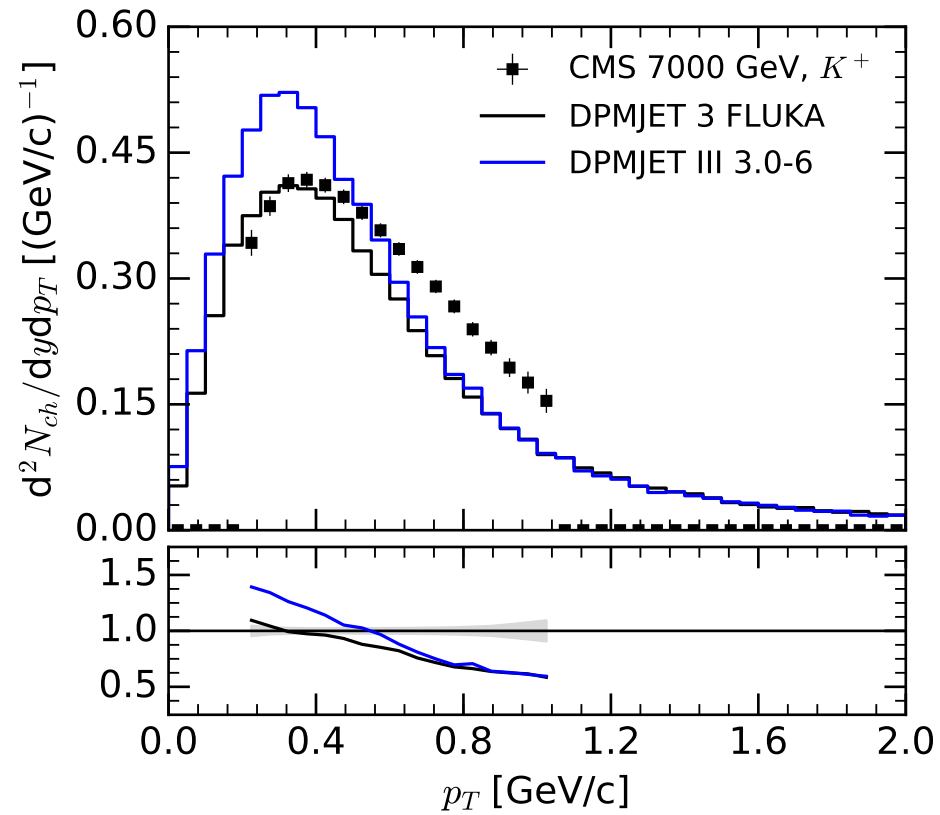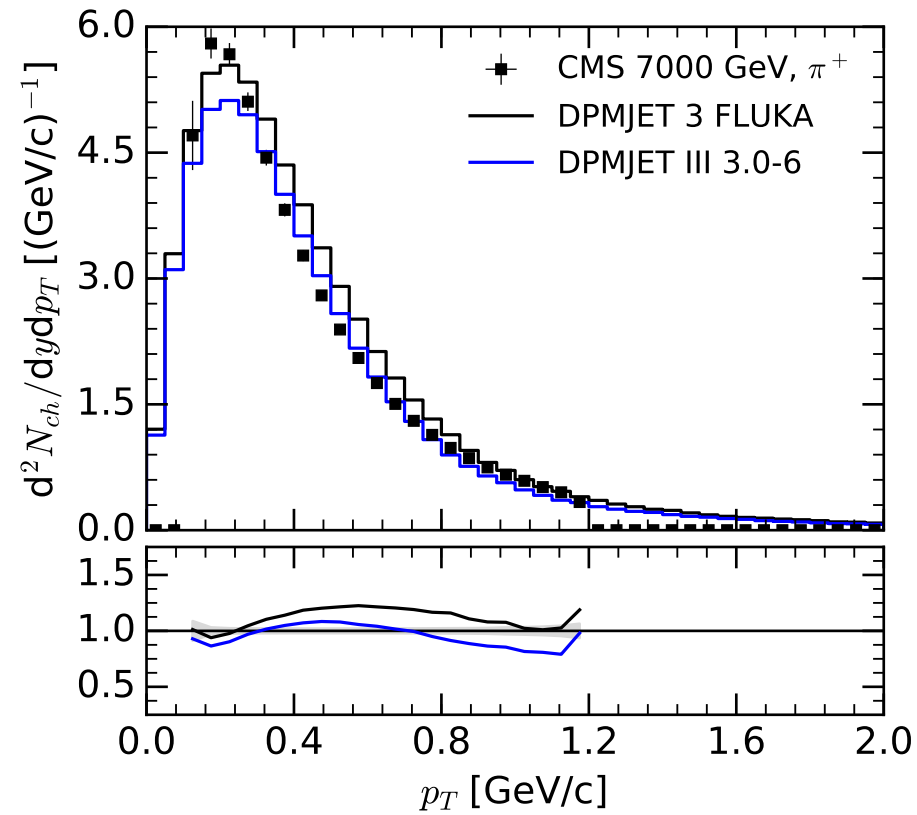
LHC: 13 TeV data

CMS - INEL η distribution.
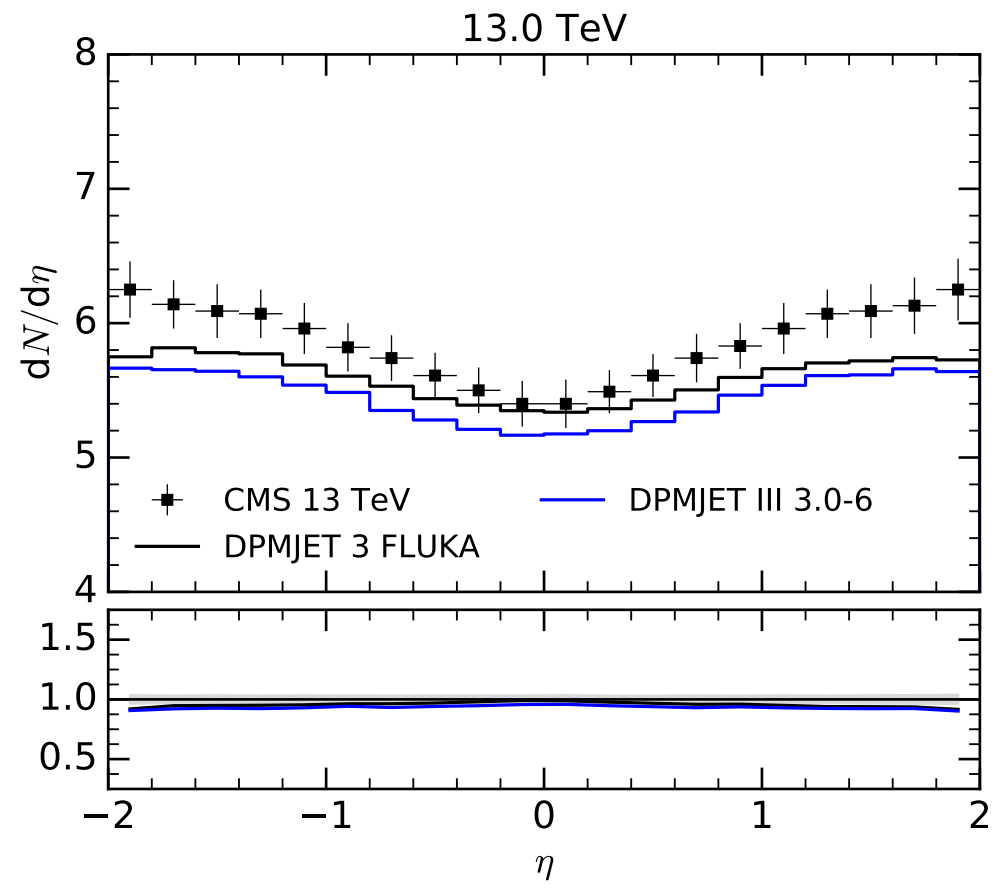
LHC: LHCb Minimum Bias

LHCb - inclusive charged particles in $2 < \eta < 4.8$ at 7 TeV

Pseudorapidity 7 TeV

- LHCb 7TeV
- DPMJET 3 FLUKA
- DPMJET III 3.0-6

x-axis: η
y-axis: $1/N_{ev} \ \mathrm{d}N_{ev}/\mathrm{d}\eta$

N_{ch}

p_T distribution 7 TeV

- LHCb 7TeV
- DPMJET 3 FLUKA
- DPMJET III 3.0-6

x-axis: p_T [GeV]
y-axis: $1/N_{ev} \ \mathrm{d}N_{ev}/\mathrm{d}p_T$ [GeV]$^{-1}$

Multiplicity 7 TeV

- LHCb 7TeV
- DPMJET 3 FLUKA
- DPMJET III 3.0-6

x-axis: Multiplicity N_{ch}
y-axis: $P(n)$
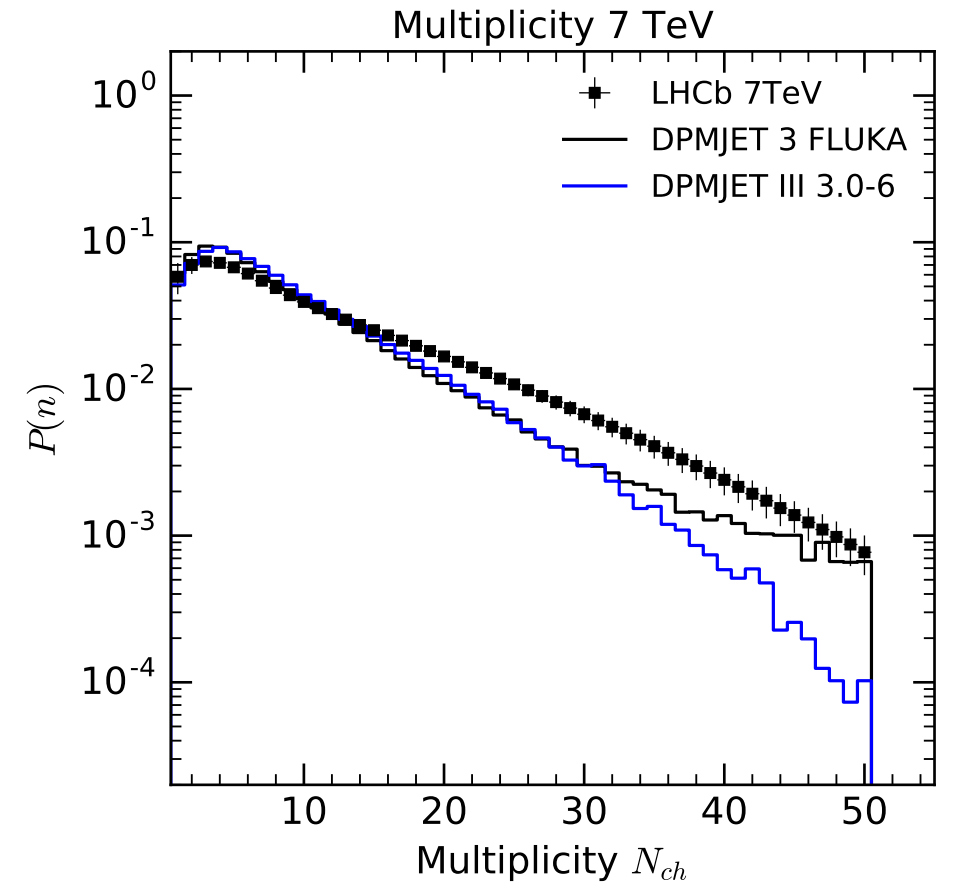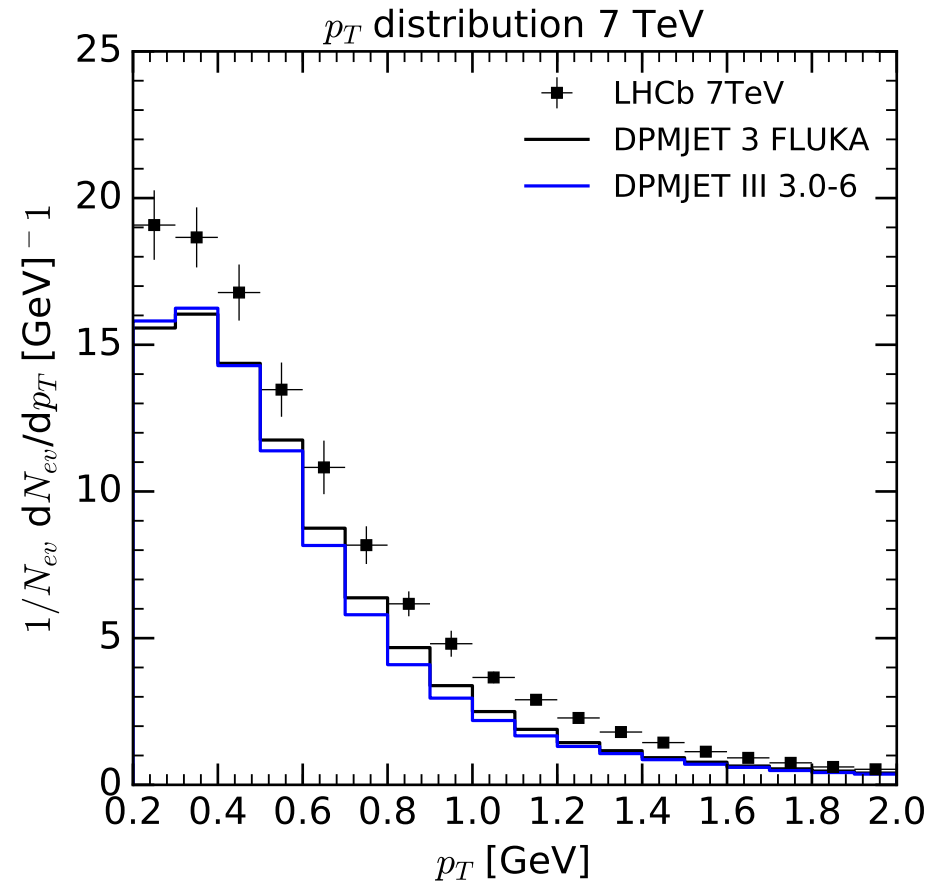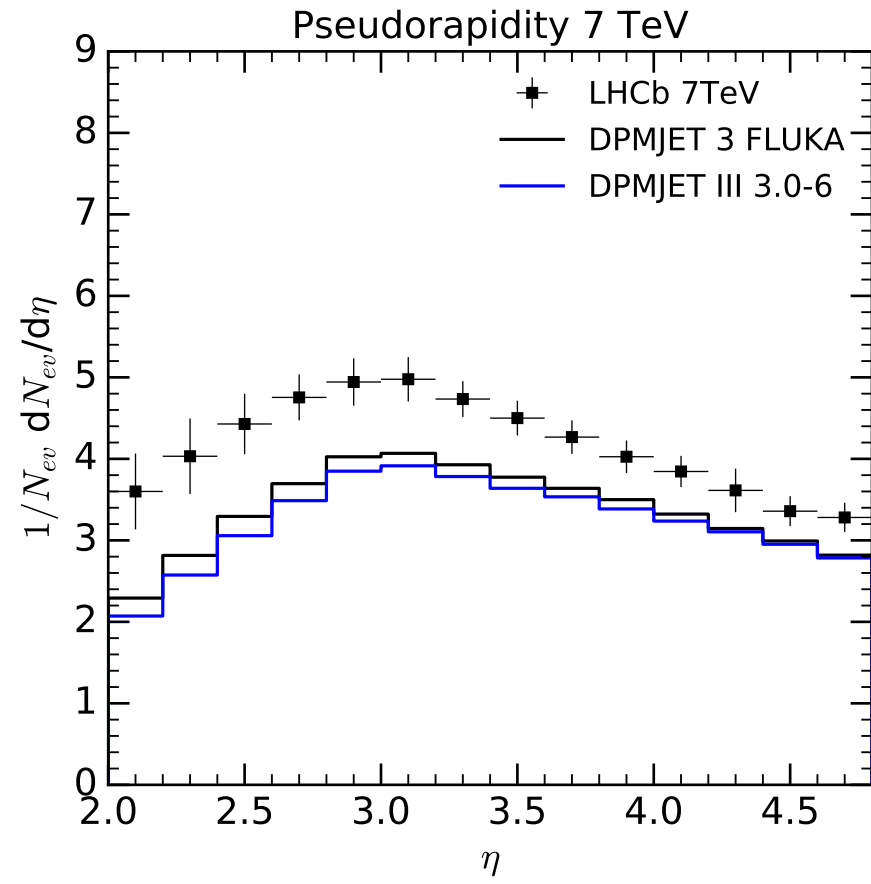
LHCb: Charged particle mutiplicities in pp collisions at 7 TeV
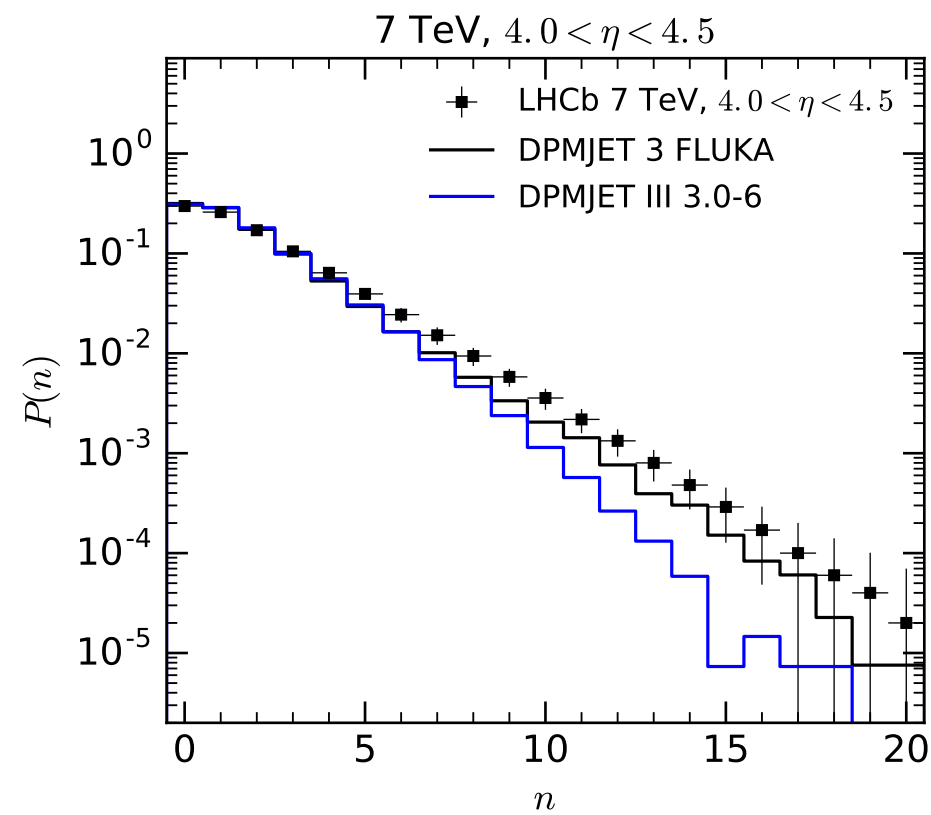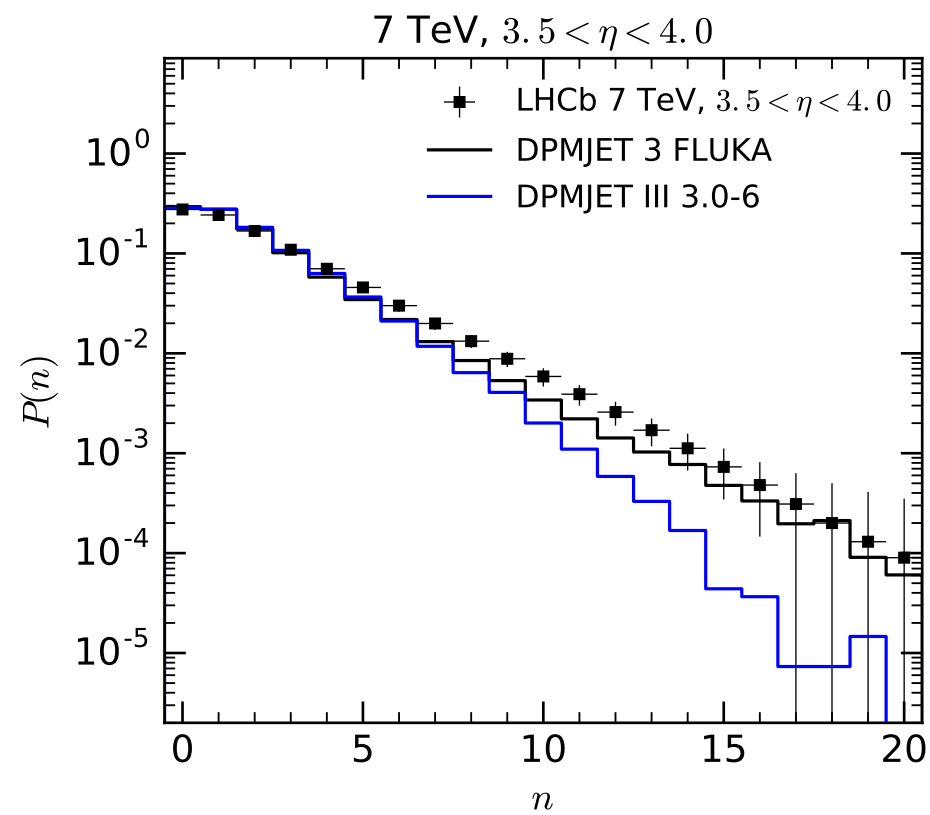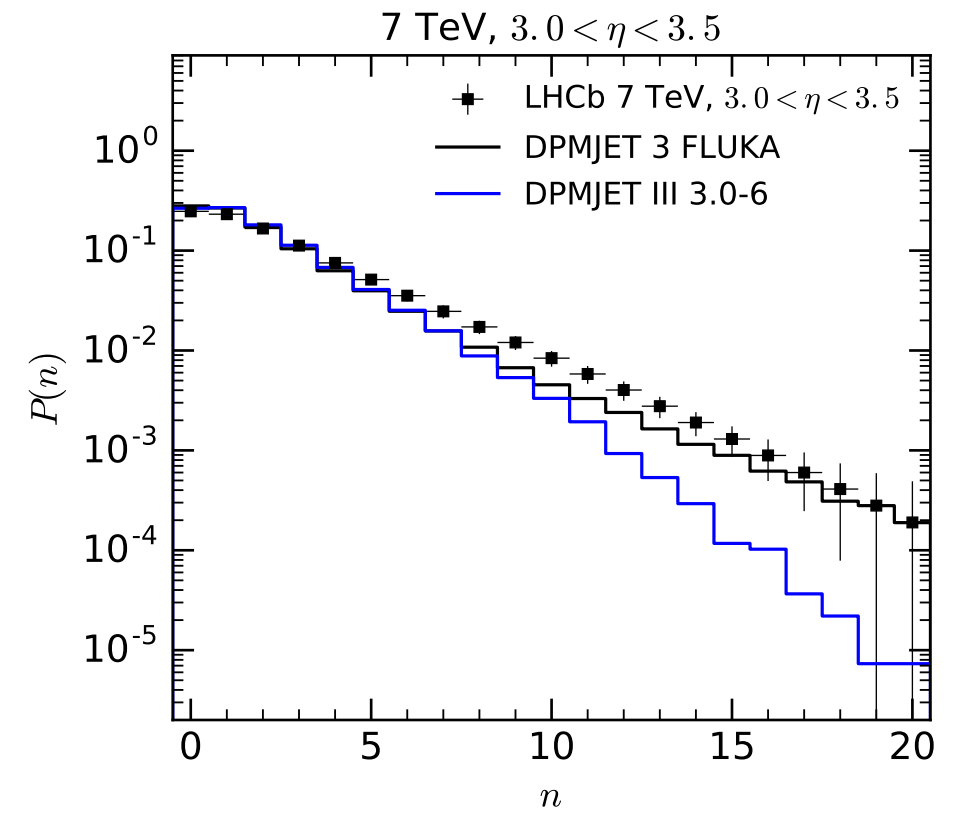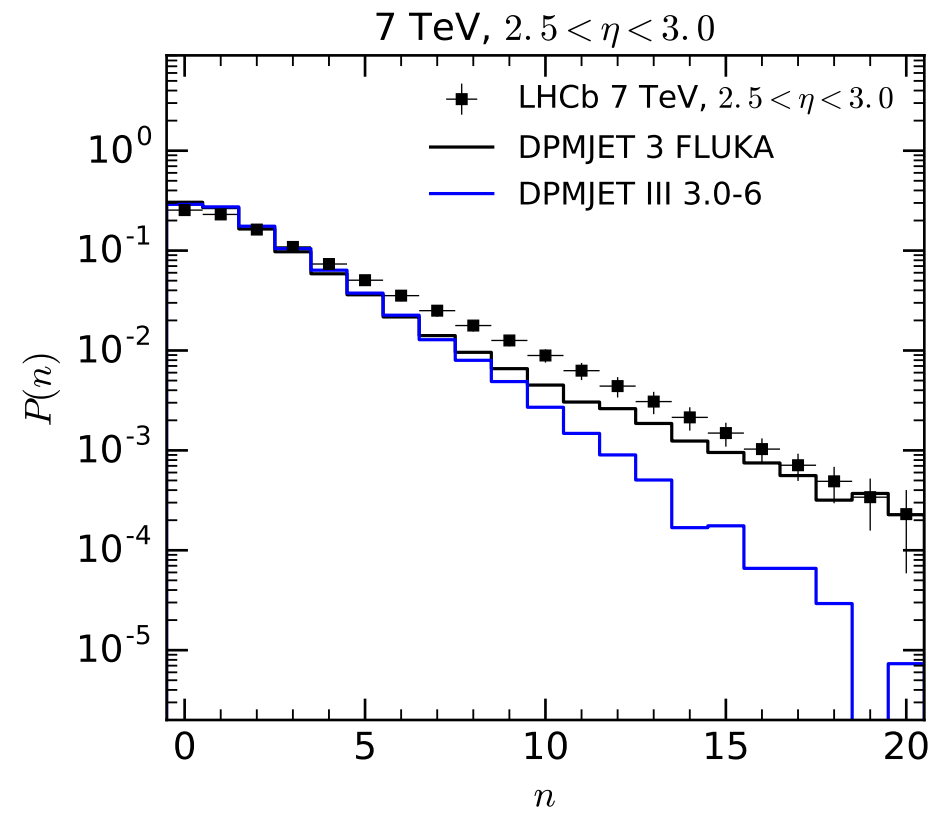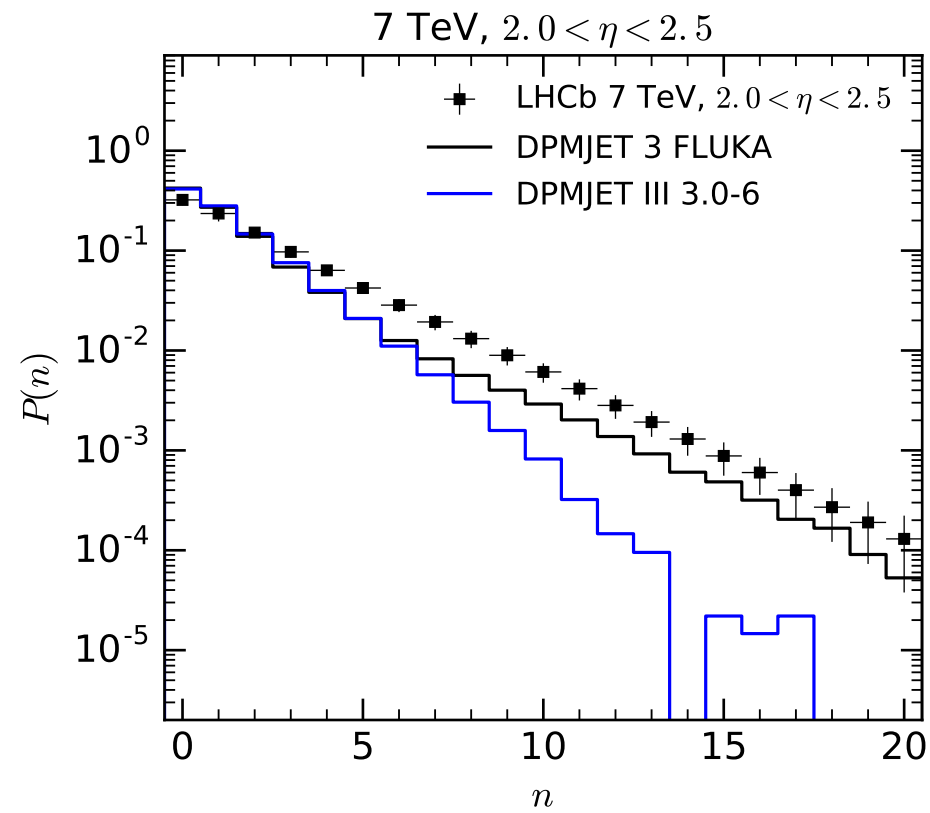
LHCb: Charged particle mutiplicities in pp collisions at 7 TeV
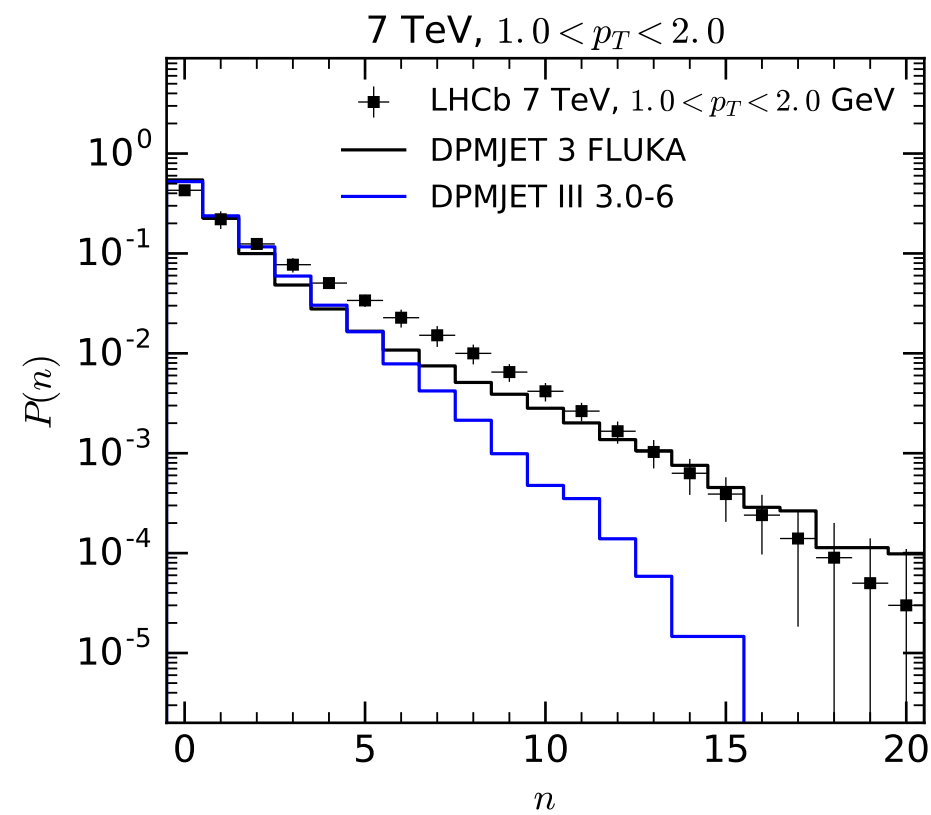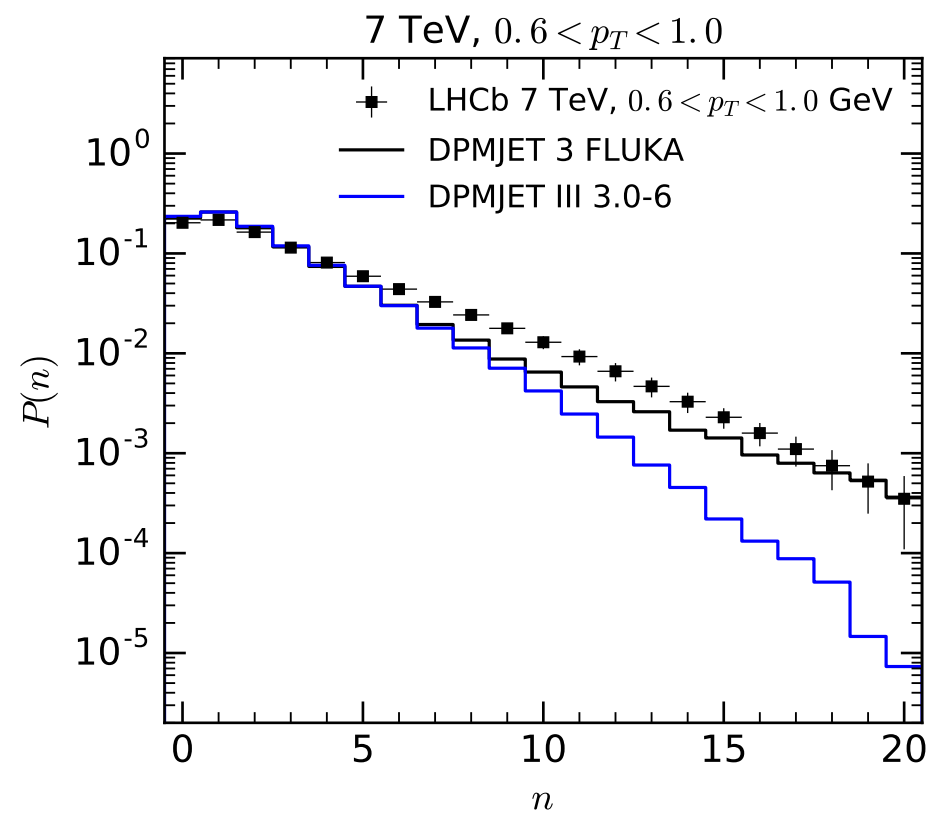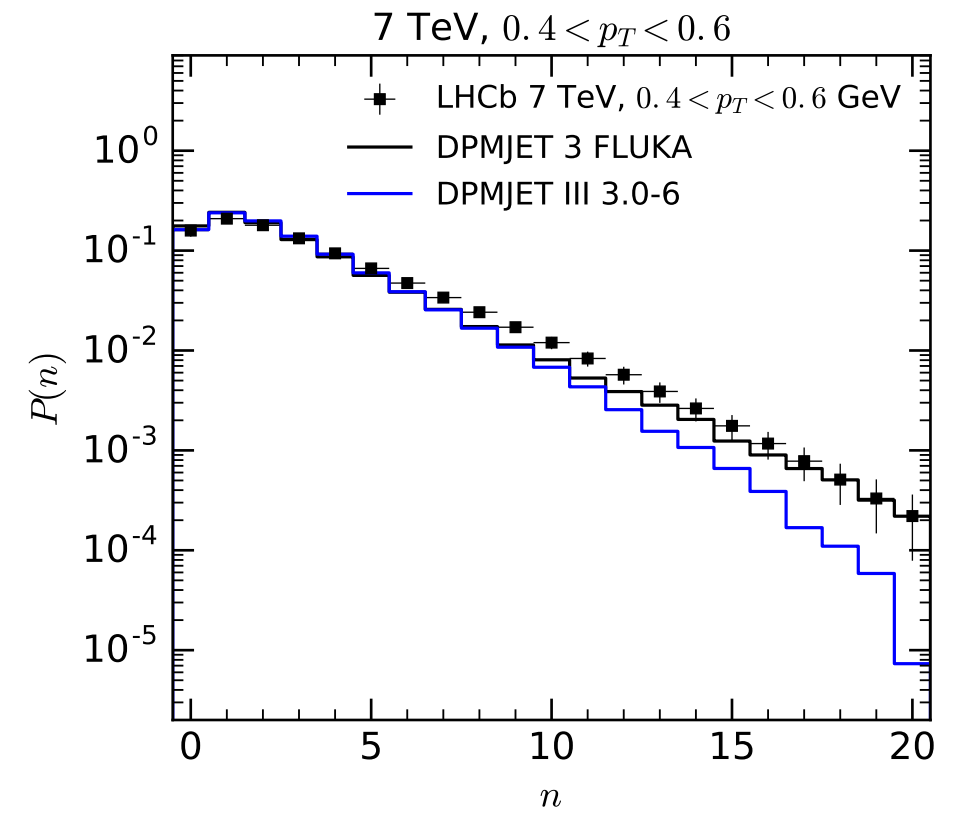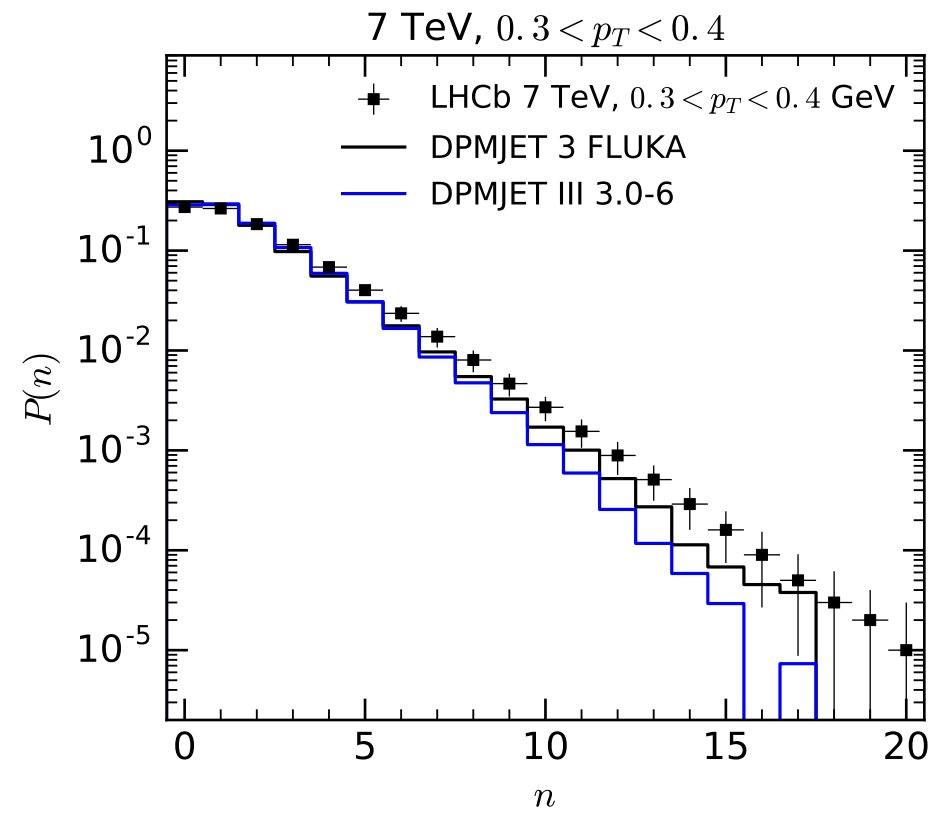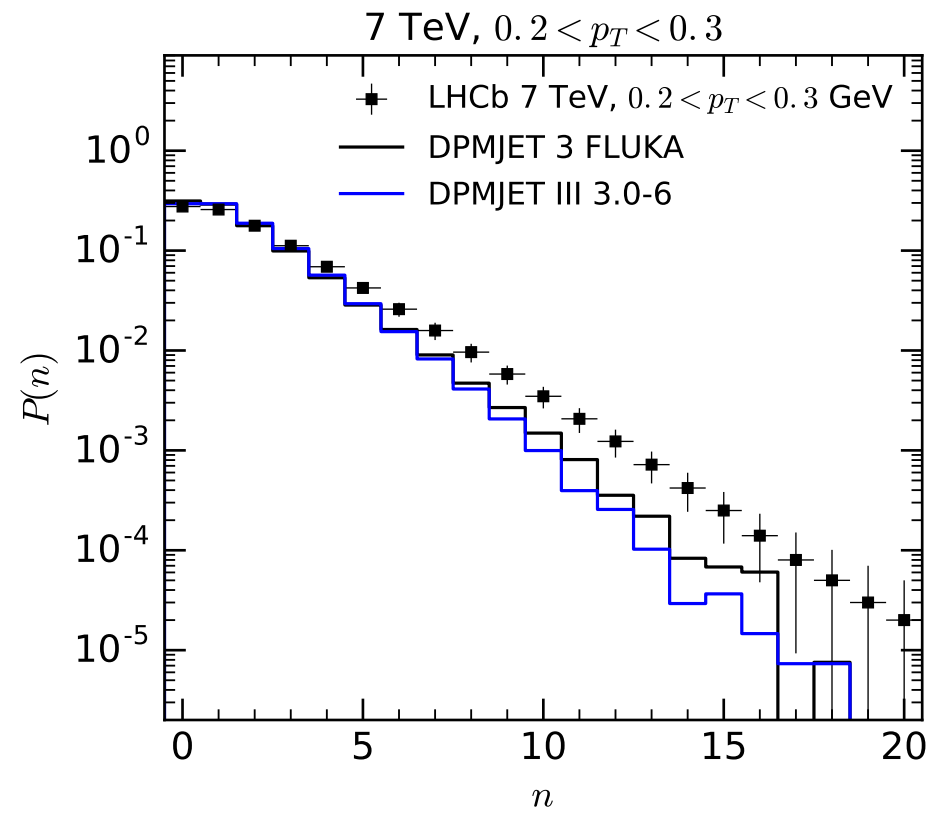
LHC: Forward physics

TOTEM - η distribution.
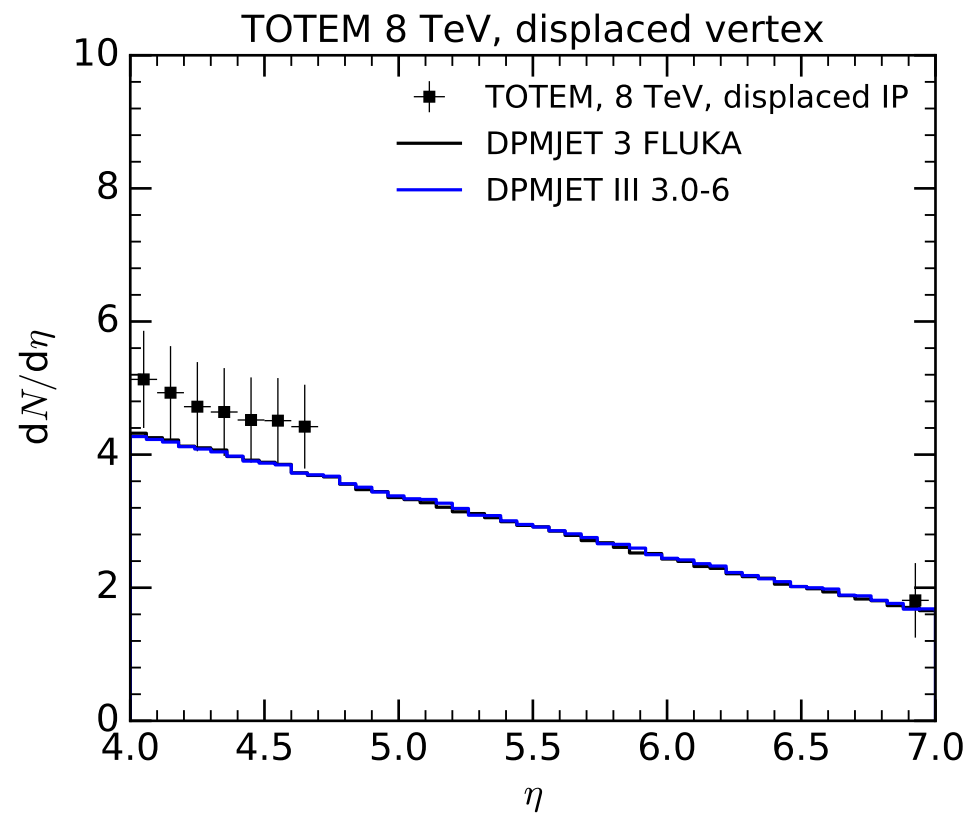
ATLAS - Rapidity gaps at 7 TeV

ATLAS 7 TeV, $p_T > 0.2$ GeV

ATLAS 7 TeV, $p_T > 0.4$ GeV

ATLAS 7 TeV, $p_T > 0.6$ GeV

ATLAS 7 TeV, $p_T > 0.8$ GeV

ATLAS 7TeV, $p_T > 200$ MeV
DPMJET 3 FLUKA
DPMJET III 3.0-6
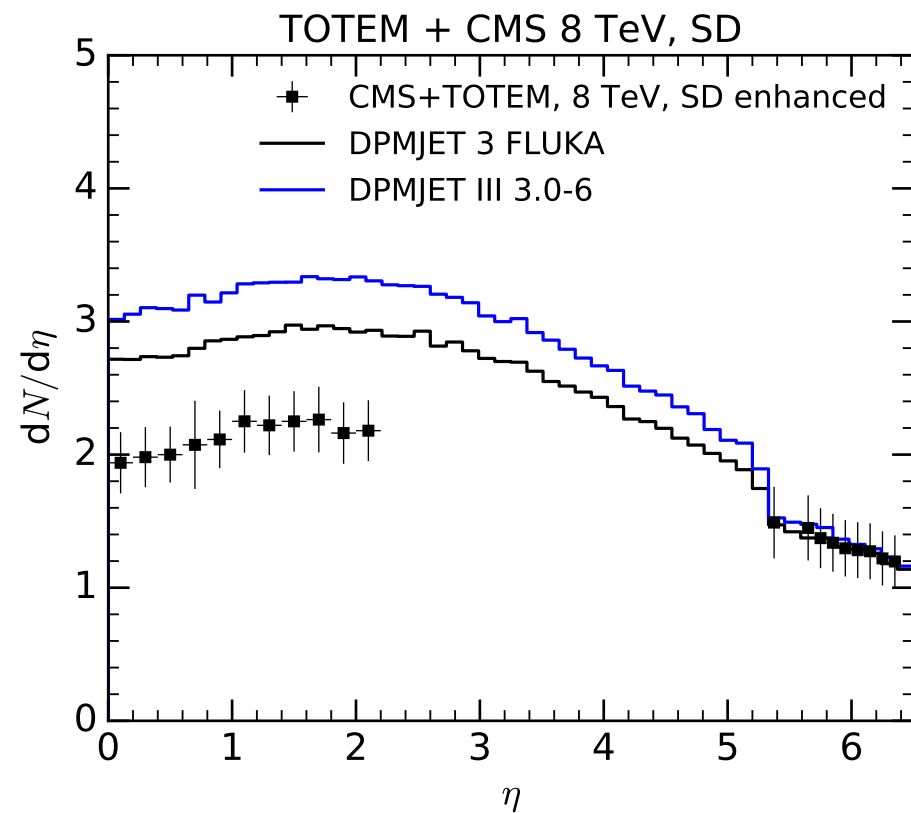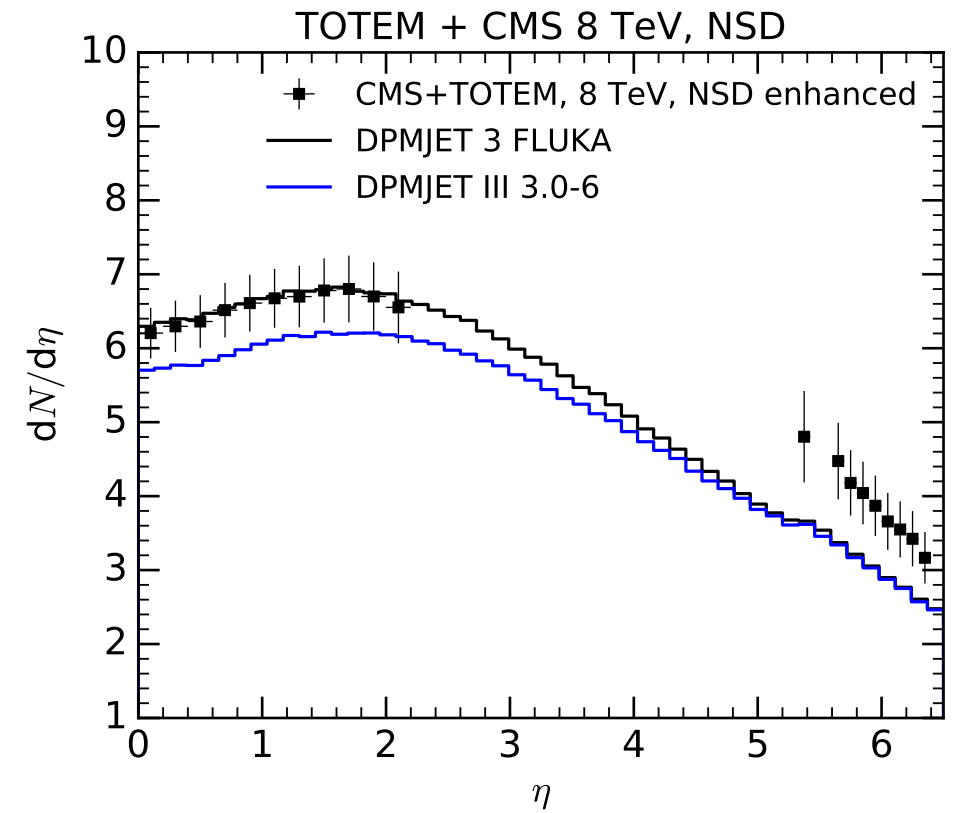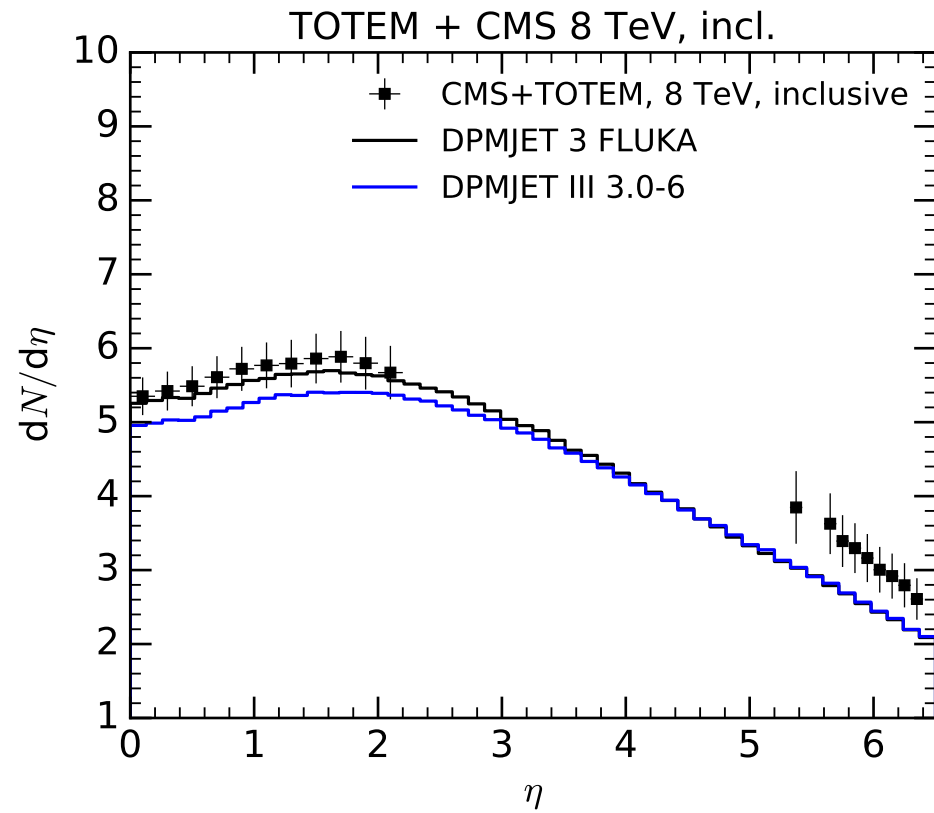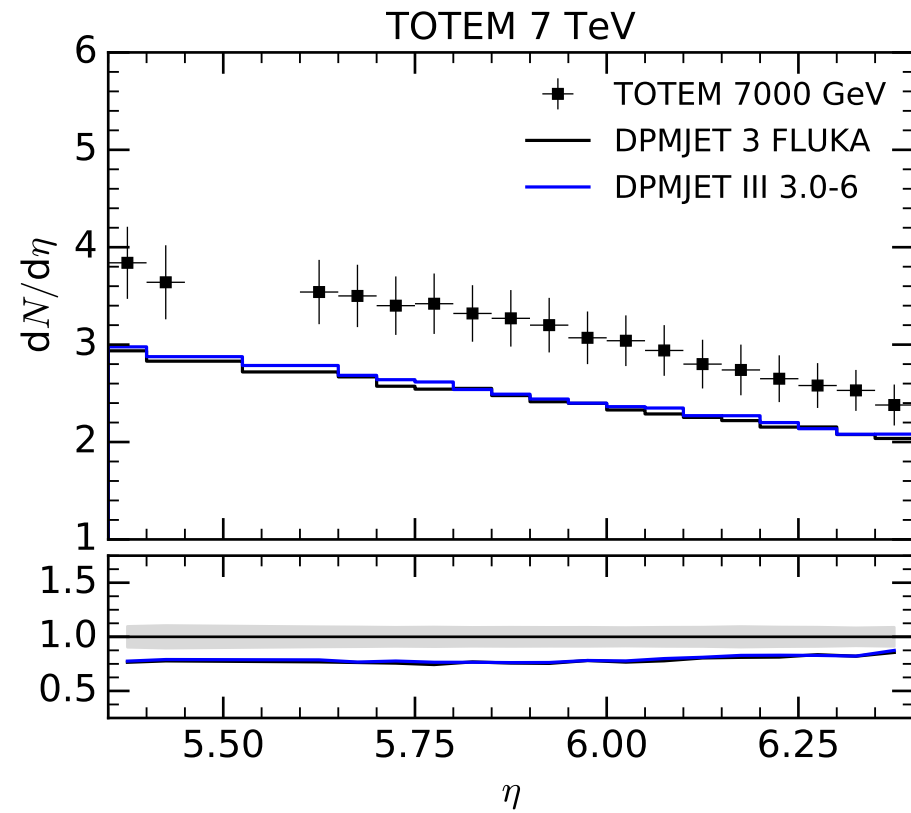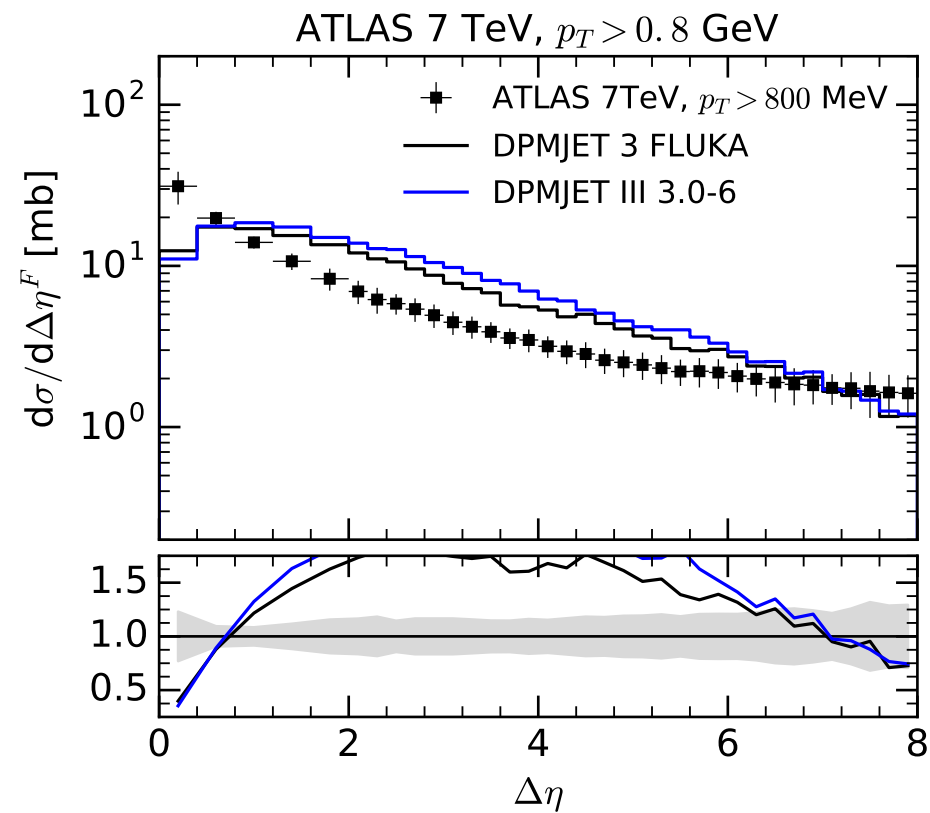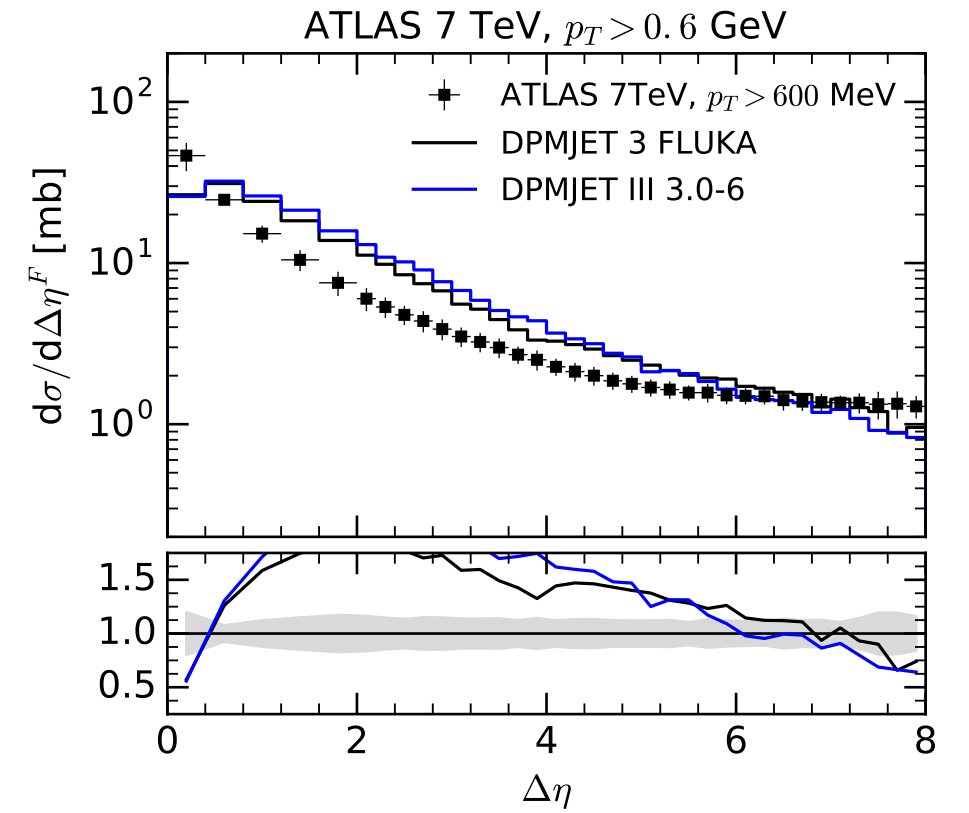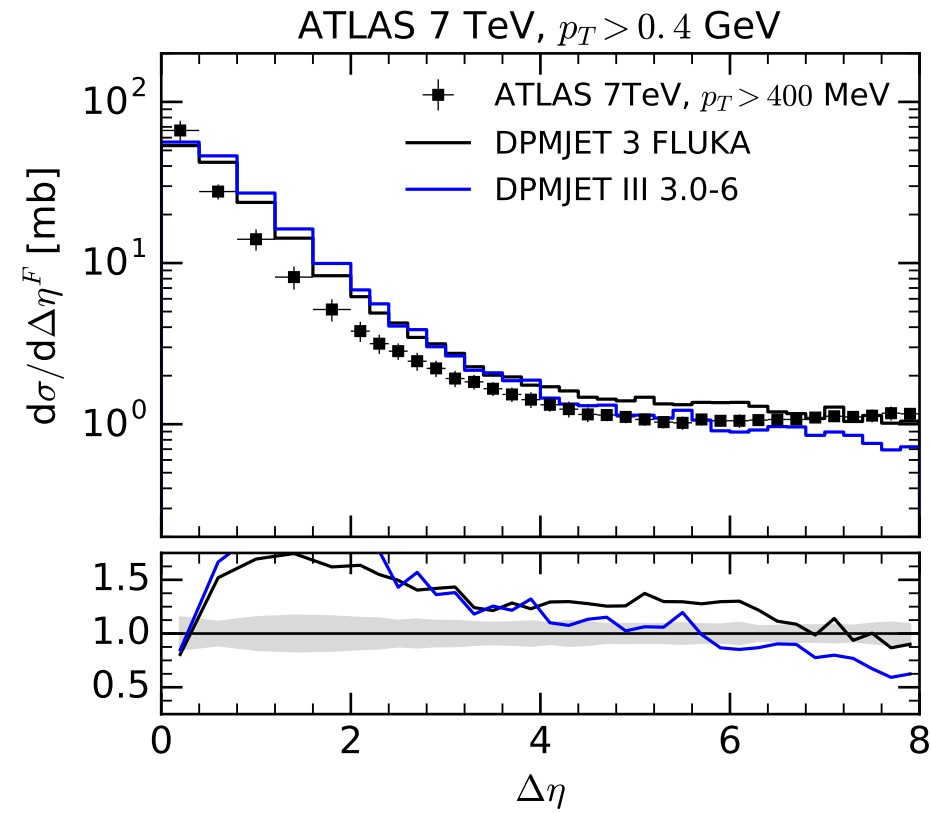
ATLAS 7TeV, $p_T > 400$ MeV
DPMJET 3 FLUKA
DPMJET III 3.0-6

ATLAS 7TeV, $p_T > 600$ MeV
DPMJET 3 FLUKA
DPMJET III 3.0-6

ATLAS 7TeV, $p_T > 800$ MeV
DPMJET 3 FLUKA
DPMJET III 3.0-6

$\mathrm{d}\sigma/\mathrm{d}\Delta\eta^F$ [mb]

$\Delta\eta$

Diffractive peak

Forward scattering peak (lin. scale).

Forward scattering peak (log. scale).
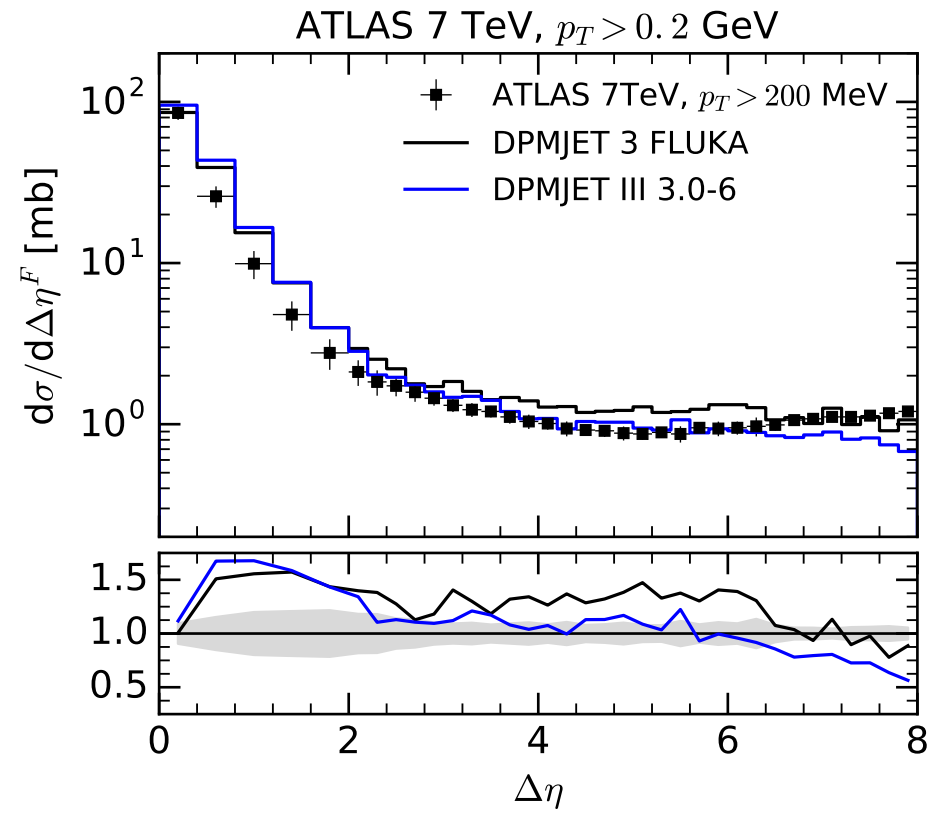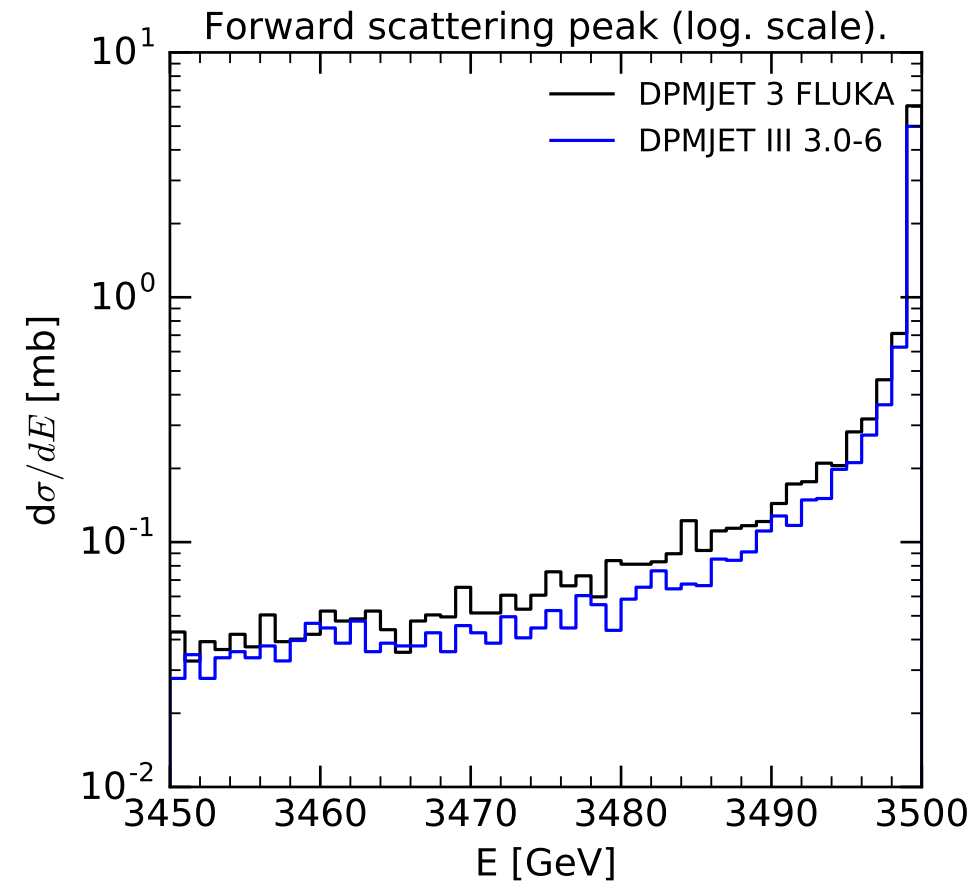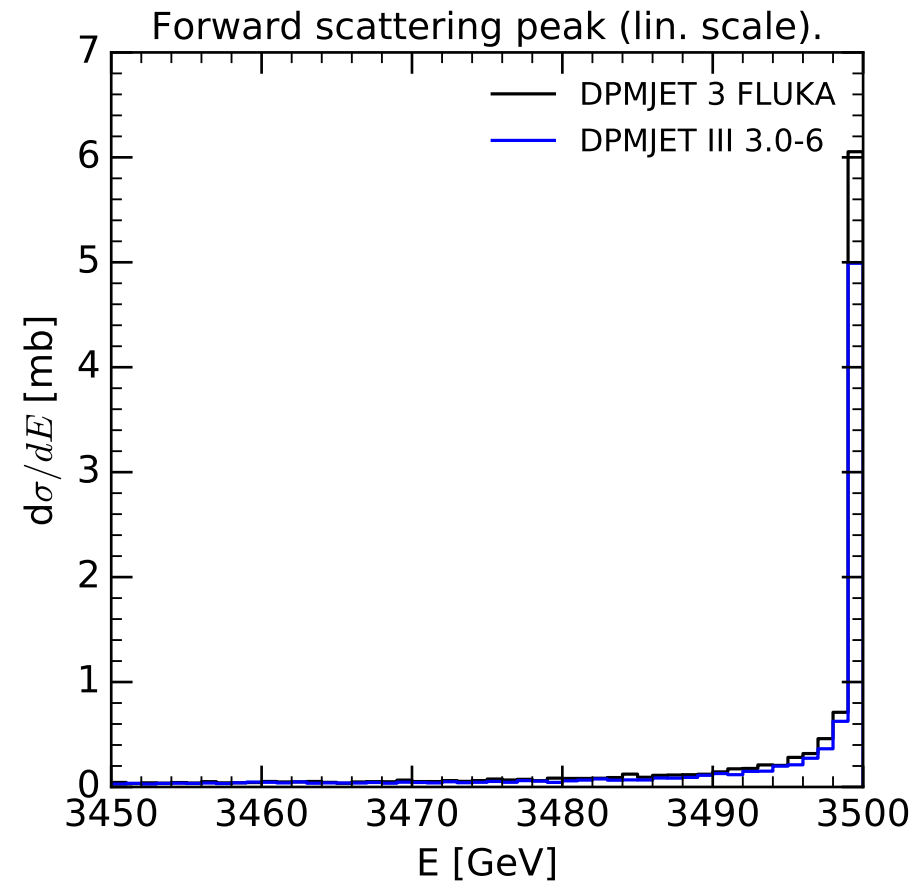
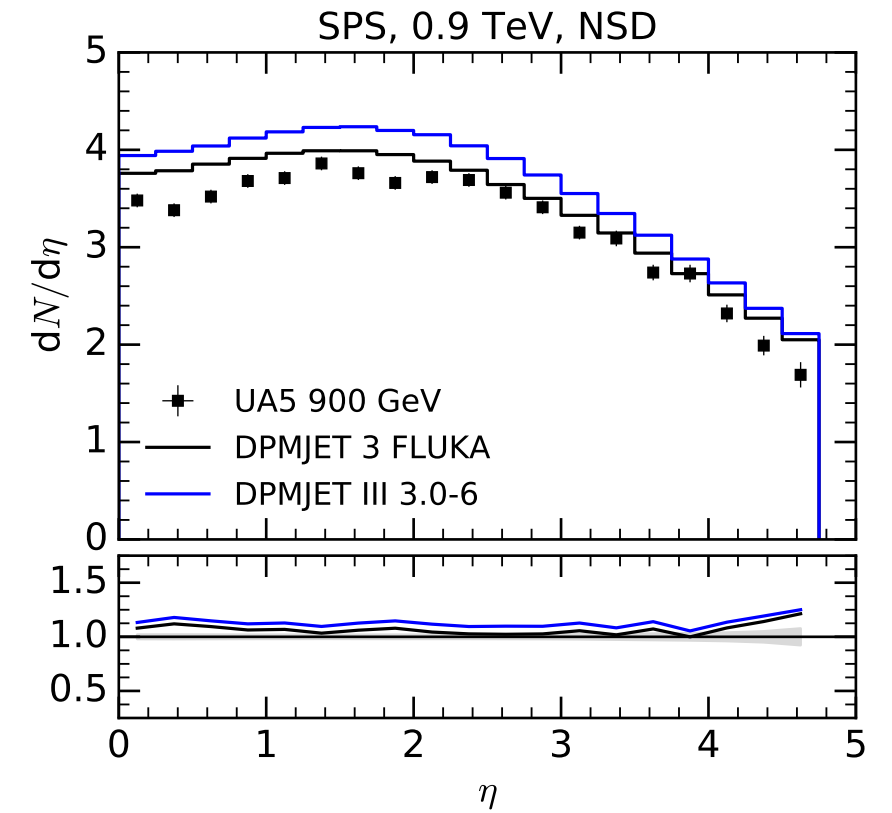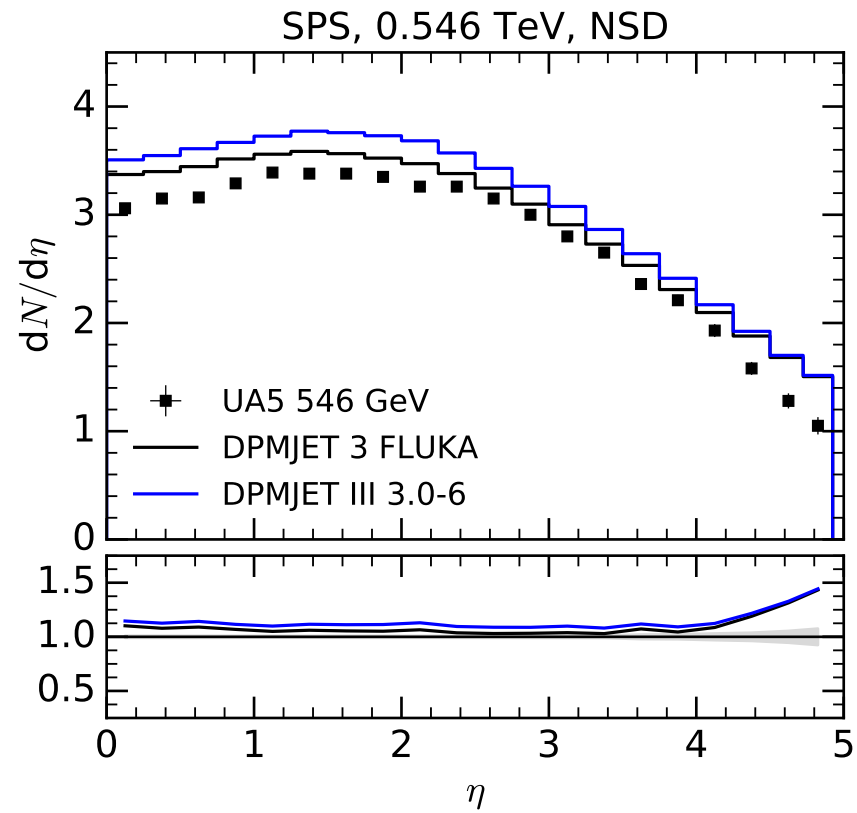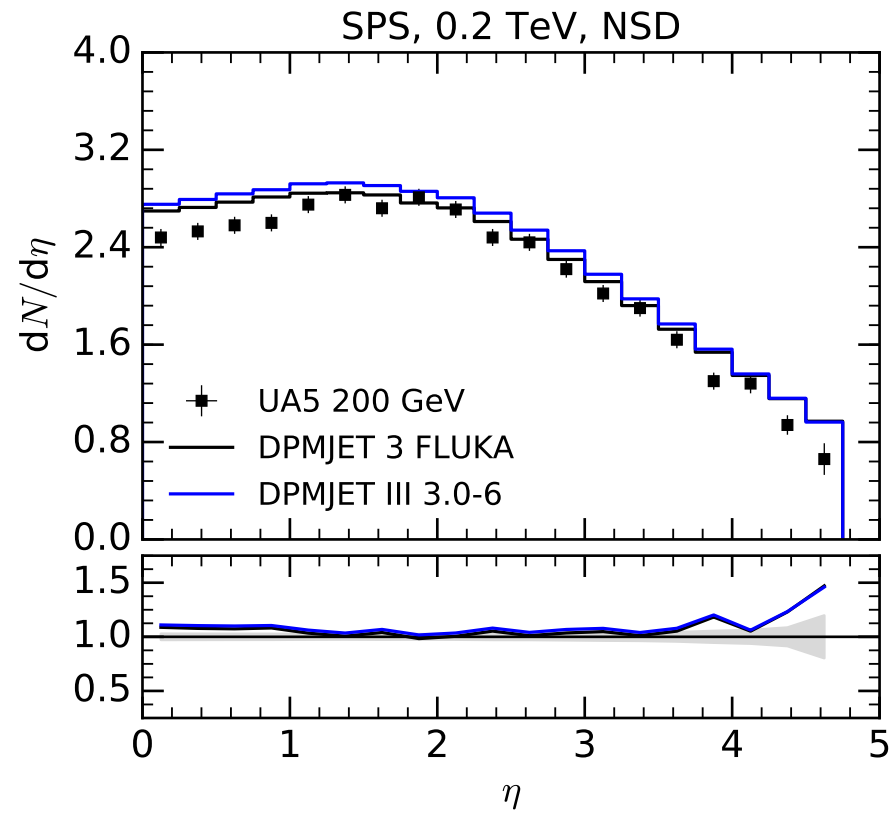# SPS: Minimum Bias

SPS - NSD multiplicity and η distributions.

SPS - NSD Invariant crossection in $|\eta| < 0.1$