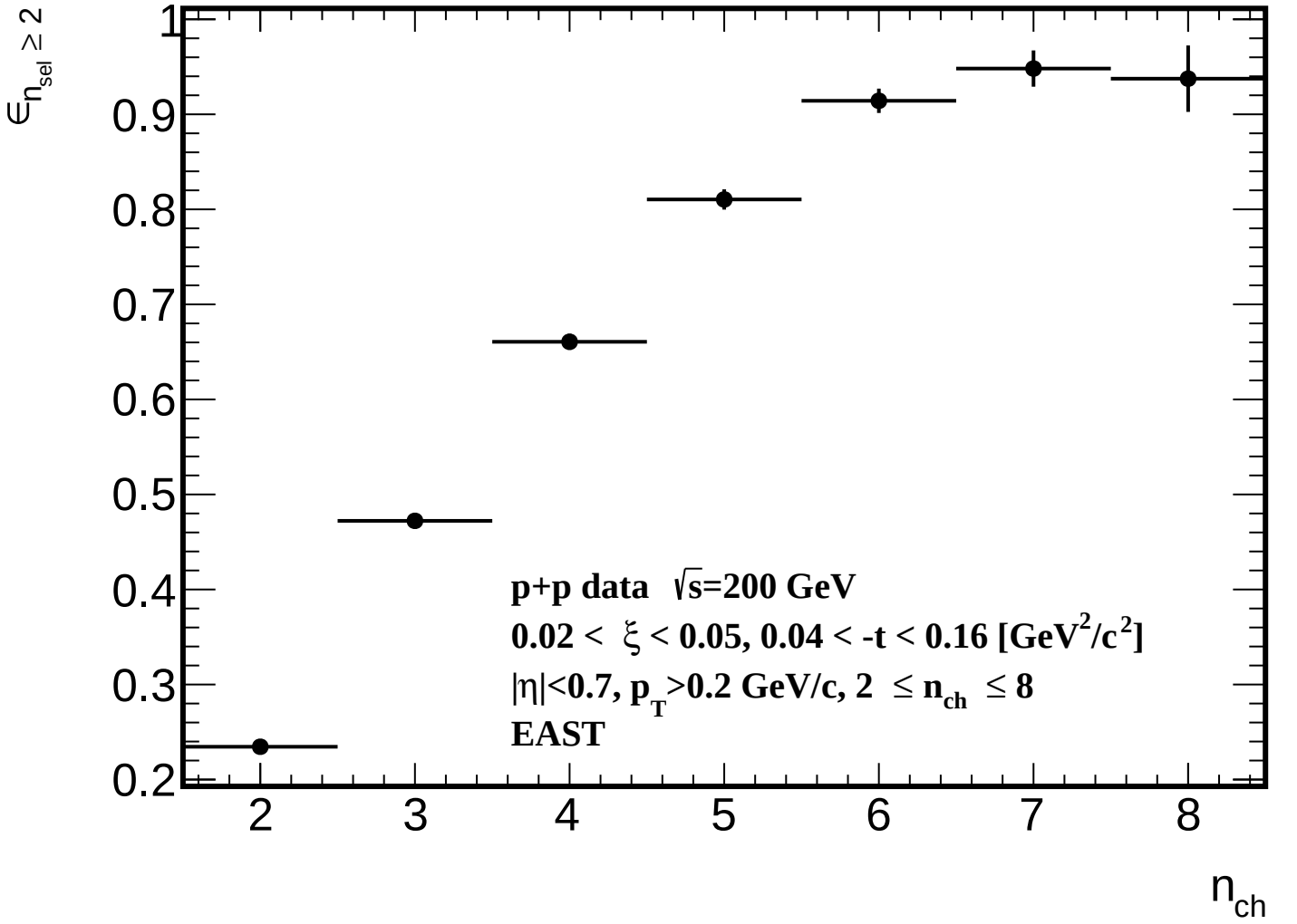
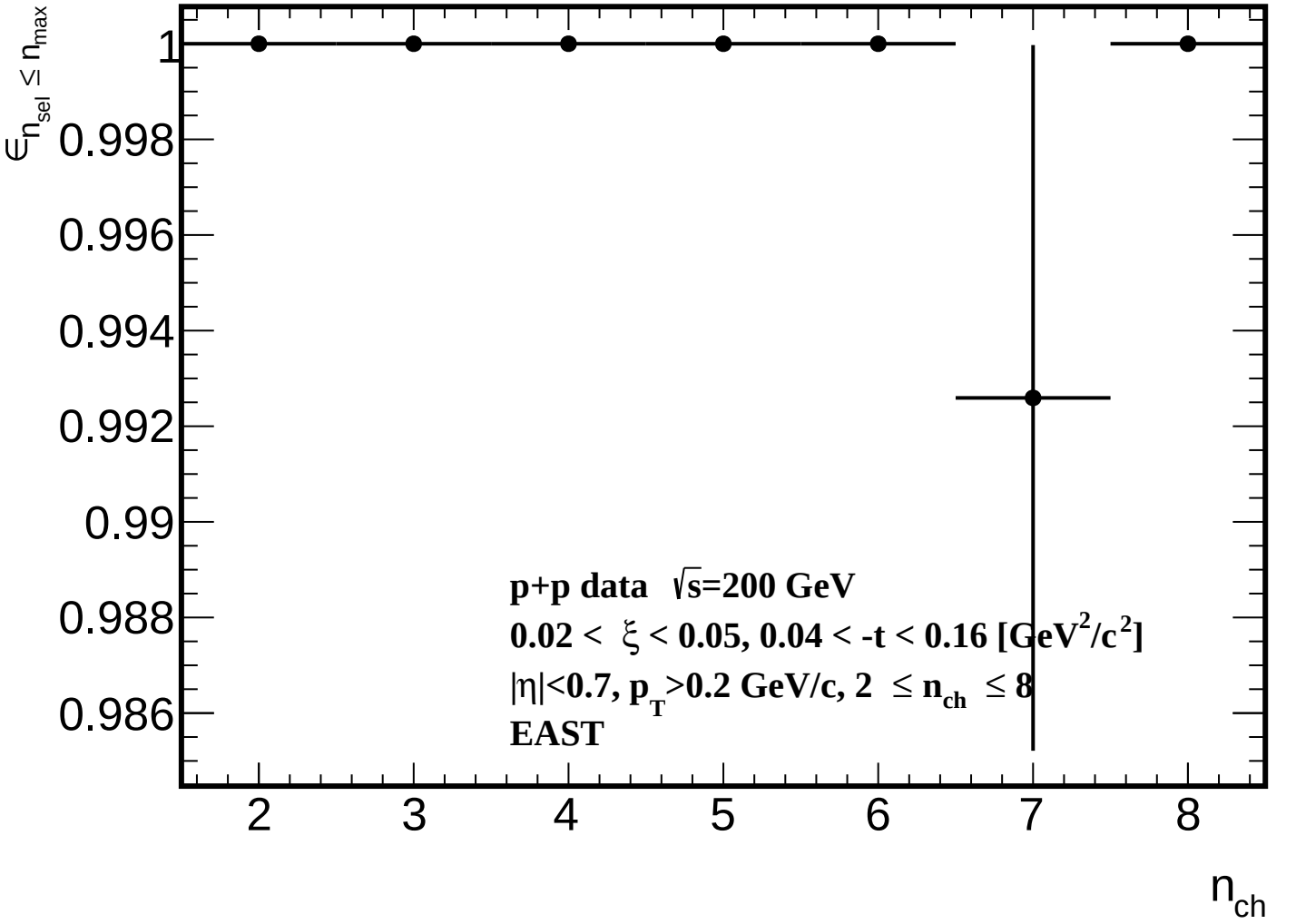
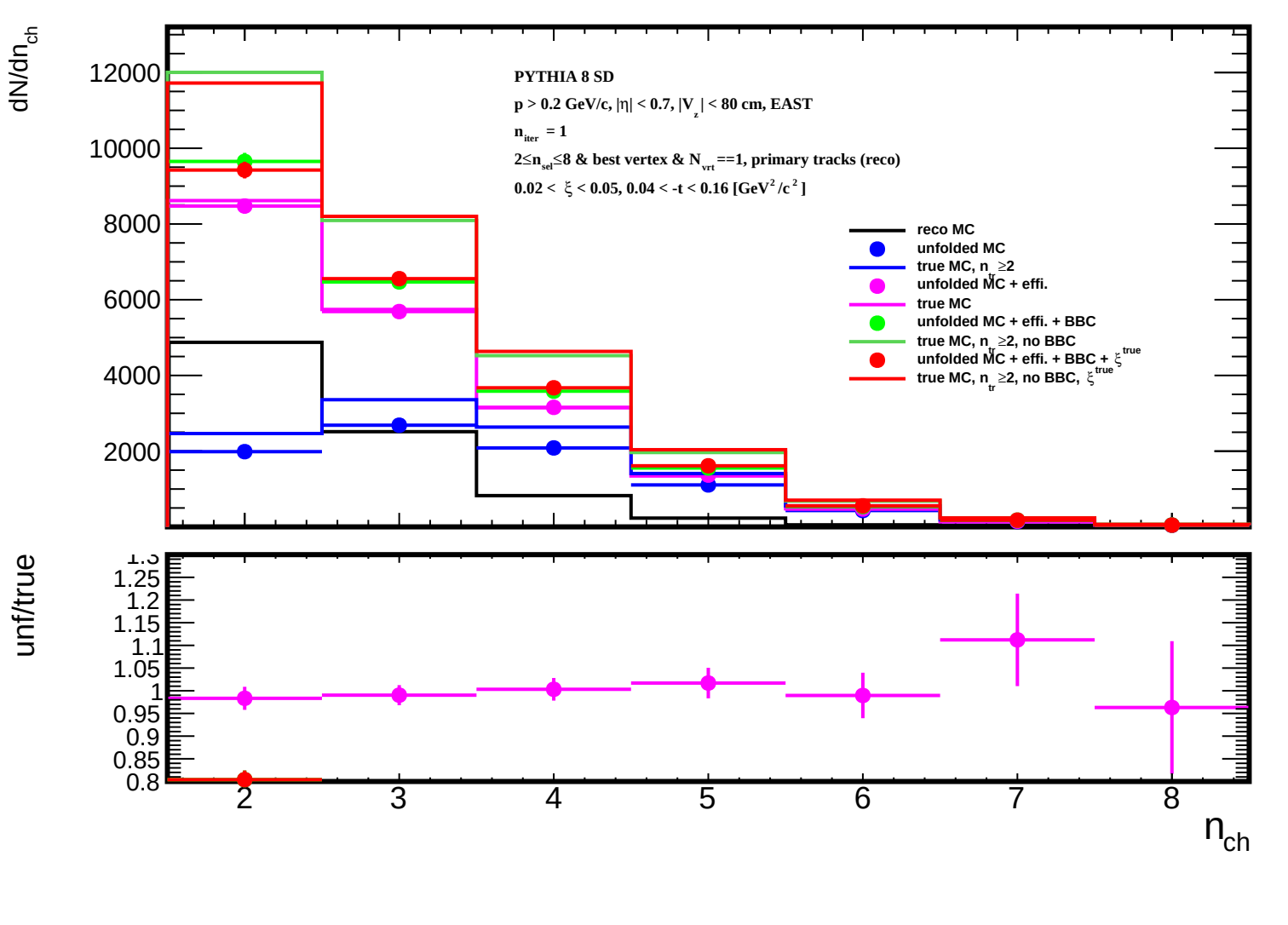
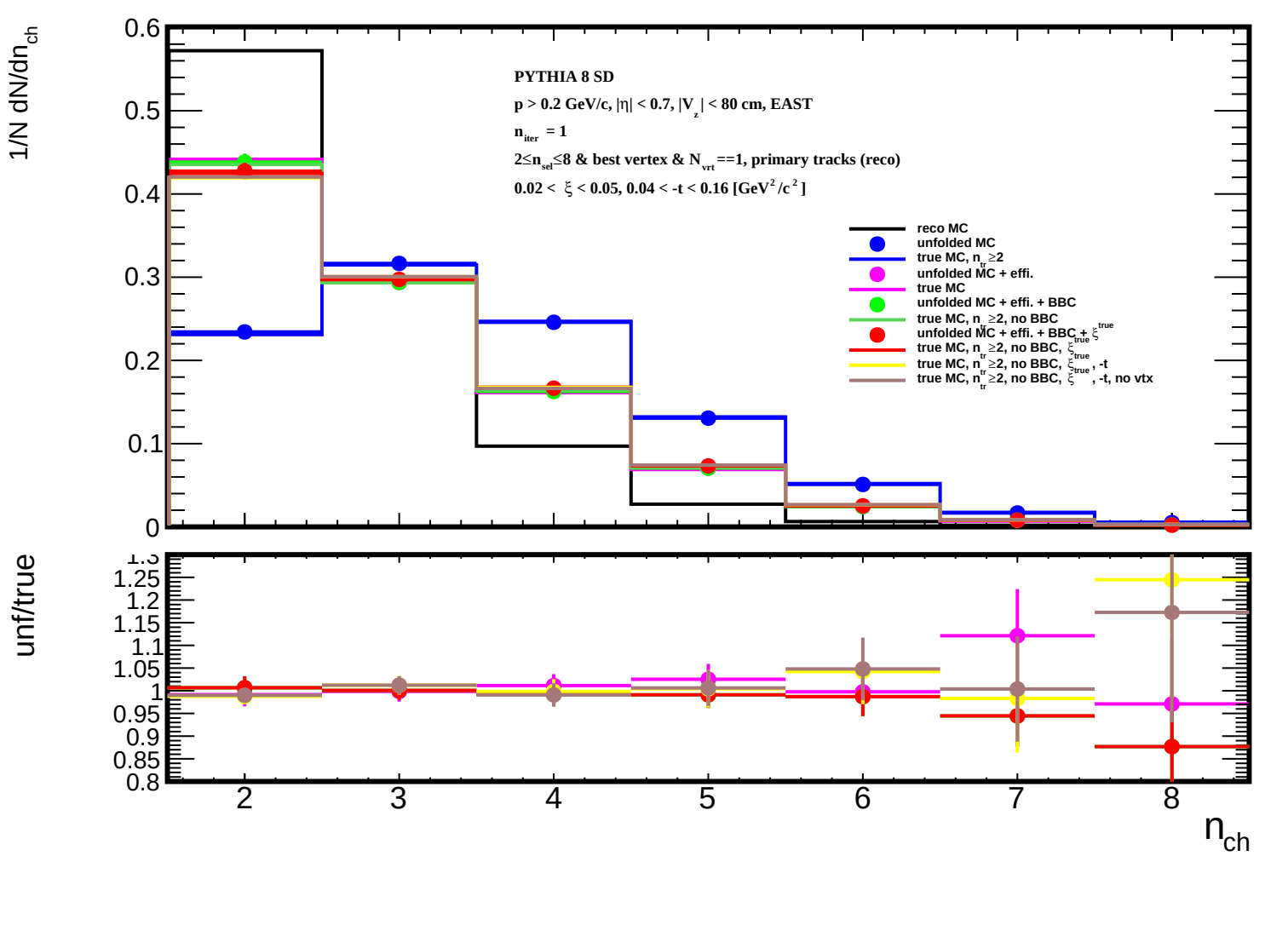
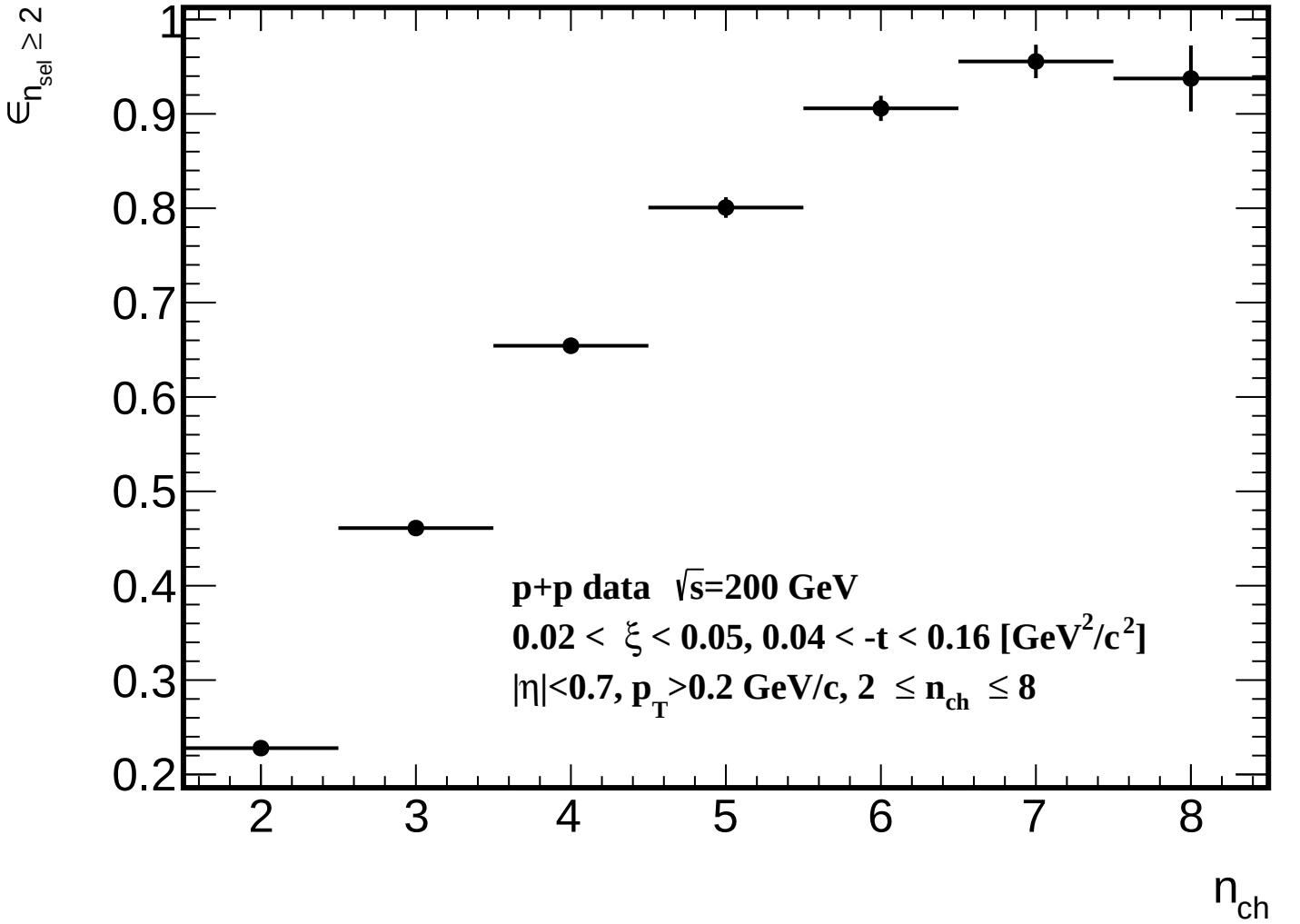
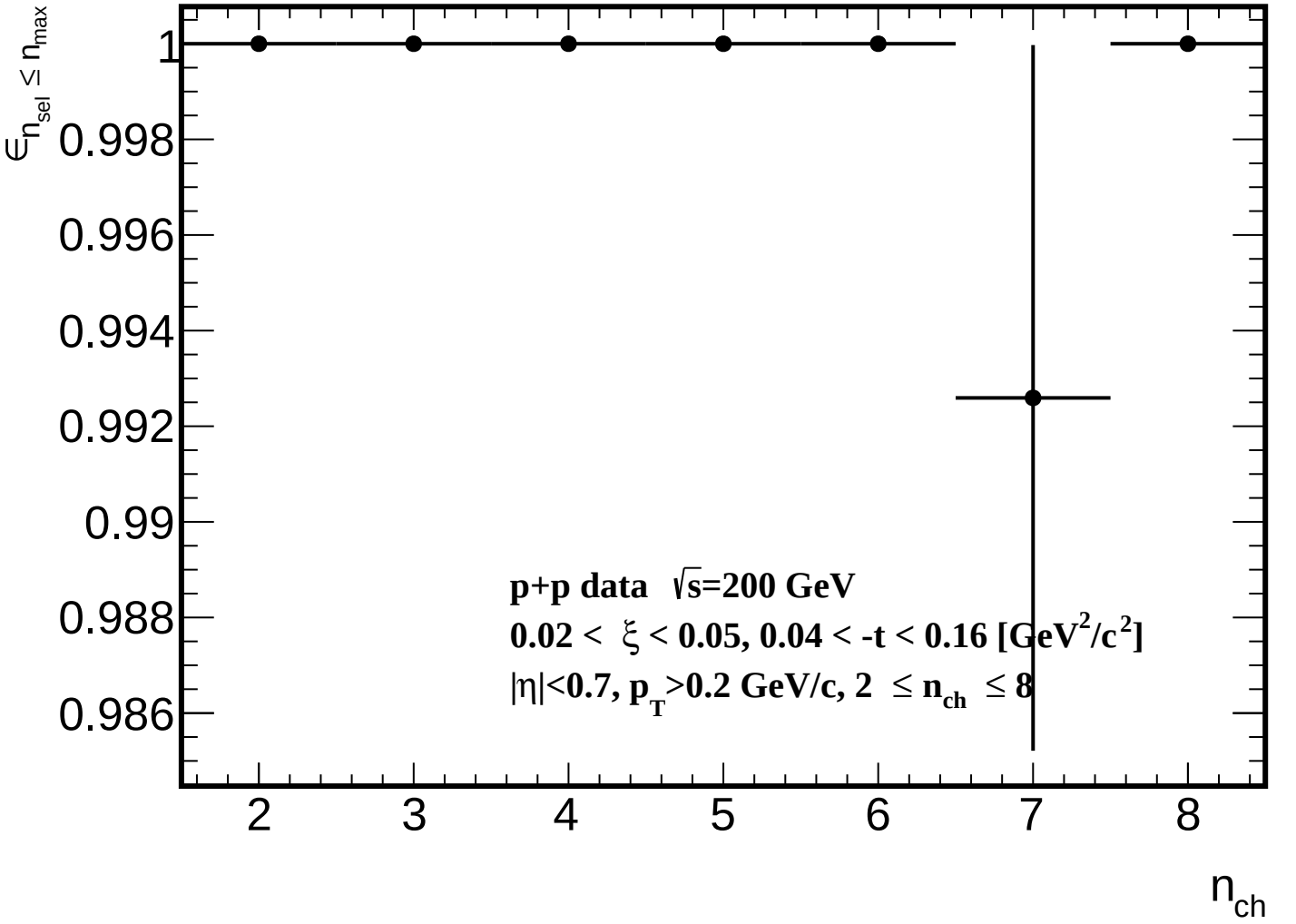

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

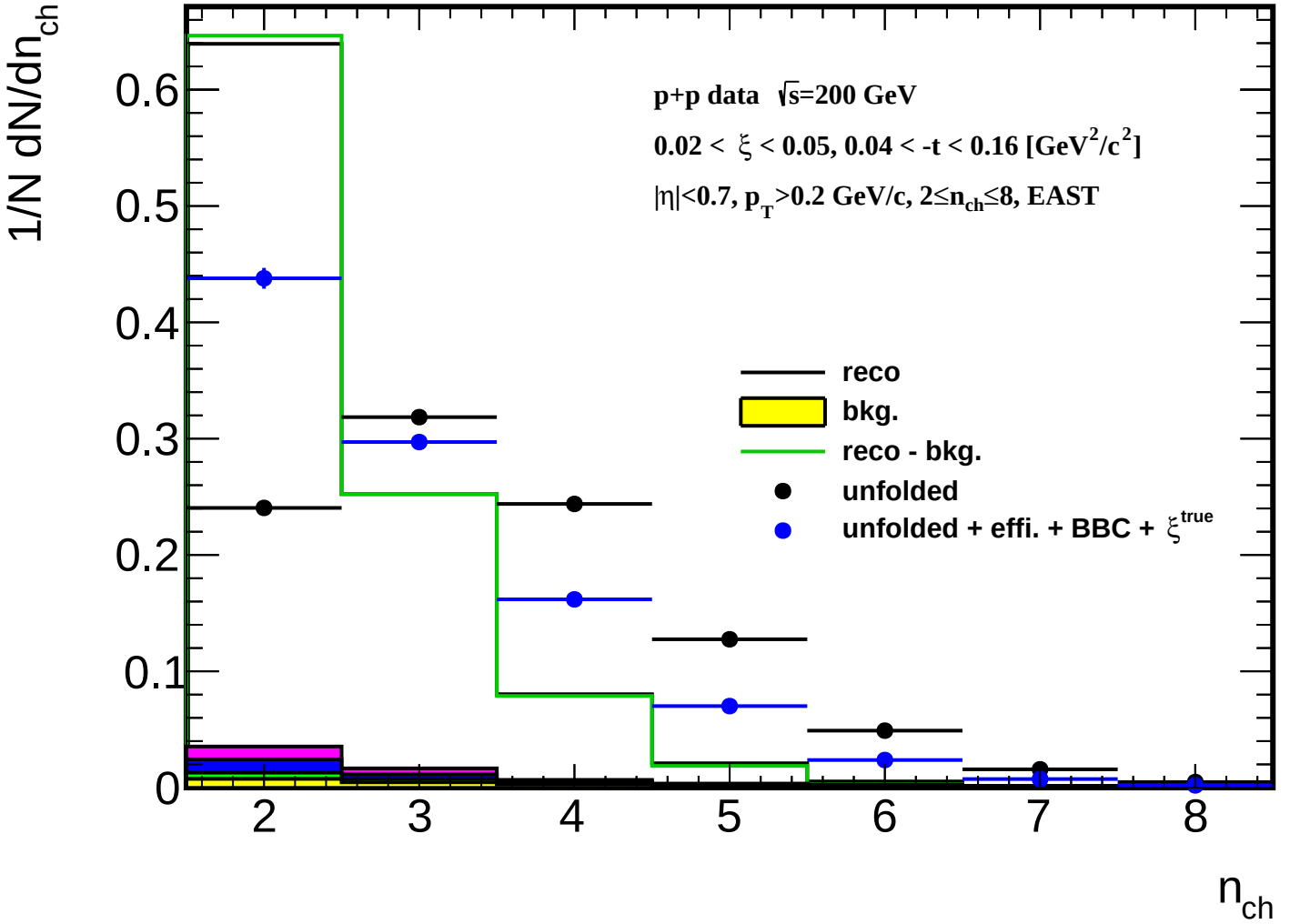

$\epsilon_{n_{sel} \le n_{max}}$
1
0.998
0.996
0.994
0.992
0.99
0.988
0.986
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

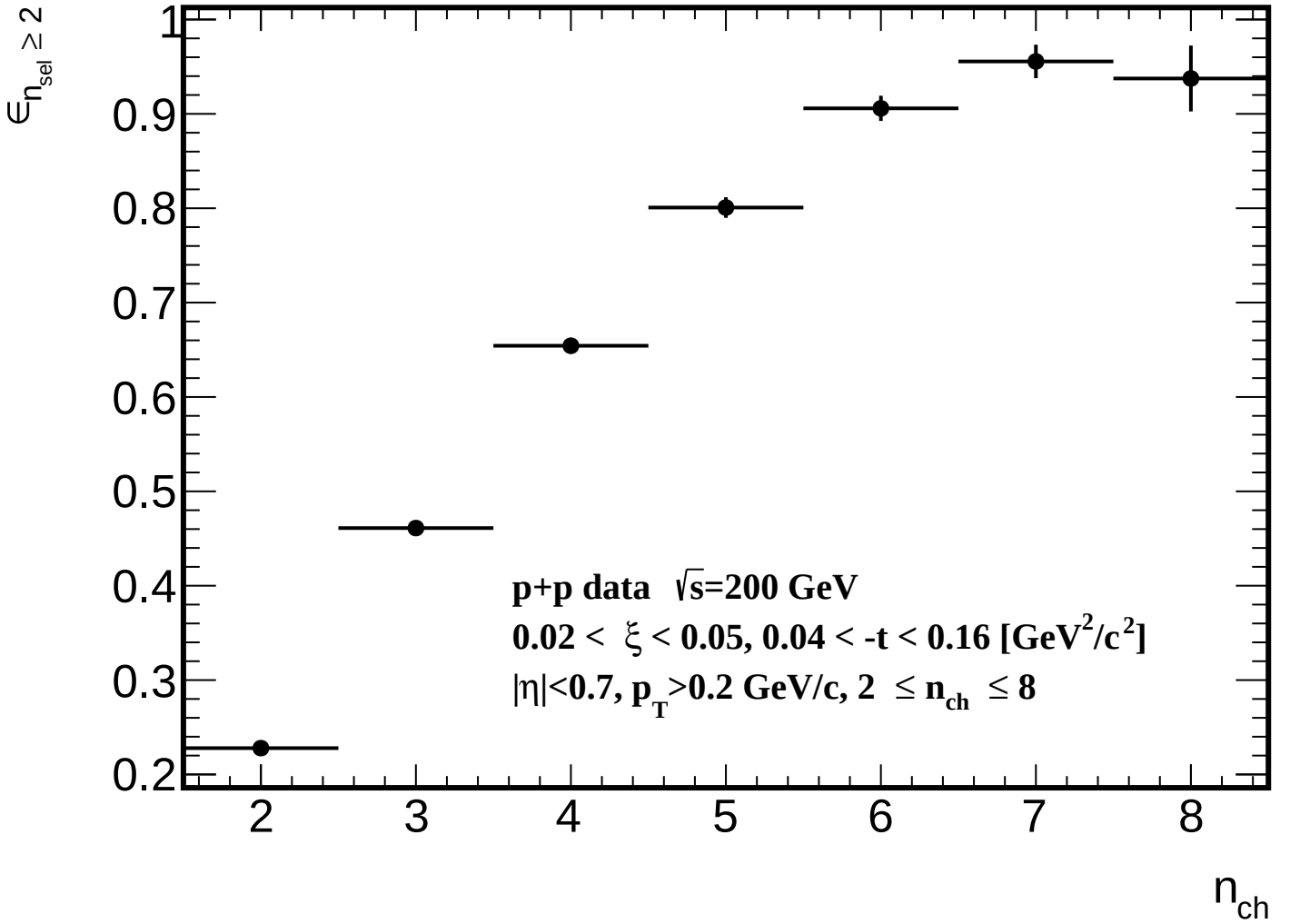

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

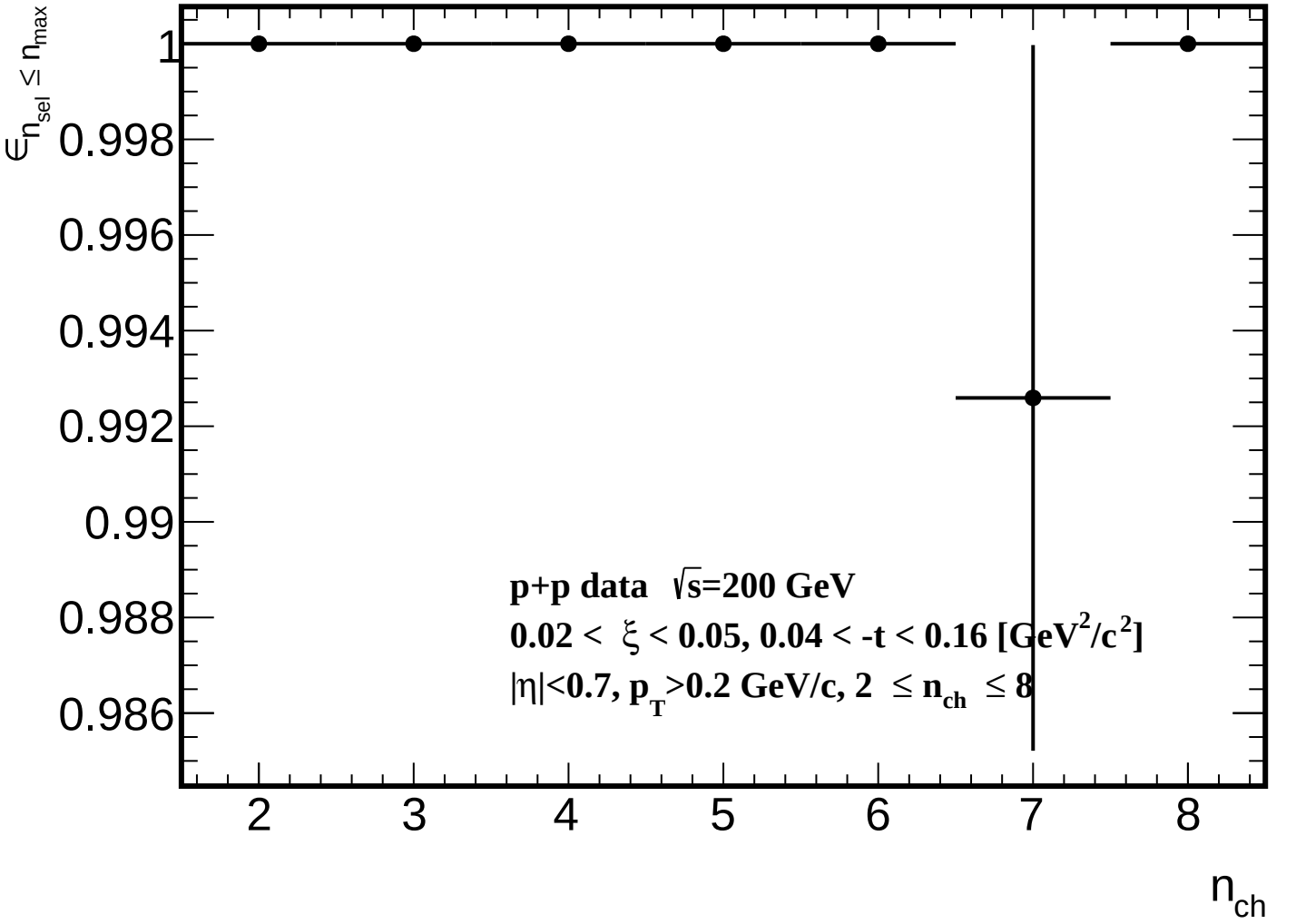

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ_true
true MC, n_tr ≥2, no BBC, ξ_true, -t
true MC, n_tr ≥2, no BBC, ξ_true, -t, no vtx
unf/true
n_ch

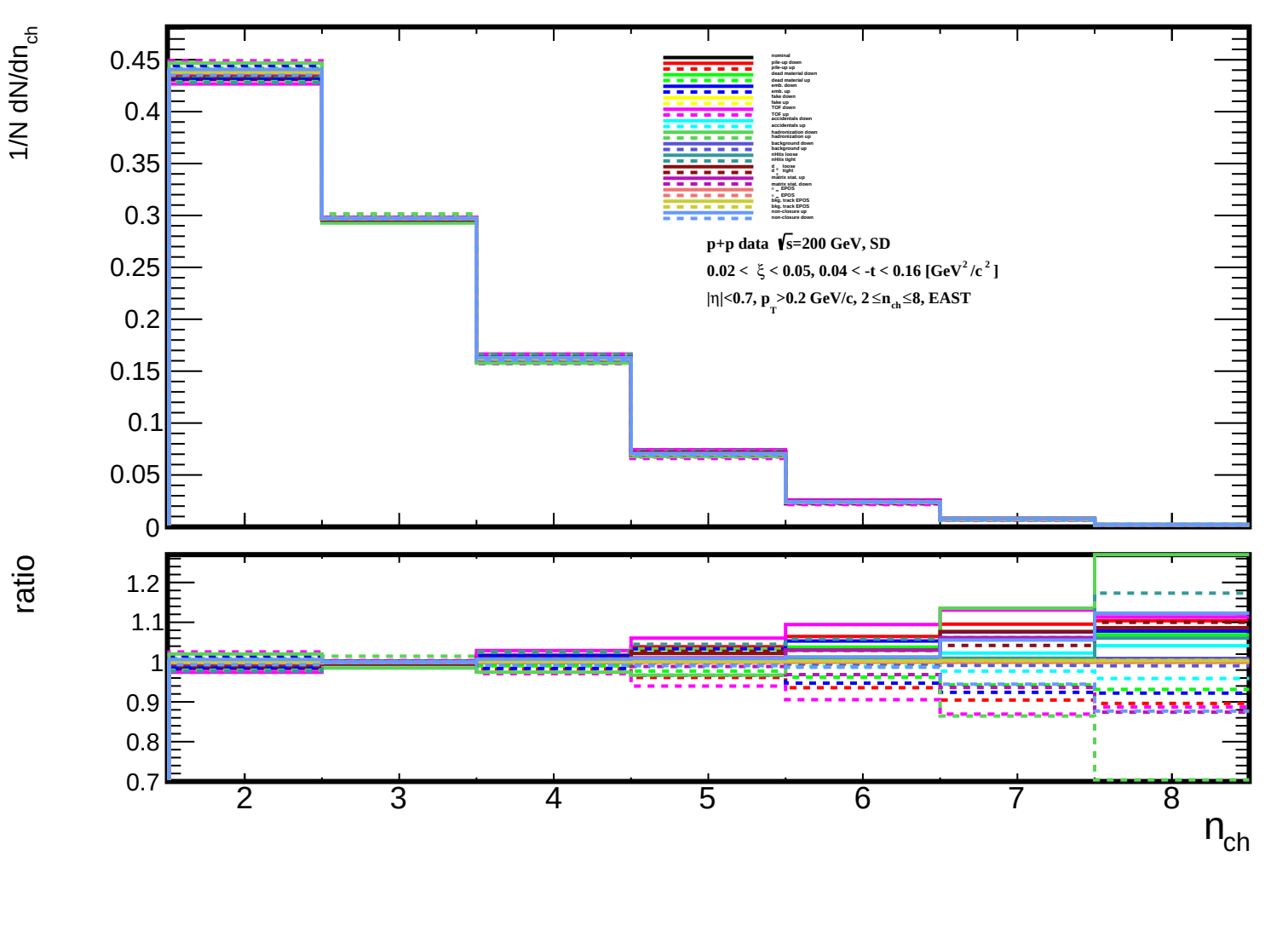

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

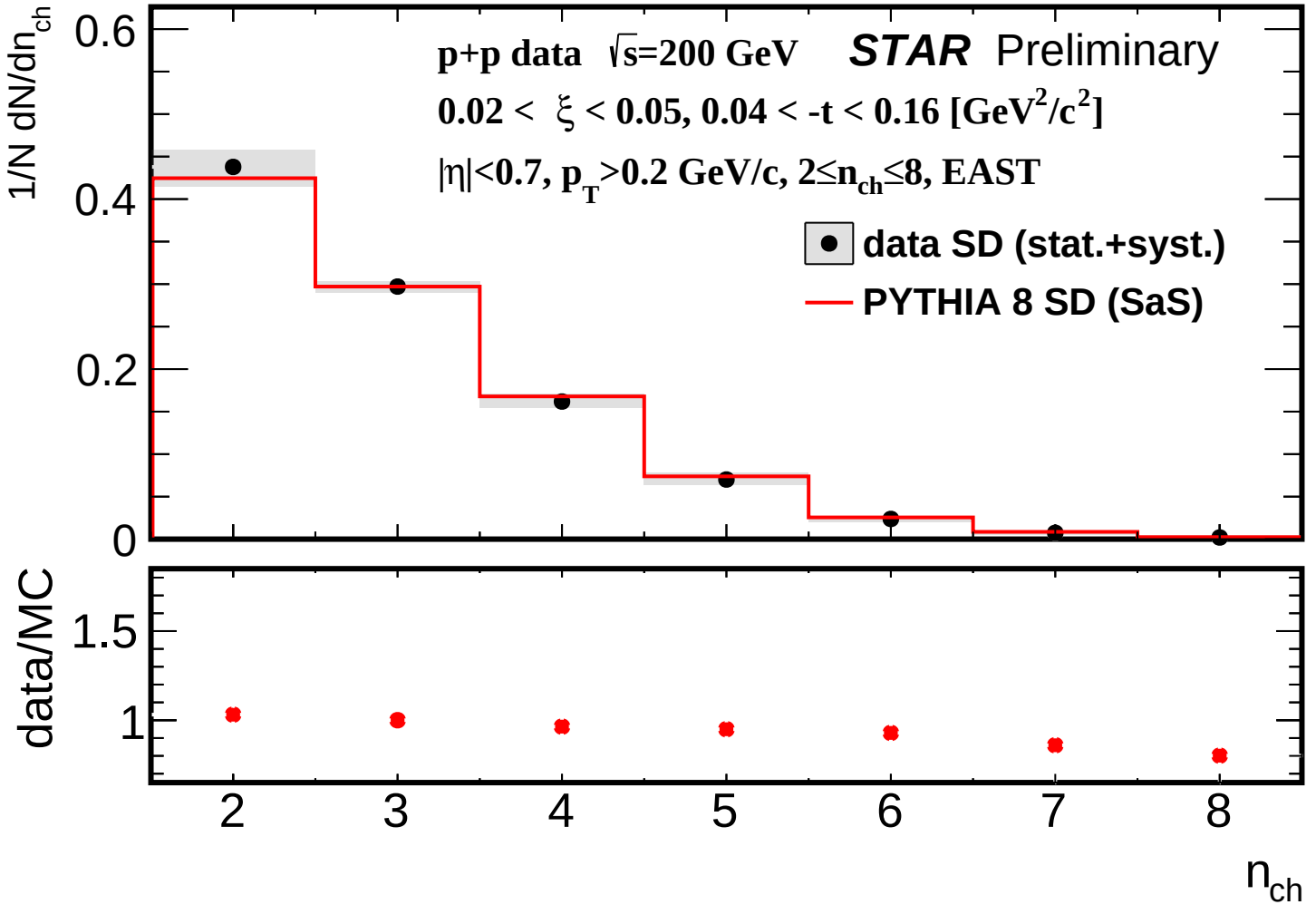

$\epsilon_{n_{sel} \le n_{max}}$
1
0.998
0.996
0.994
0.992
0.99
0.988
0.986
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

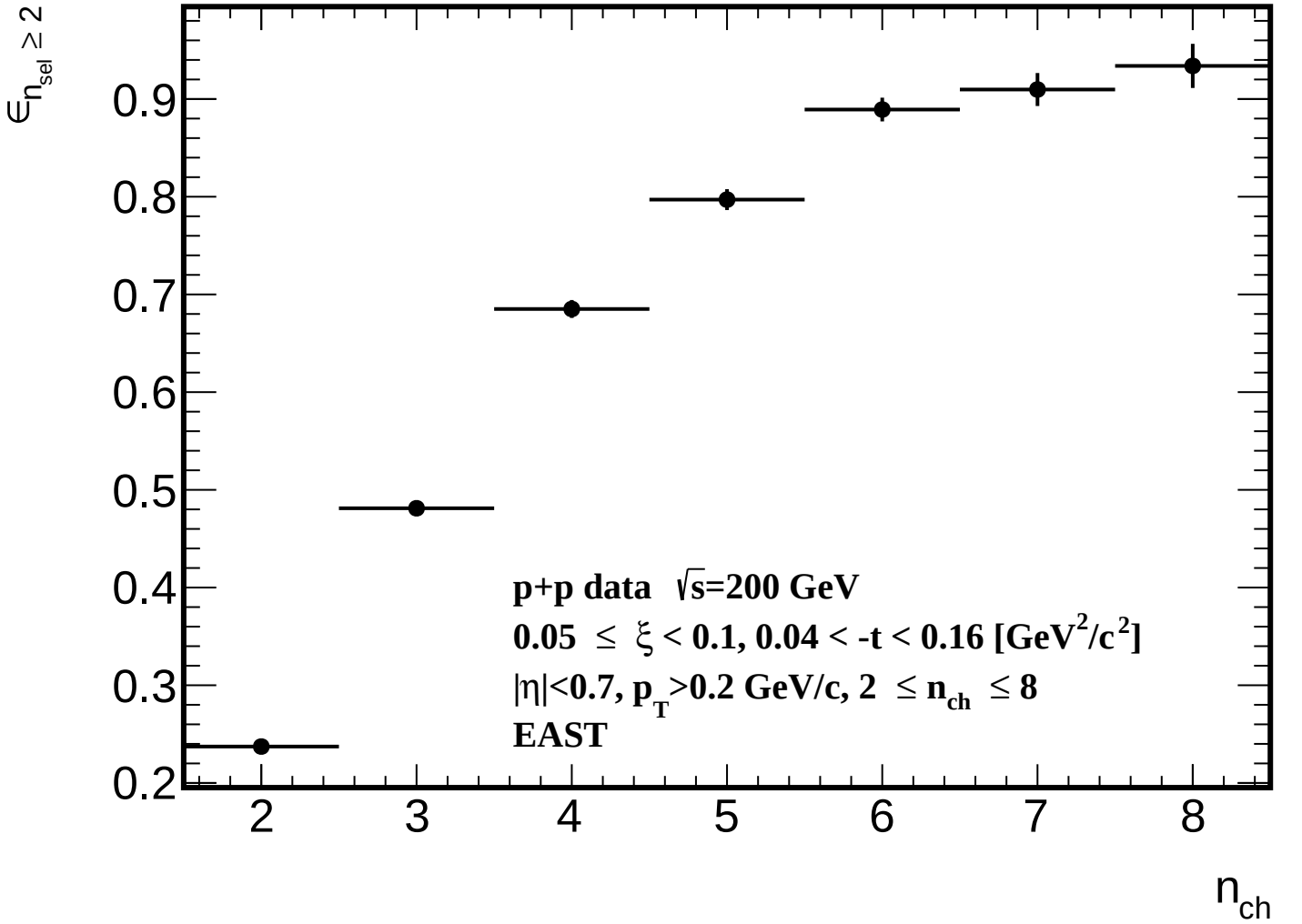

1/N dN/dn_ch
0.6
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

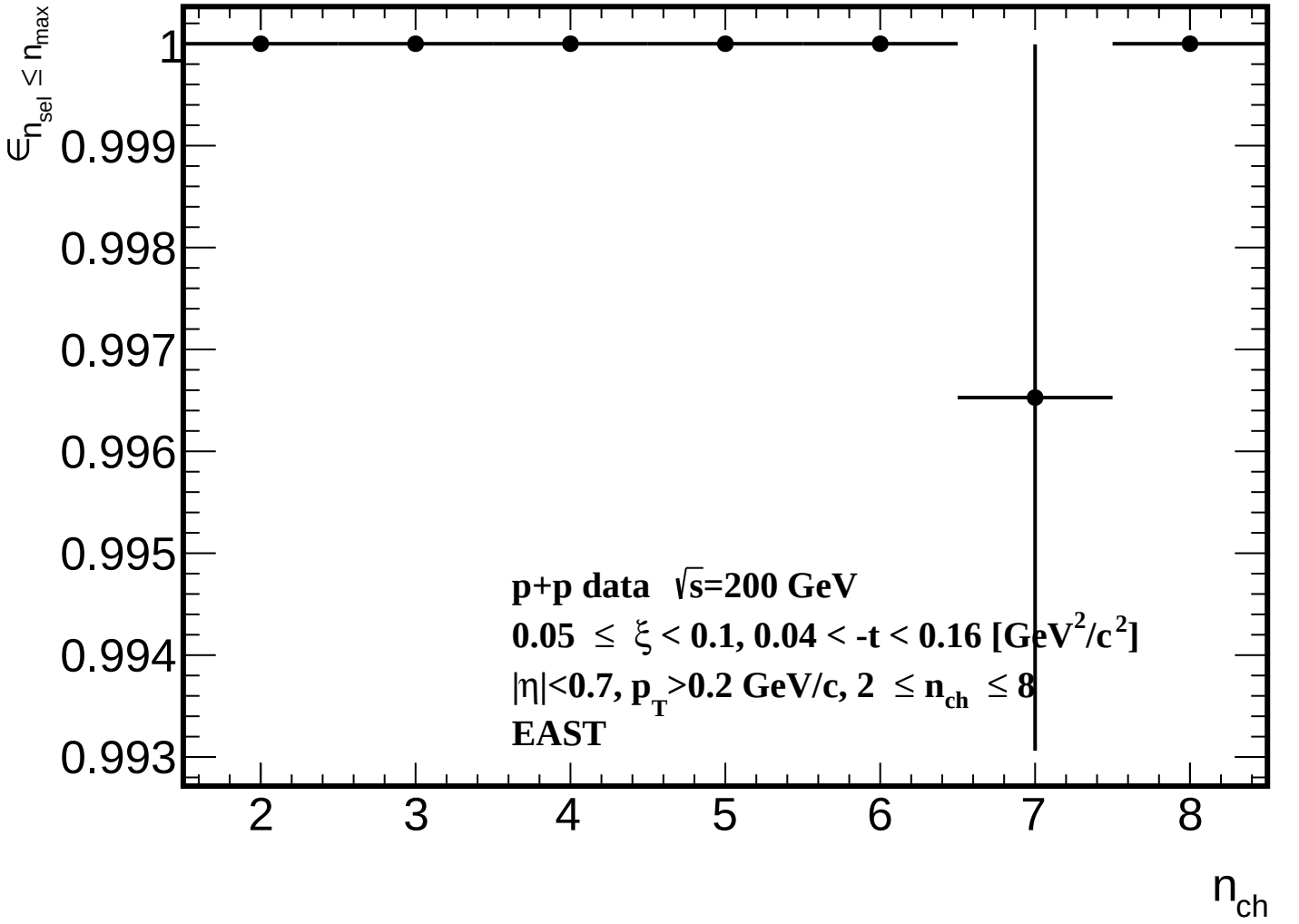

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

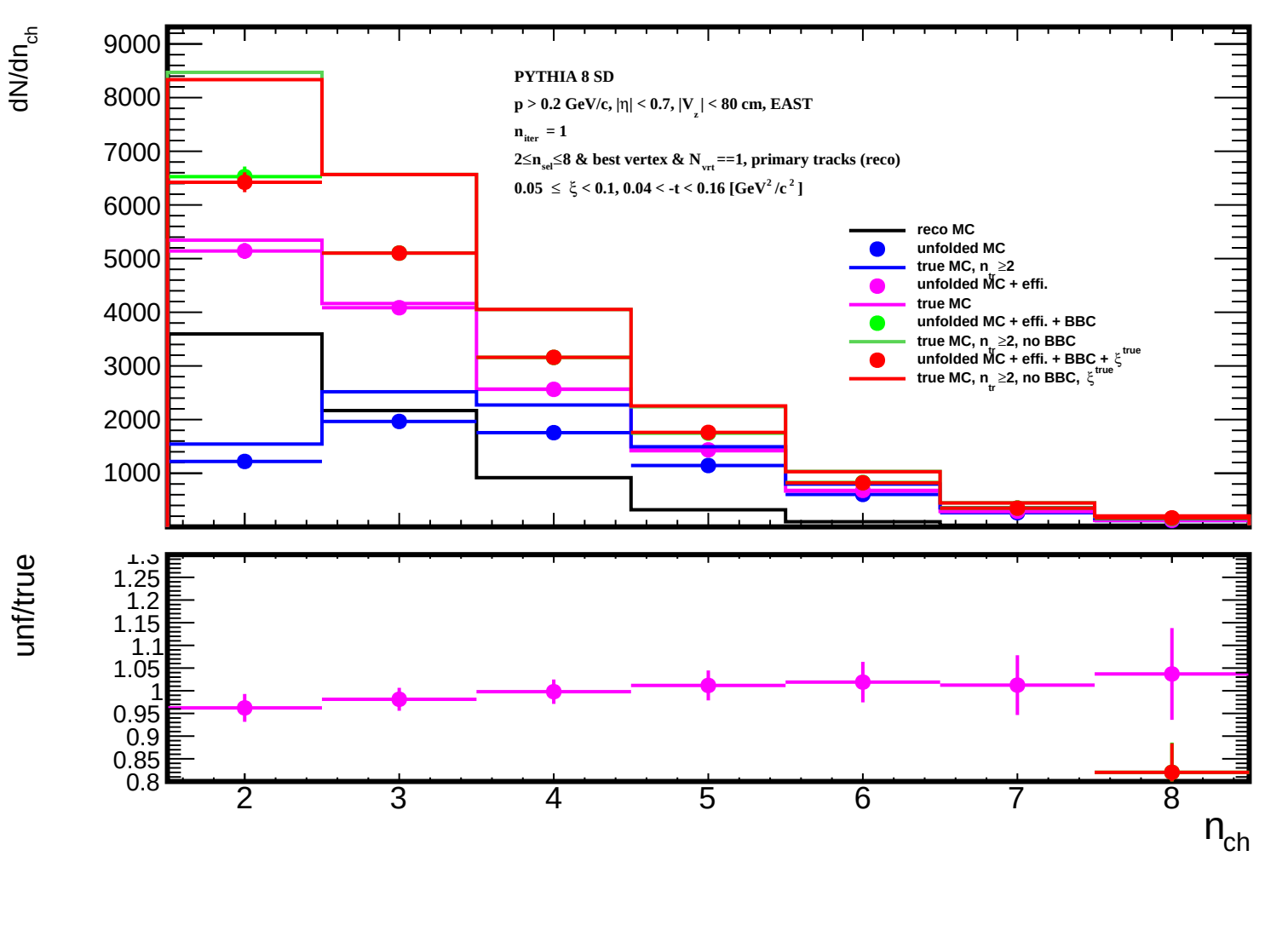

$\epsilon_{n_{sel} \le n_{max}}$
1
0.998
0.996
0.994
0.992
0.99
0.988
0.986
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

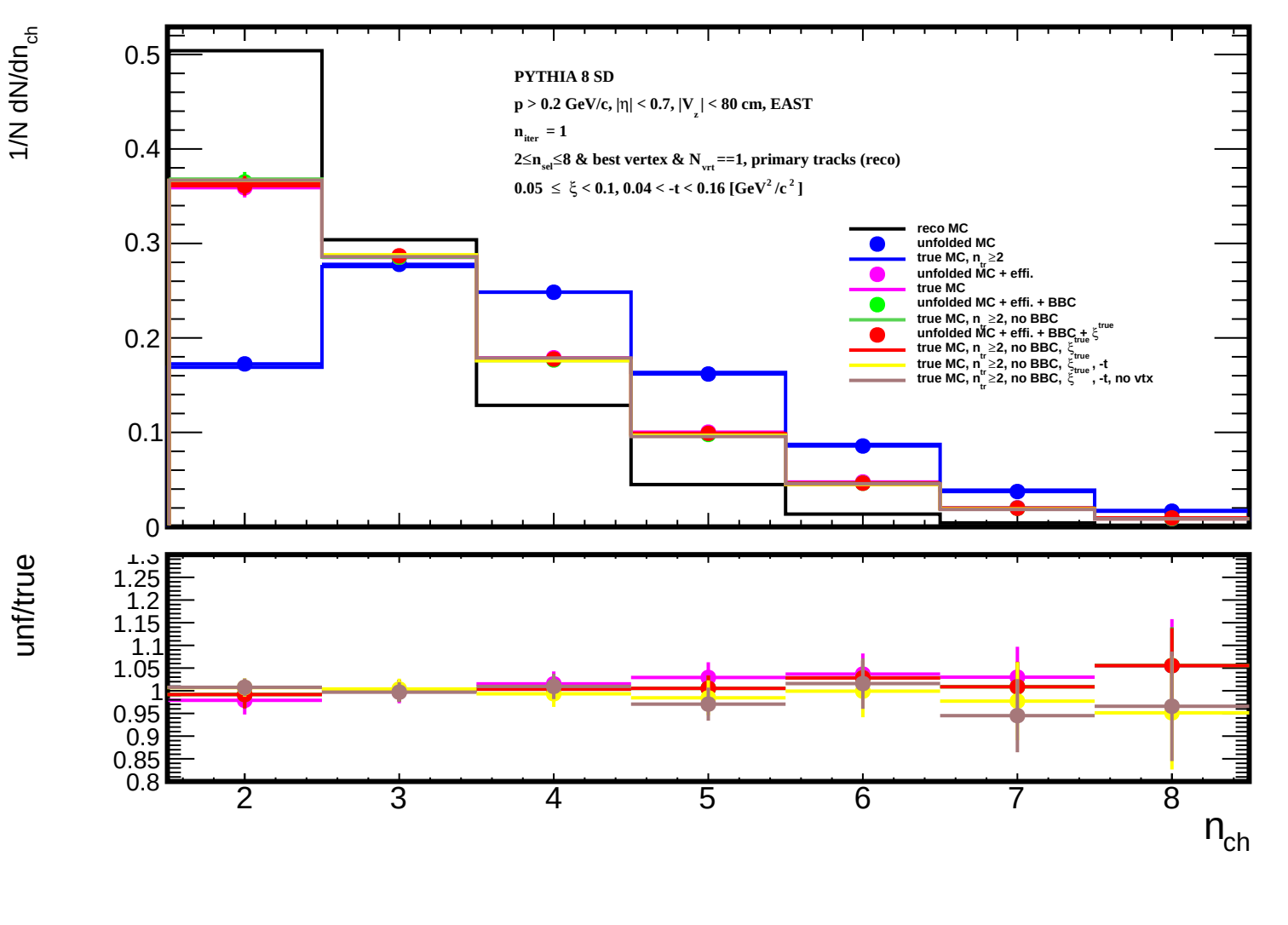

1/N dN/dn_ch
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals simple down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
d_0 loose
d_0 tight
matrix stat. up
matrix stat. down
π_+ EPOS
π_- EPOS
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down
p+p data √s=200 GeV, SD
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
ratio
1.2
1.1
1
0.9
0.8
0.7
2
3
4
5
6
7
8
n_ch

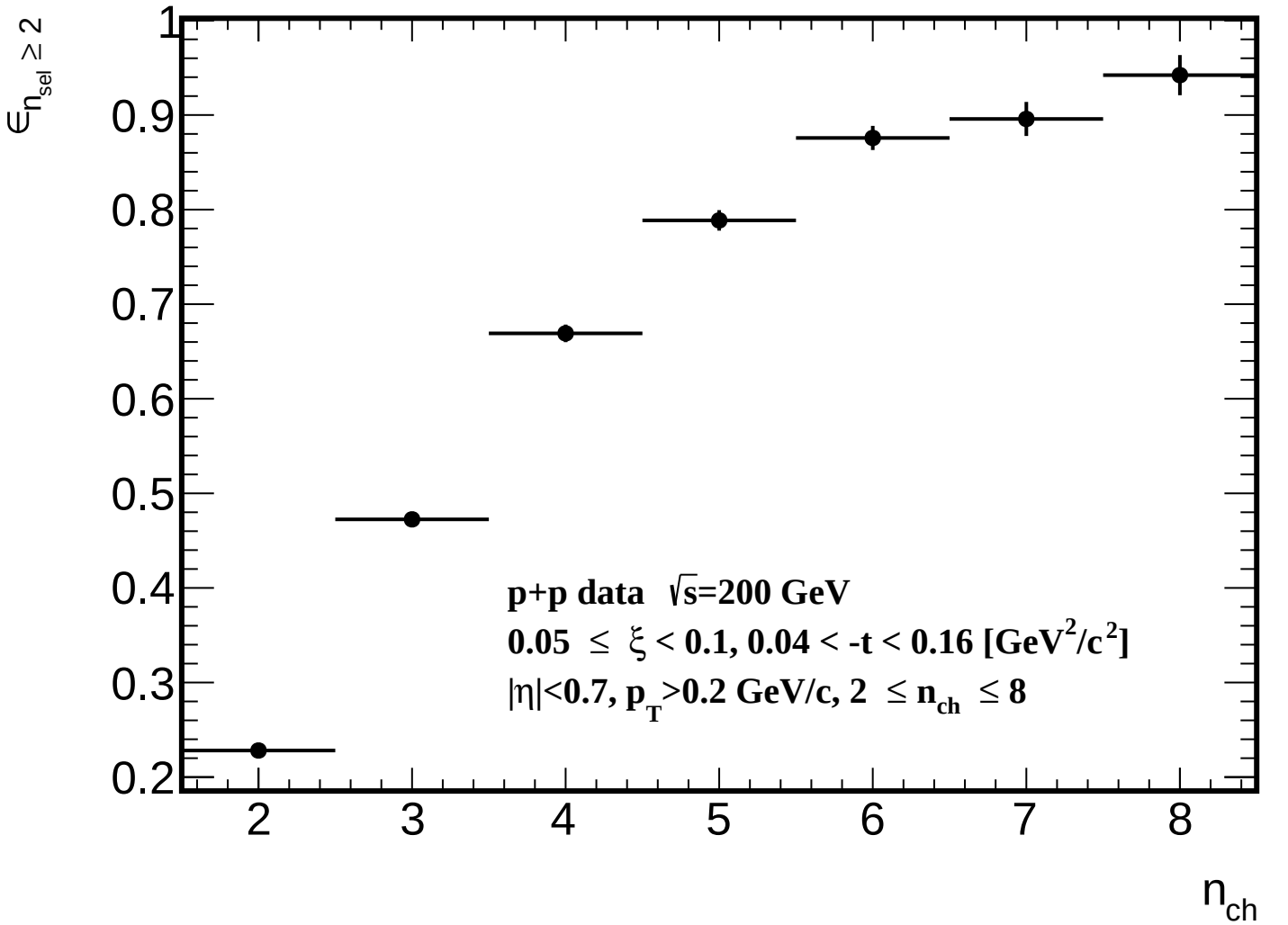

p+p data √s=200 GeV STAR Preliminary
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
data/MC
n_ch

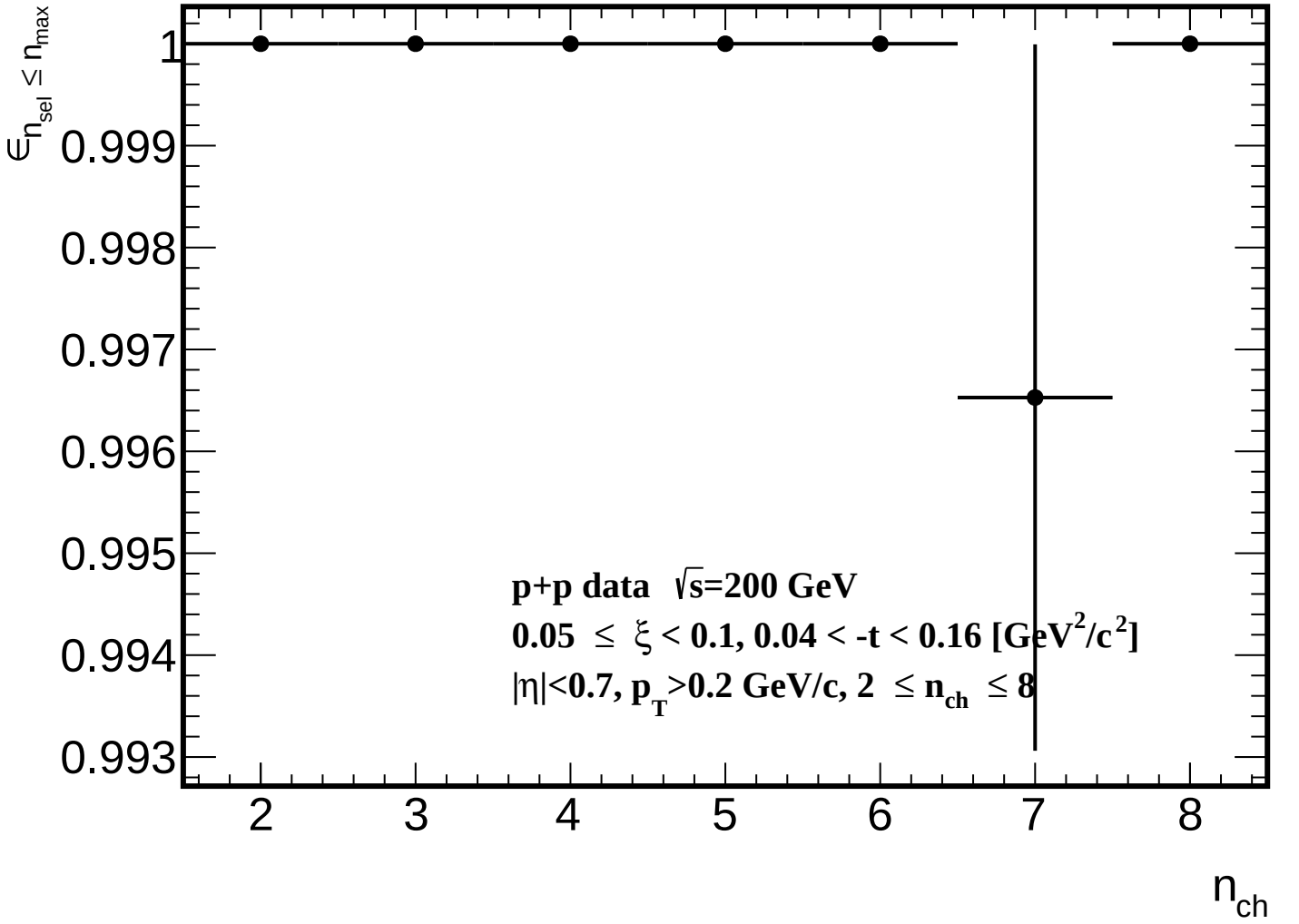

$\epsilon_{n_{sel} \geq 2}$
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

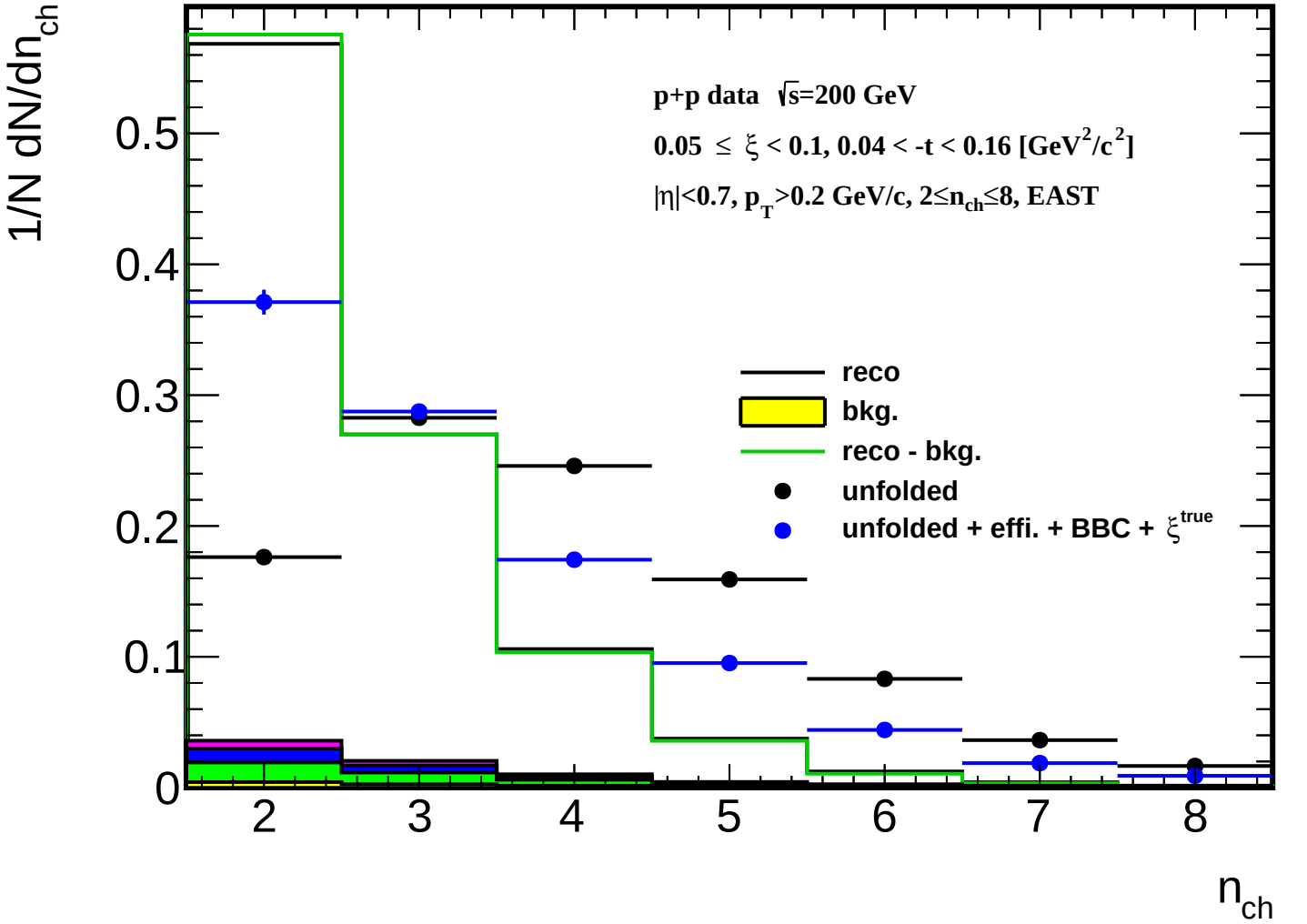

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

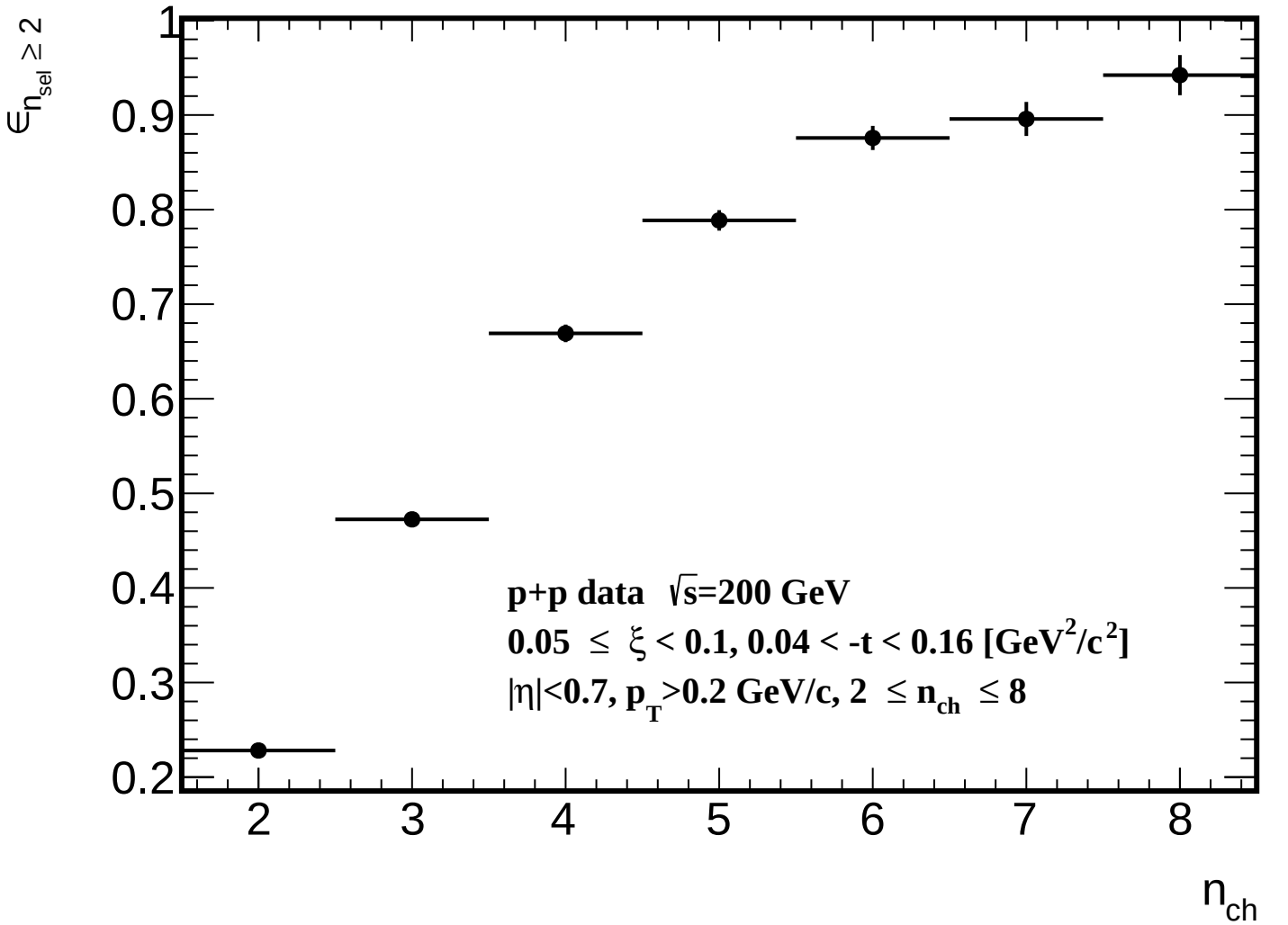

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

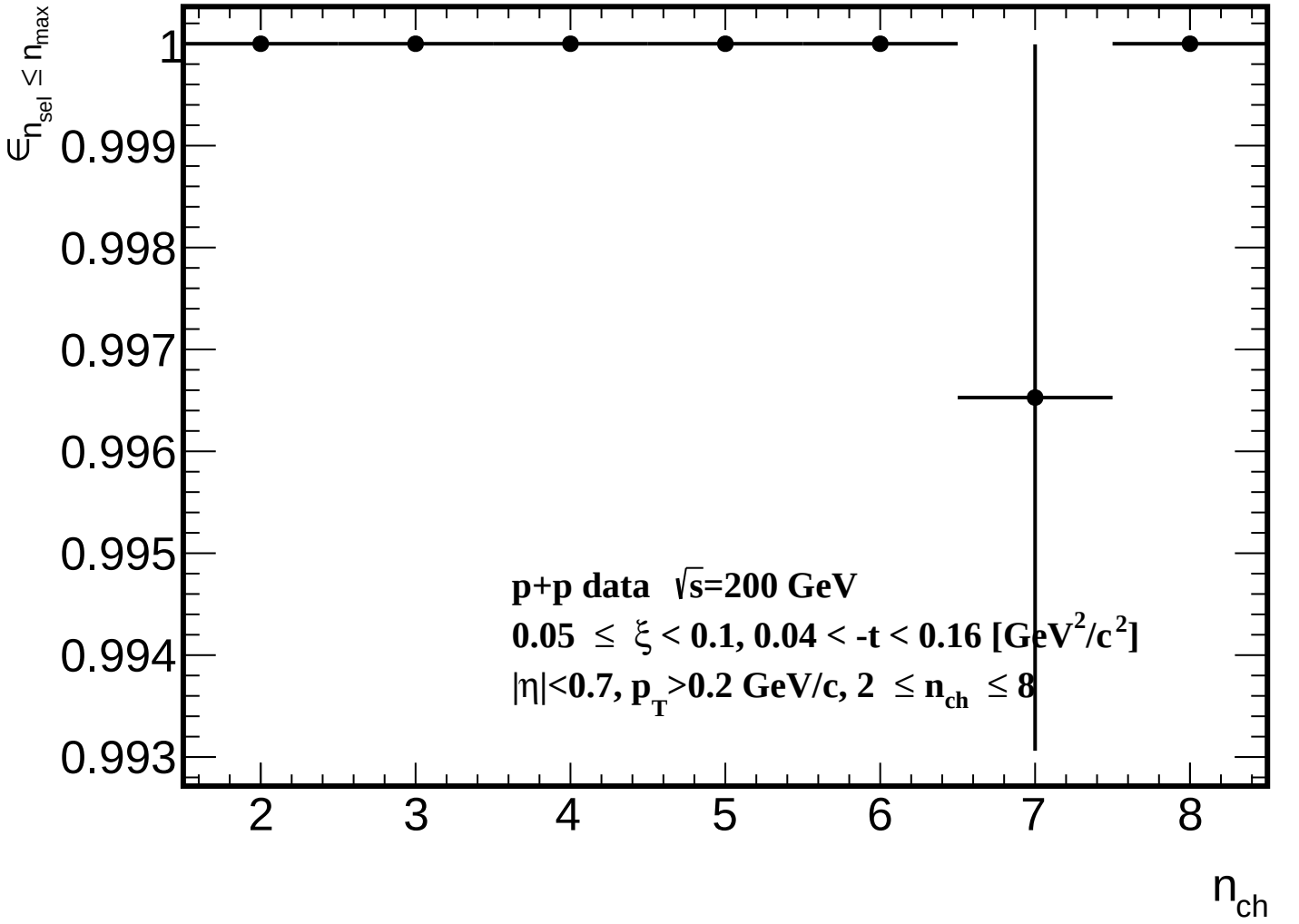

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ_true
true MC, n_tr ≥2, no BBC, ξ_true, -t
true MC, n_tr ≥2, no BBC, ξ_true, -t, no vtx
unf/true
n_ch

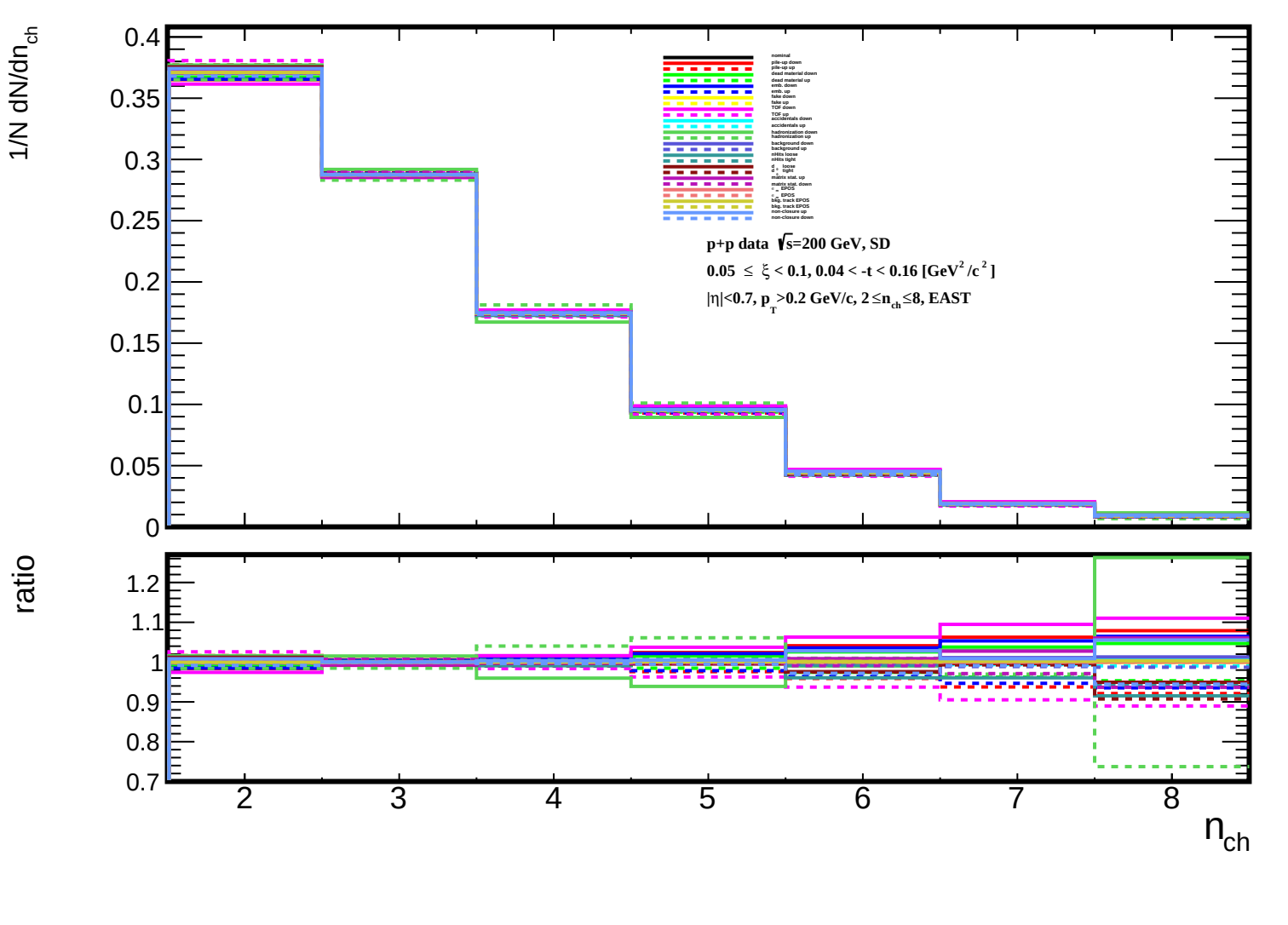

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

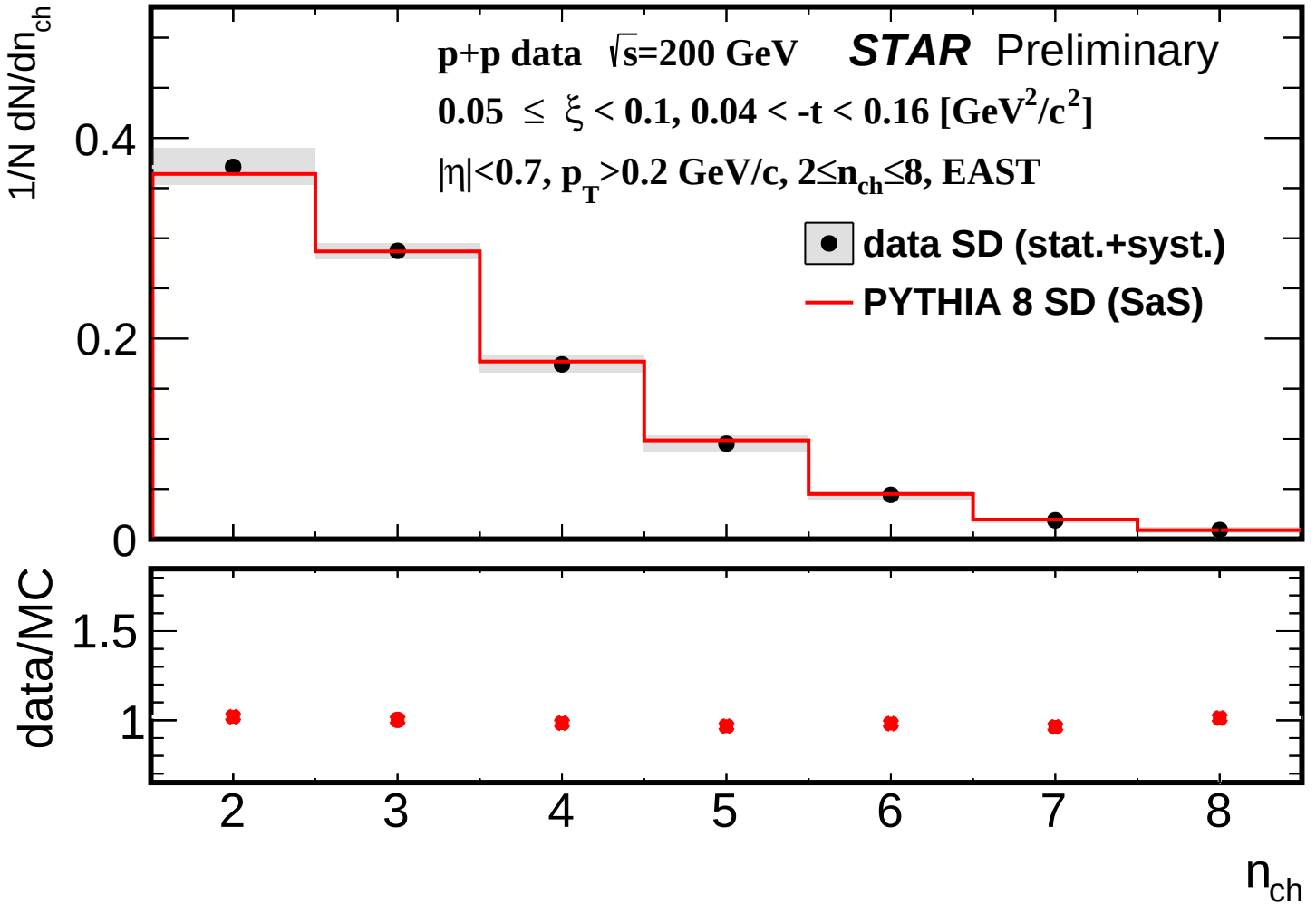

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

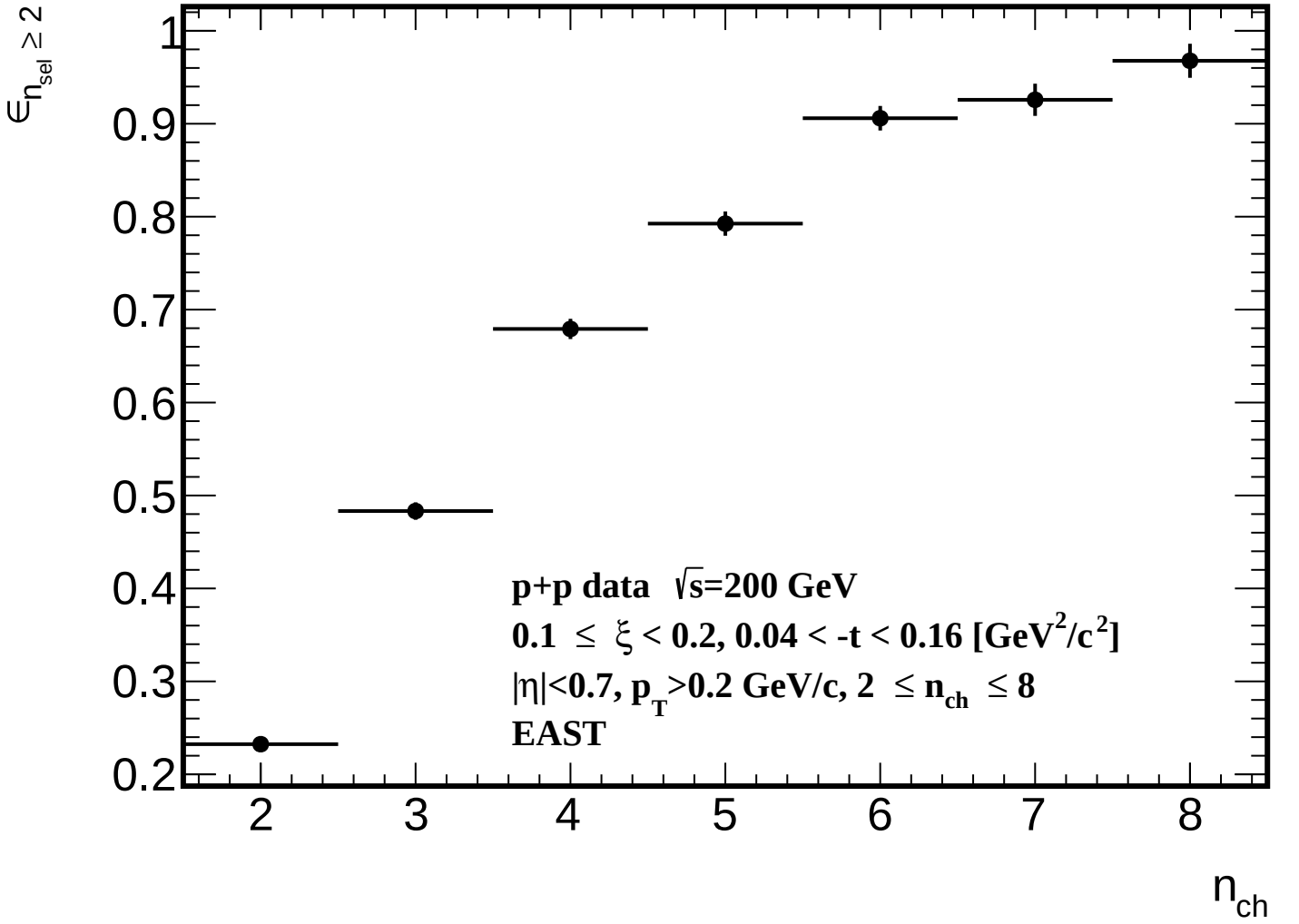

1/N dN/dn_ch
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

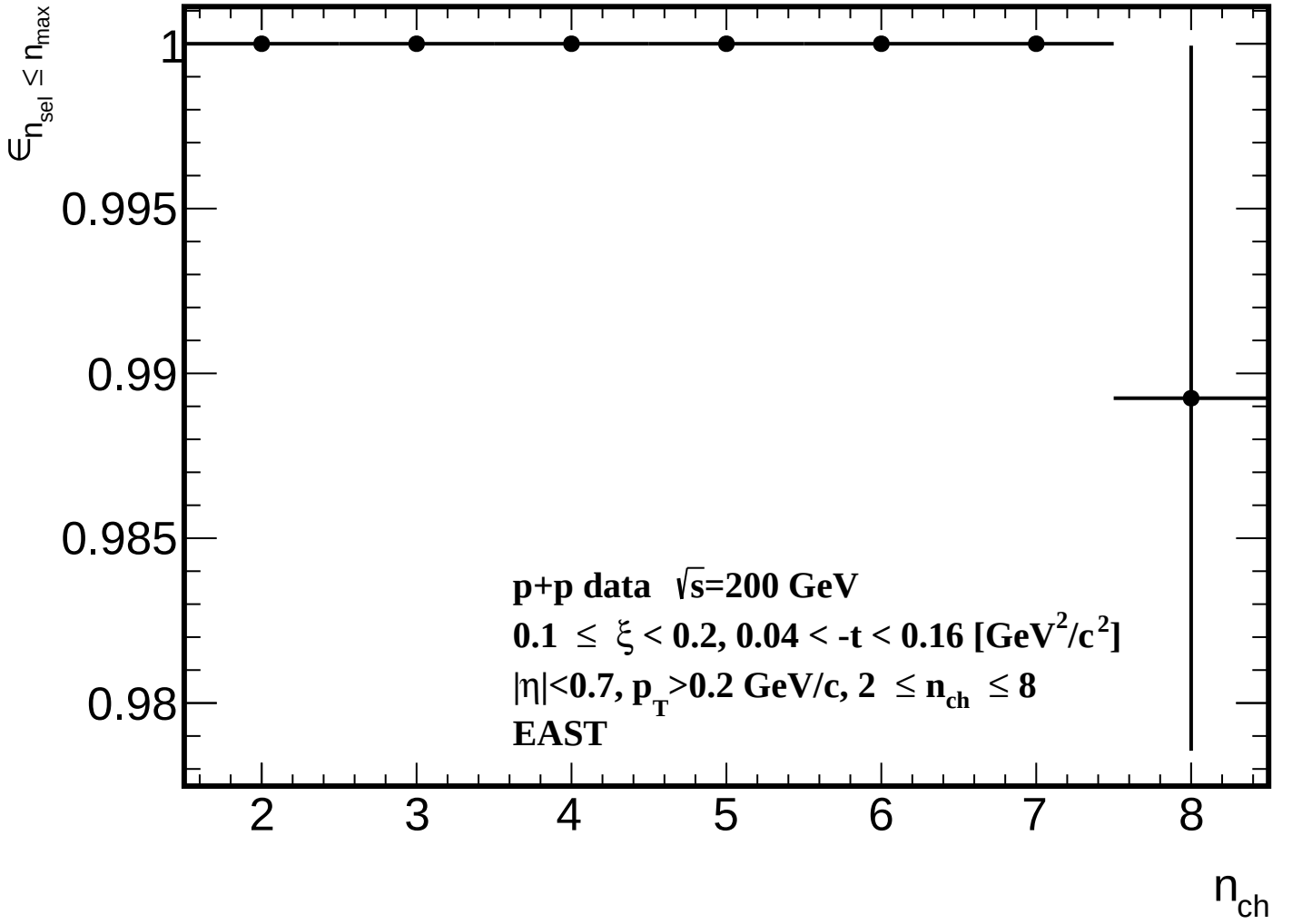

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

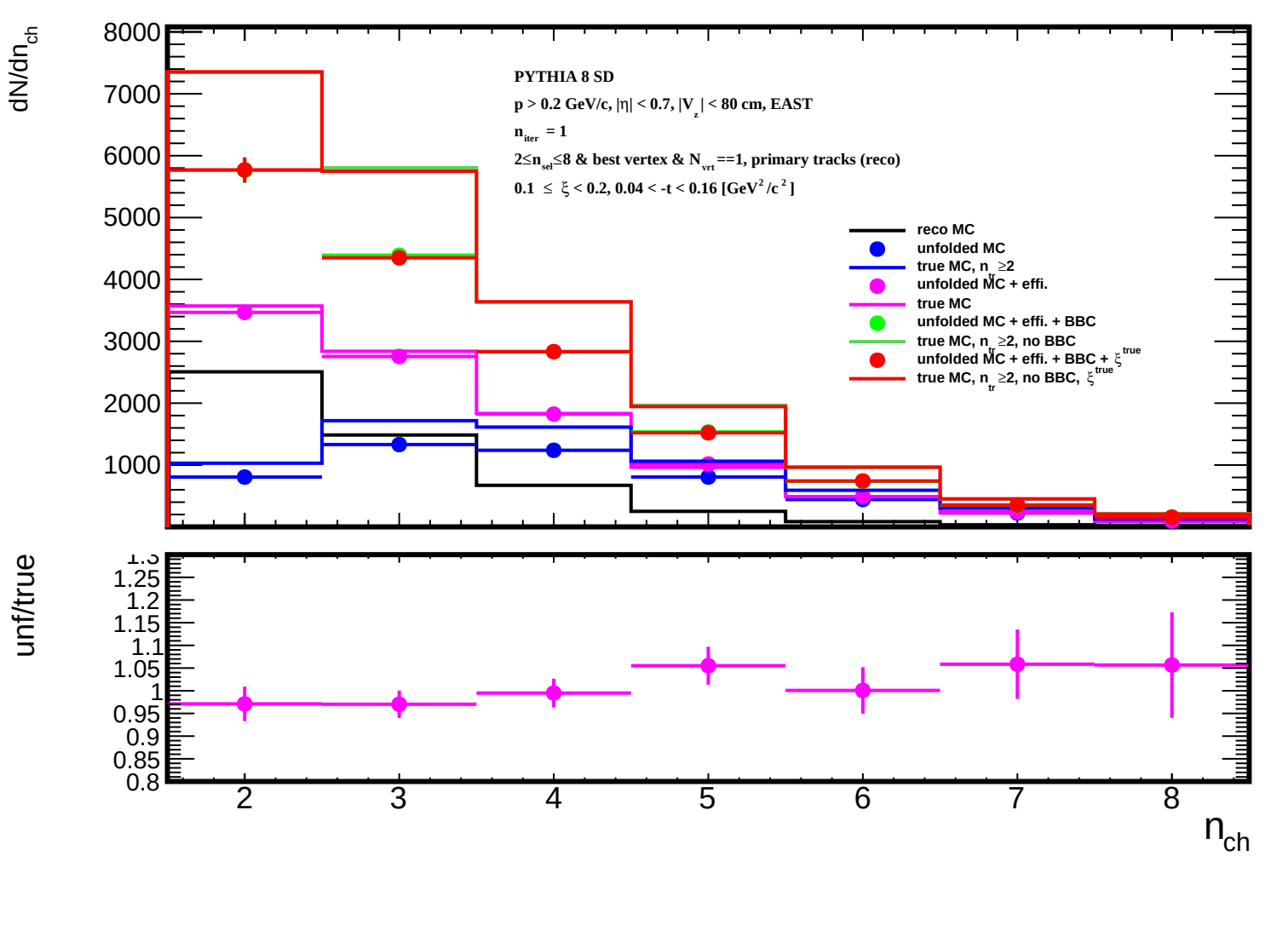

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

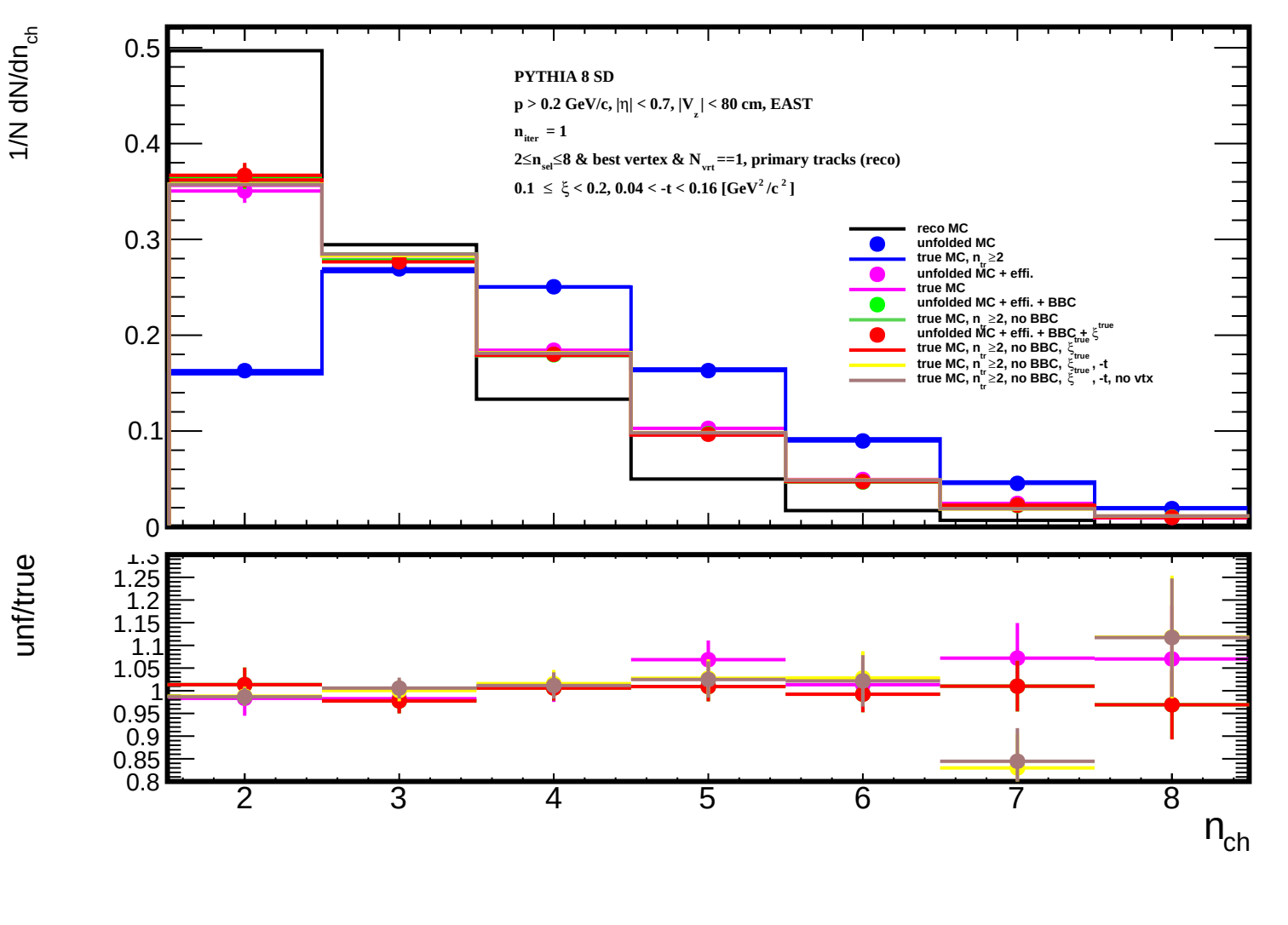

1/N dN/dn_ch
ratio
n_ch
p+p data √s=200 GeV, SD
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
matrix stat. up
matrix stat. down
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down

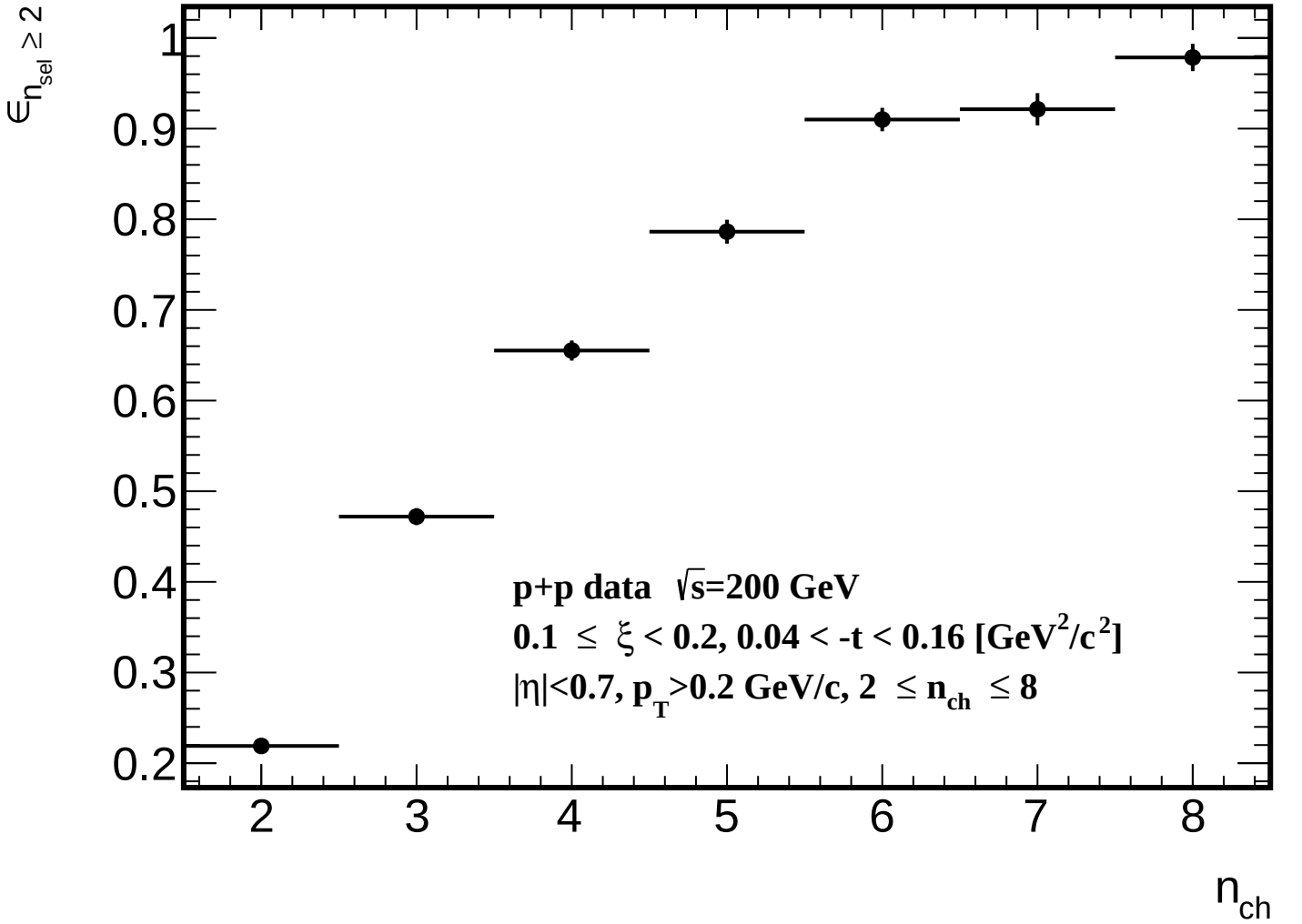

p+p data √s=200 GeV STAR Preliminary
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
0.4
0.2
0
data/MC
1.5
1
2
3
4
5
6
7
8
n_ch

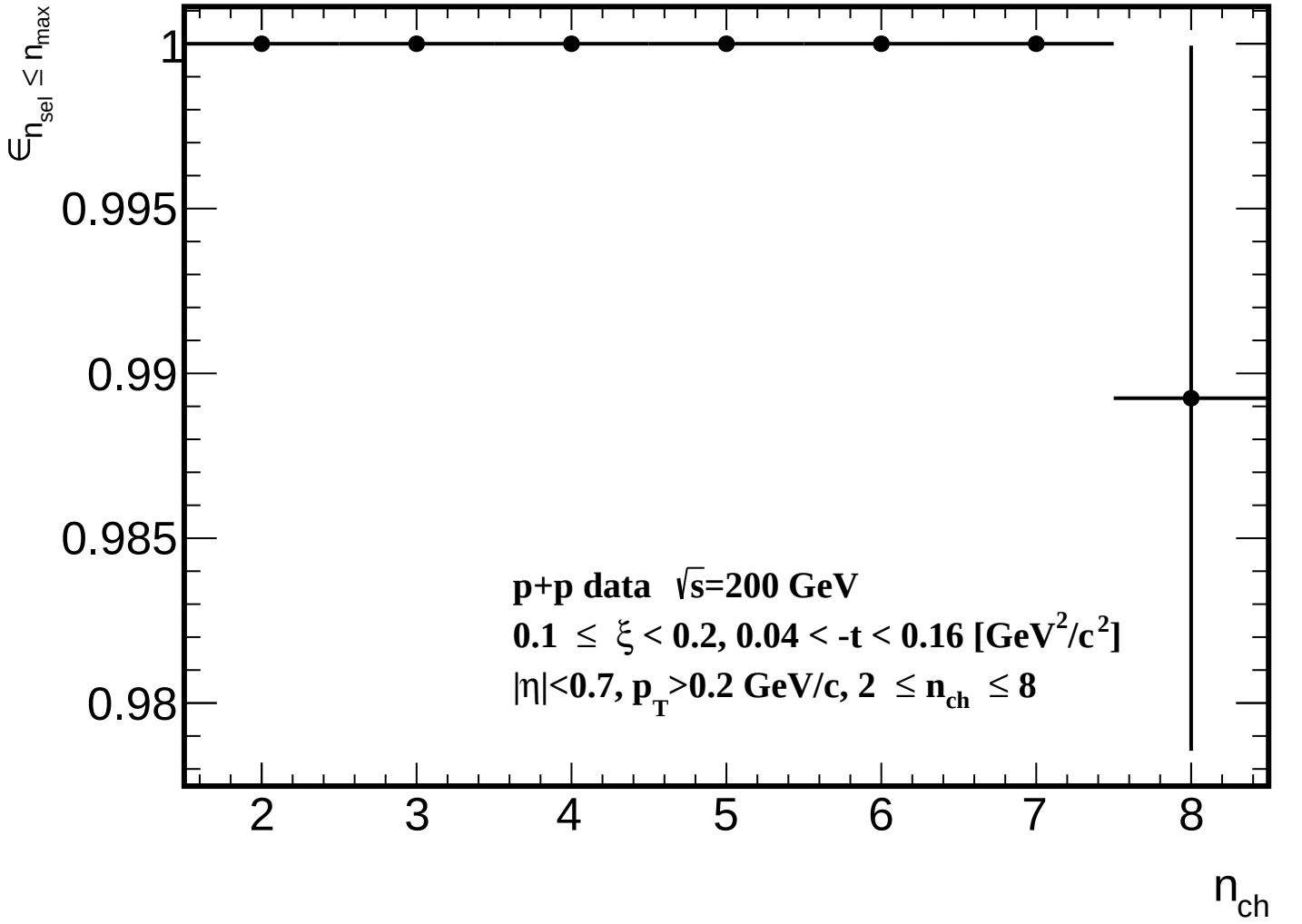

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

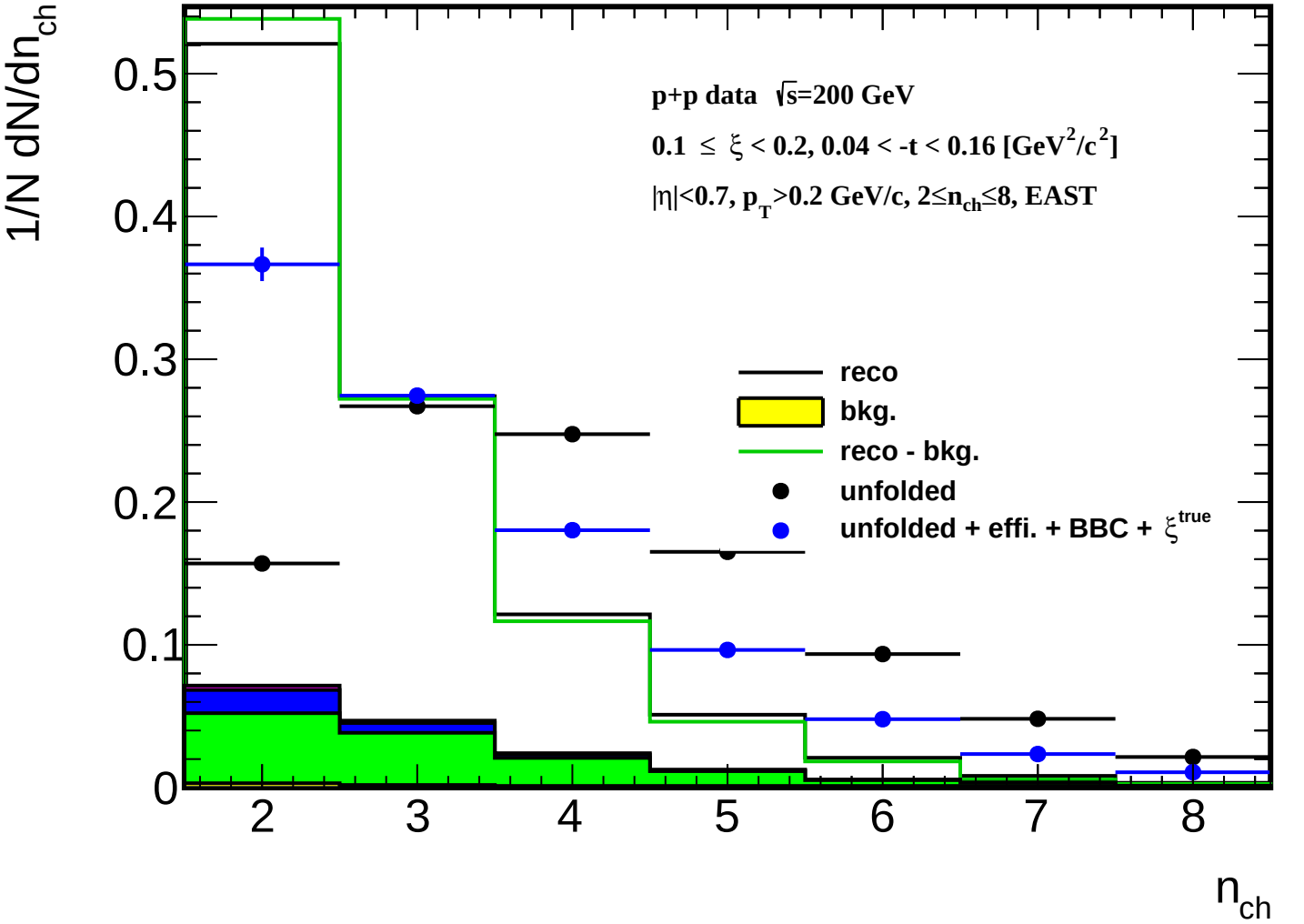

$\epsilon_{n_{sel} \le n_{max}}$
1
0.995
0.99
0.985
0.98
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
EAST

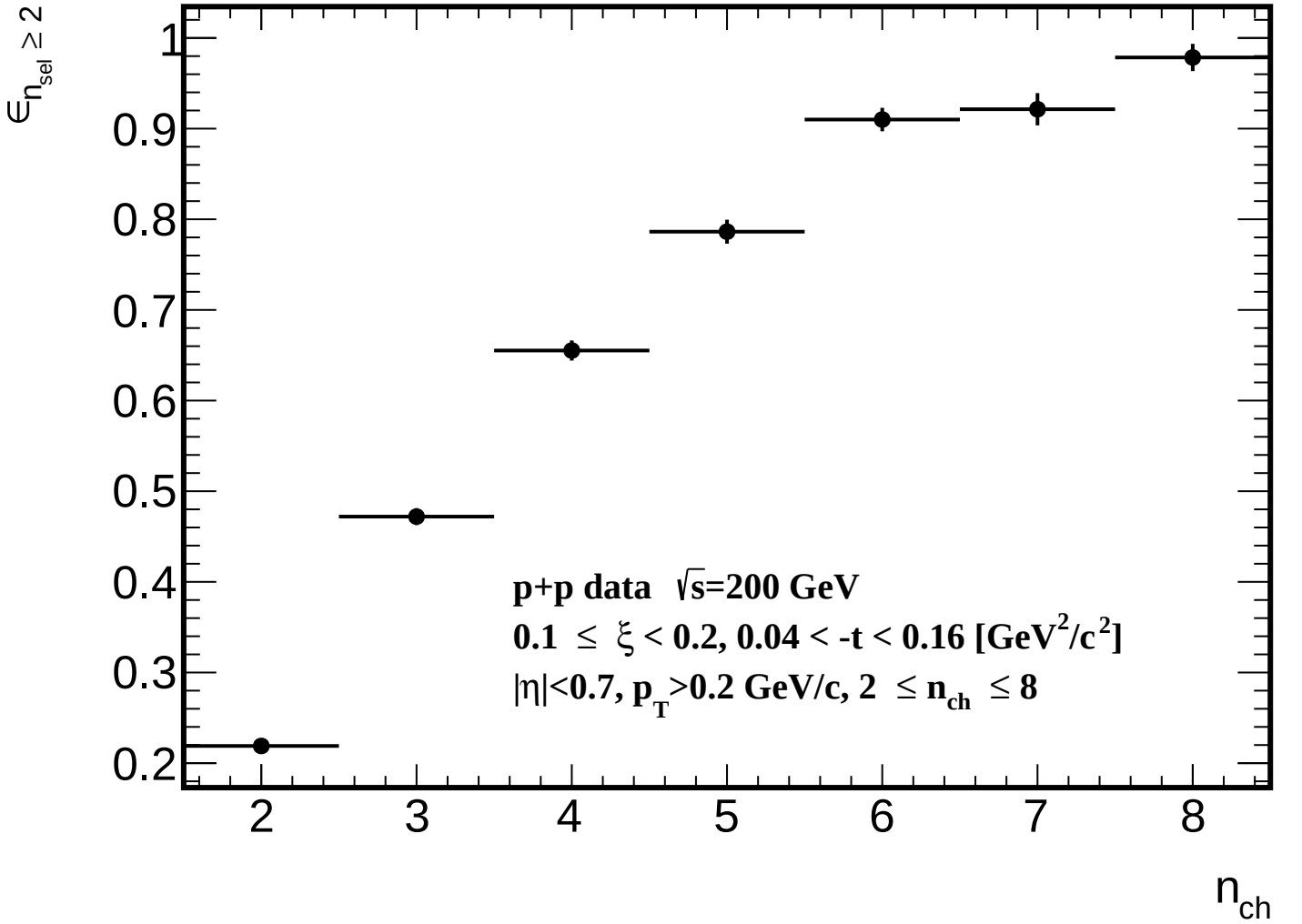

dN/dn_ch
8000
7000
6000
5000
4000
3000
2000
1000
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
1.25
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
2
3
4
5
6
7
8
n_ch

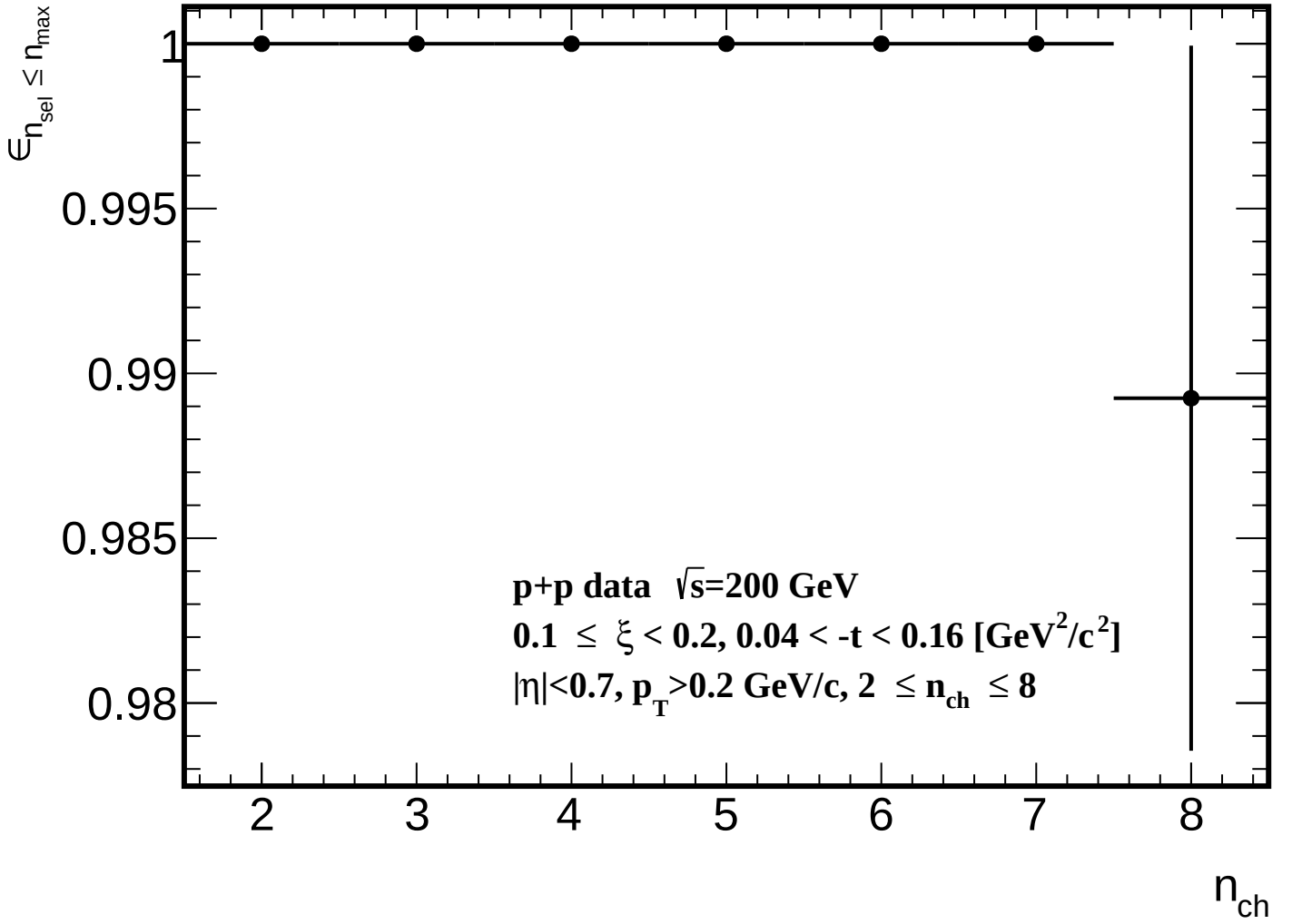

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, EAST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr≥2, no BBC, ξ_true
true MC, n_tr≥2, no BBC, ξ_true, -t
true MC, n_tr≥2, no BBC, ξ_true, -t, no vtx
unf/true
n_ch

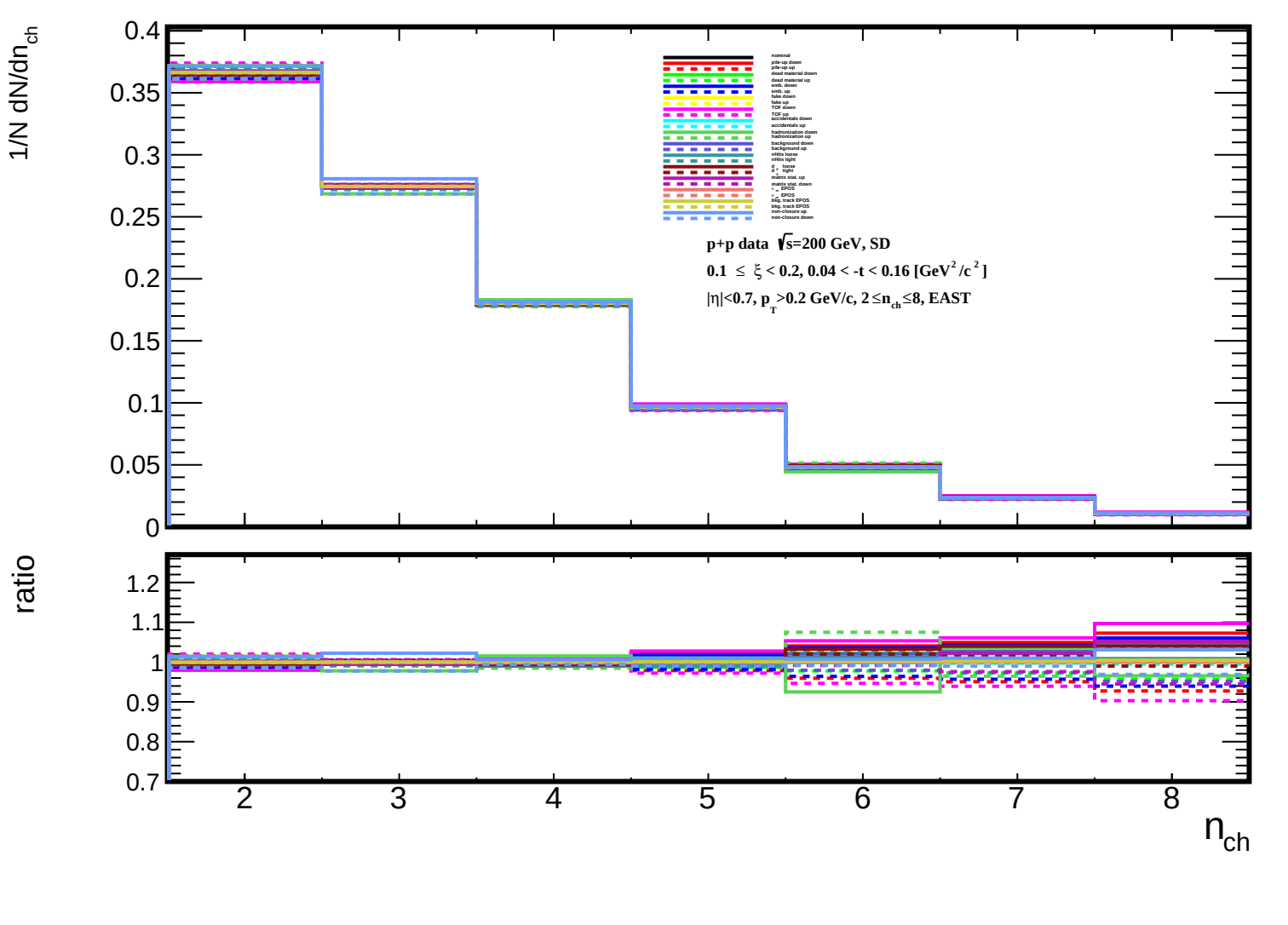

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

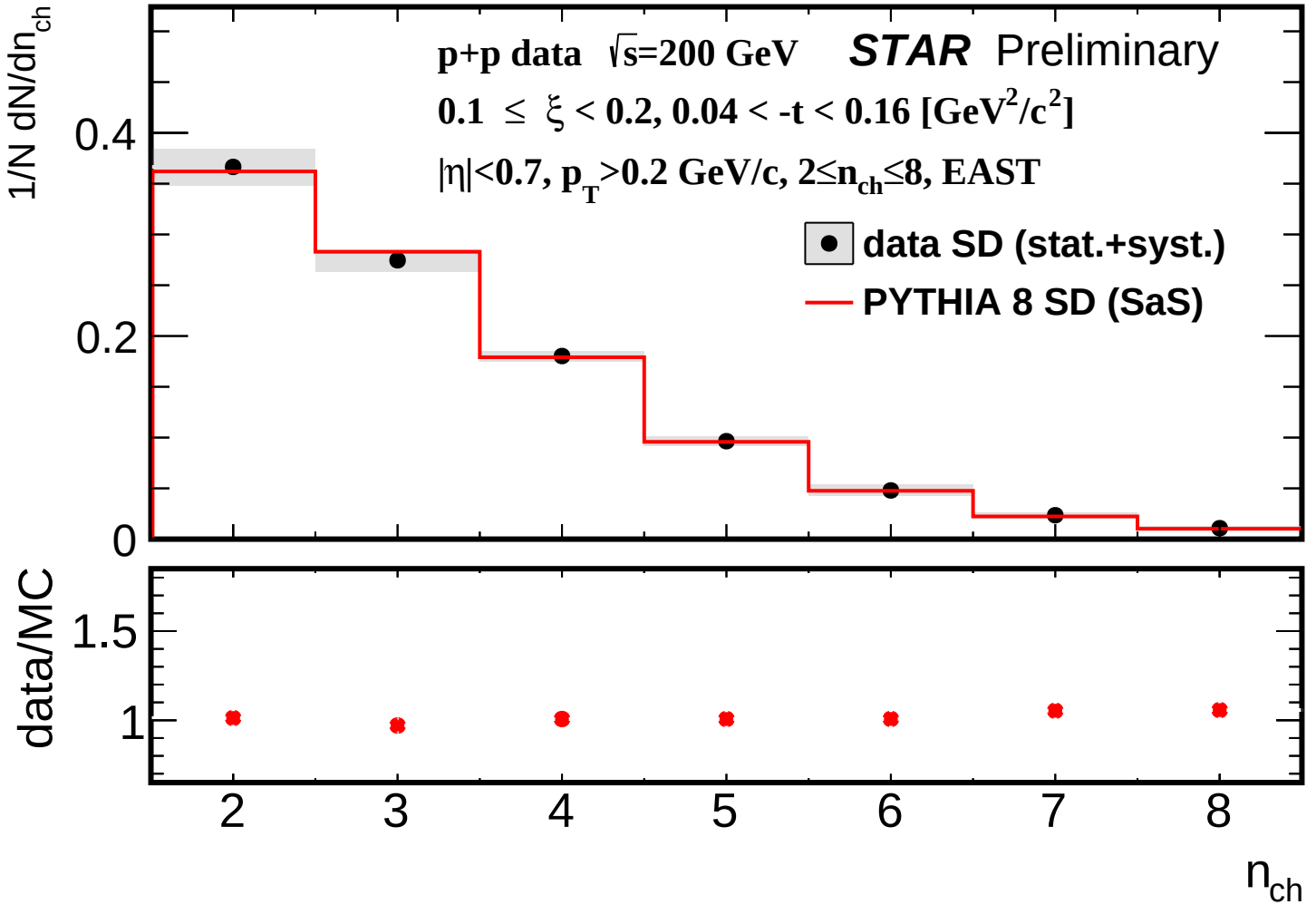

$\epsilon_{n_{sel} \leq n_{max}}$
1
0.995
0.99
0.985
0.98
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

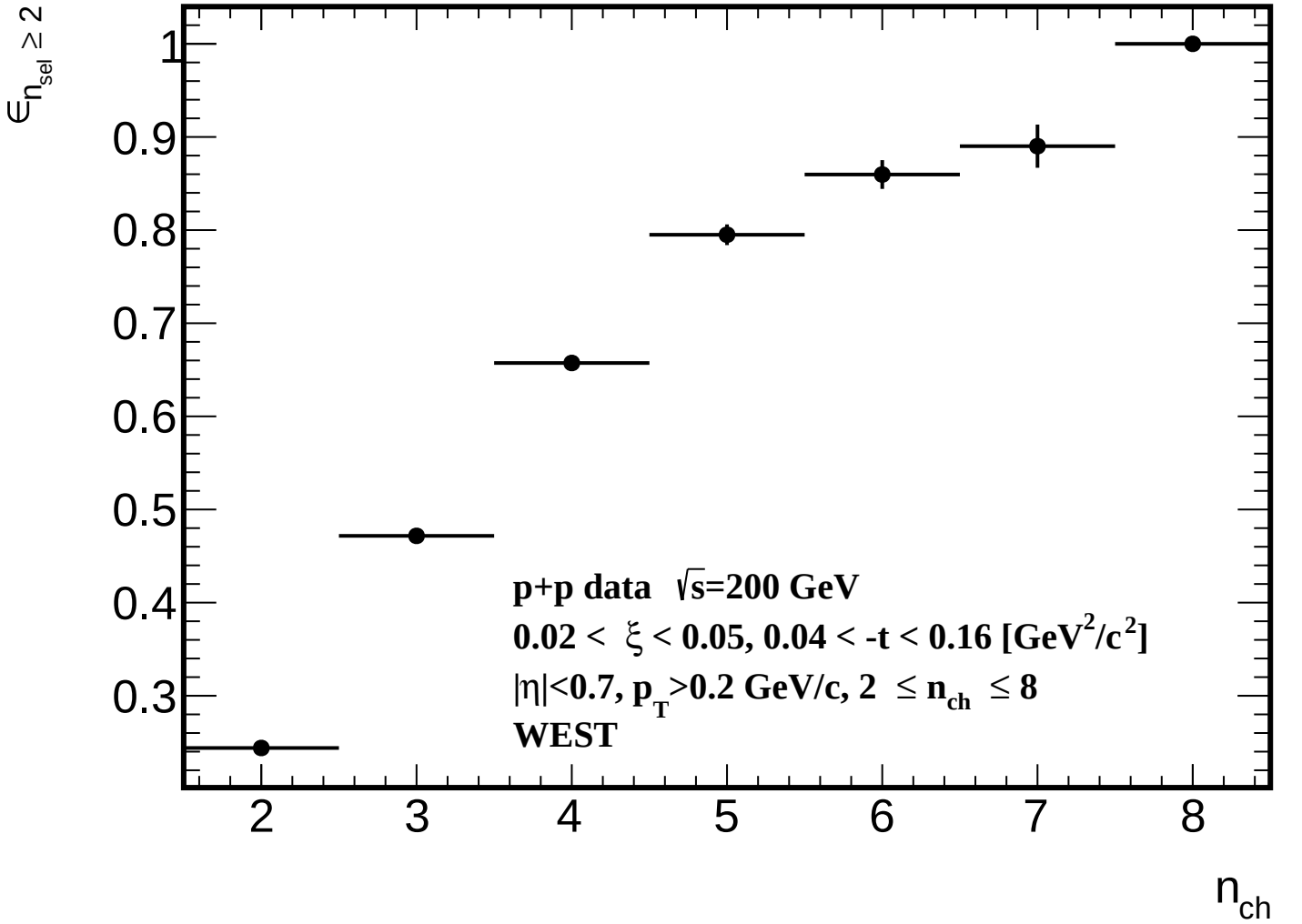

1/N dN/dn_ch
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

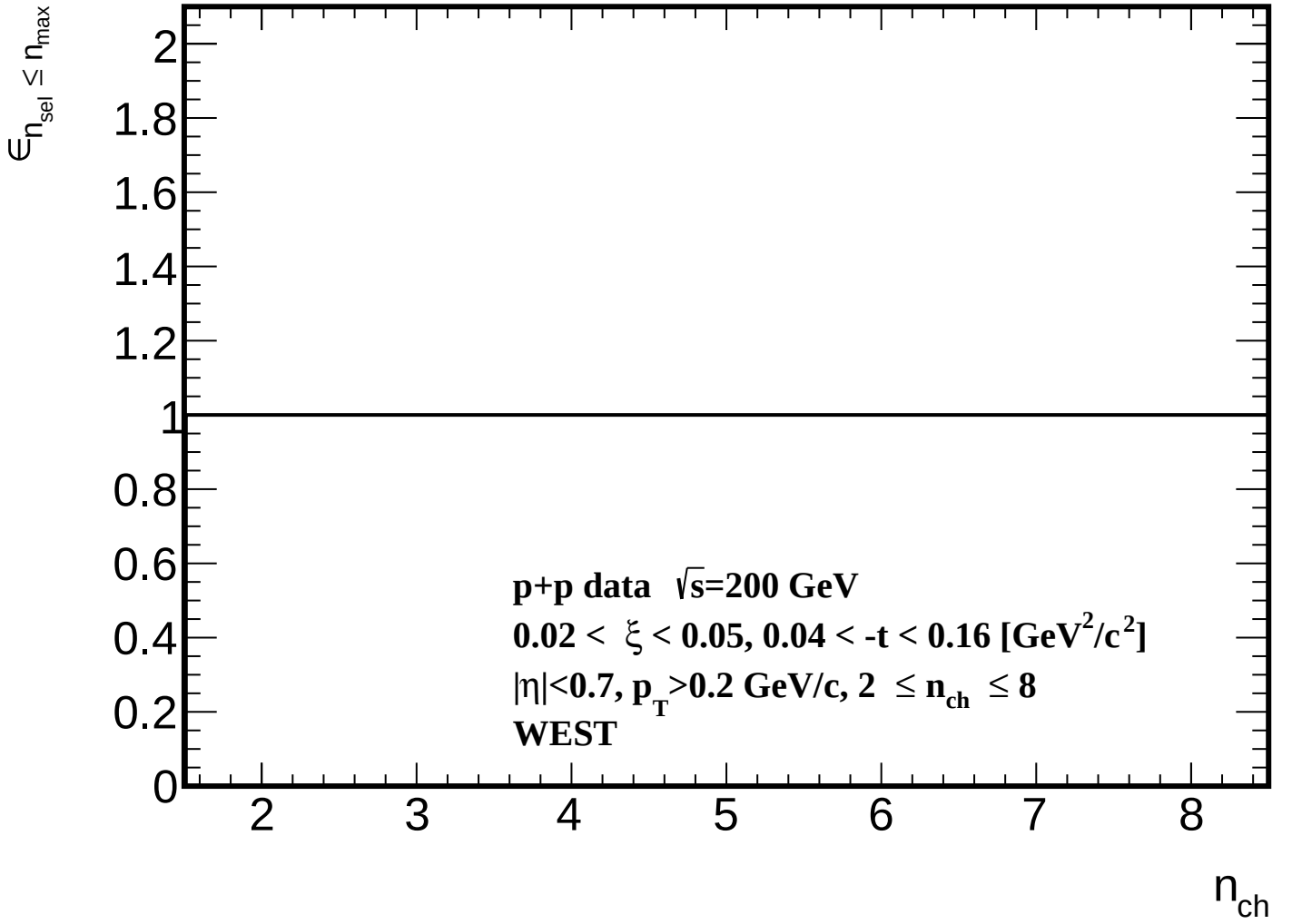

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

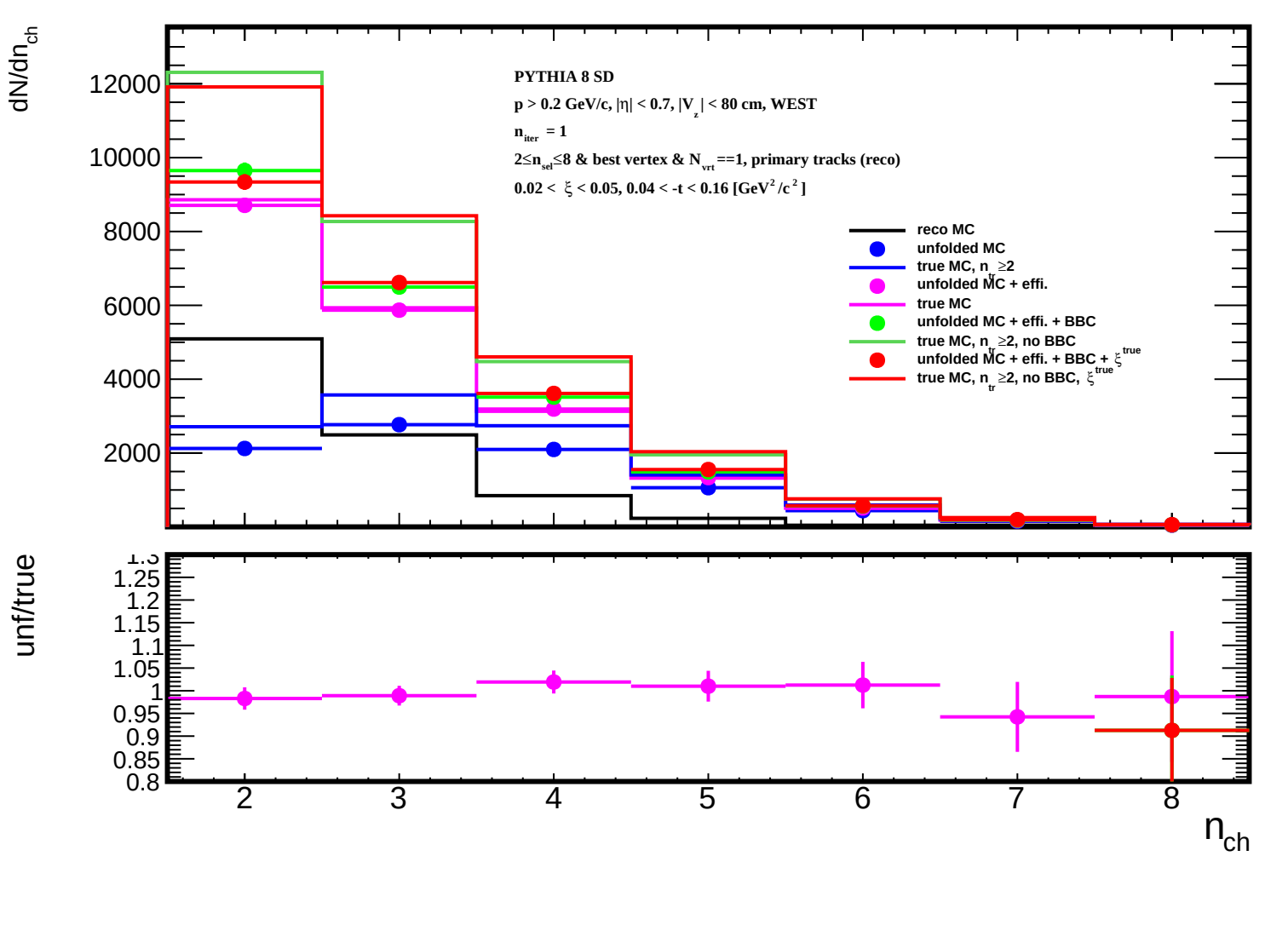

$\epsilon_{n_{sel} \leq n_{max}}$
1
0.995
0.99
0.985
0.98
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

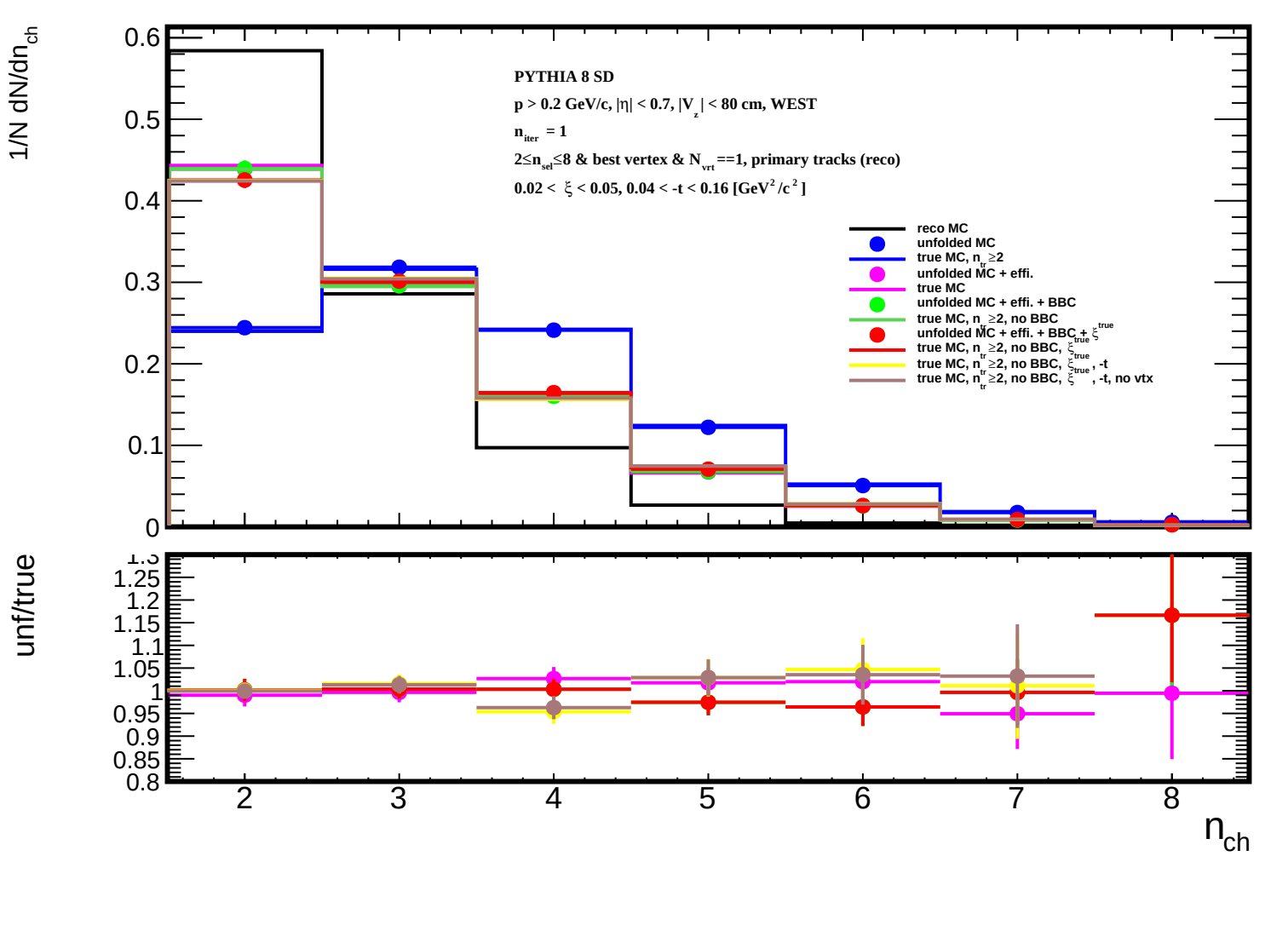

1/N dN/dn_ch
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals double down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
d_ca loose
d_ca tight
matrix stat. up
matrix stat. down
π_ch EPOS
K_ch EPOS
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down
p+p data √s=200 GeV, SD
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
ratio
1.2
1.1
1
0.9
0.8
0.7
2
3
4
5
6
7
8
n_ch

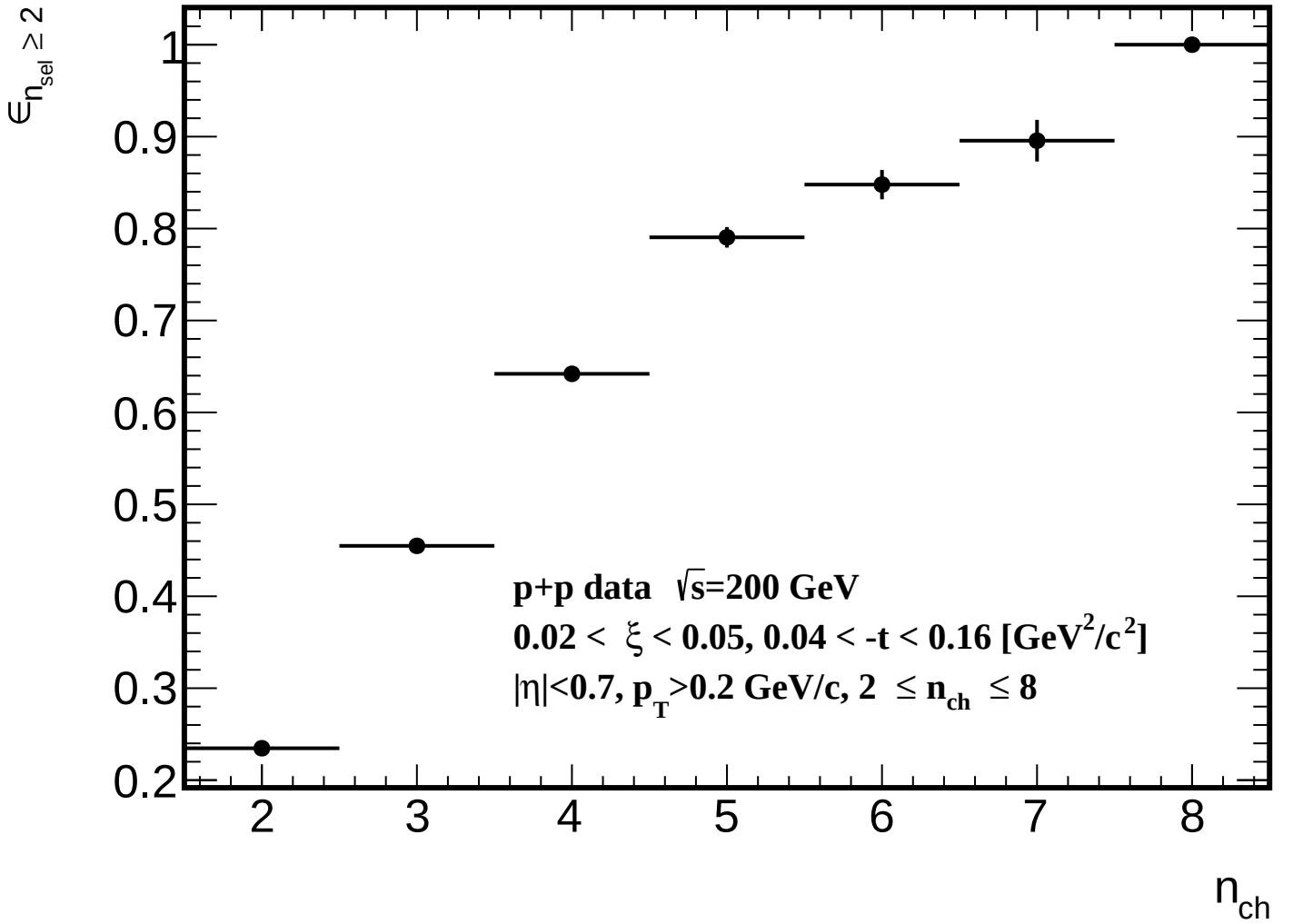

p+p data √s=200 GeV STAR Preliminary
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, EAST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
0.4
0.2
0
data/MC
1.5
1
2
3
4
5
6
7
8
n_ch

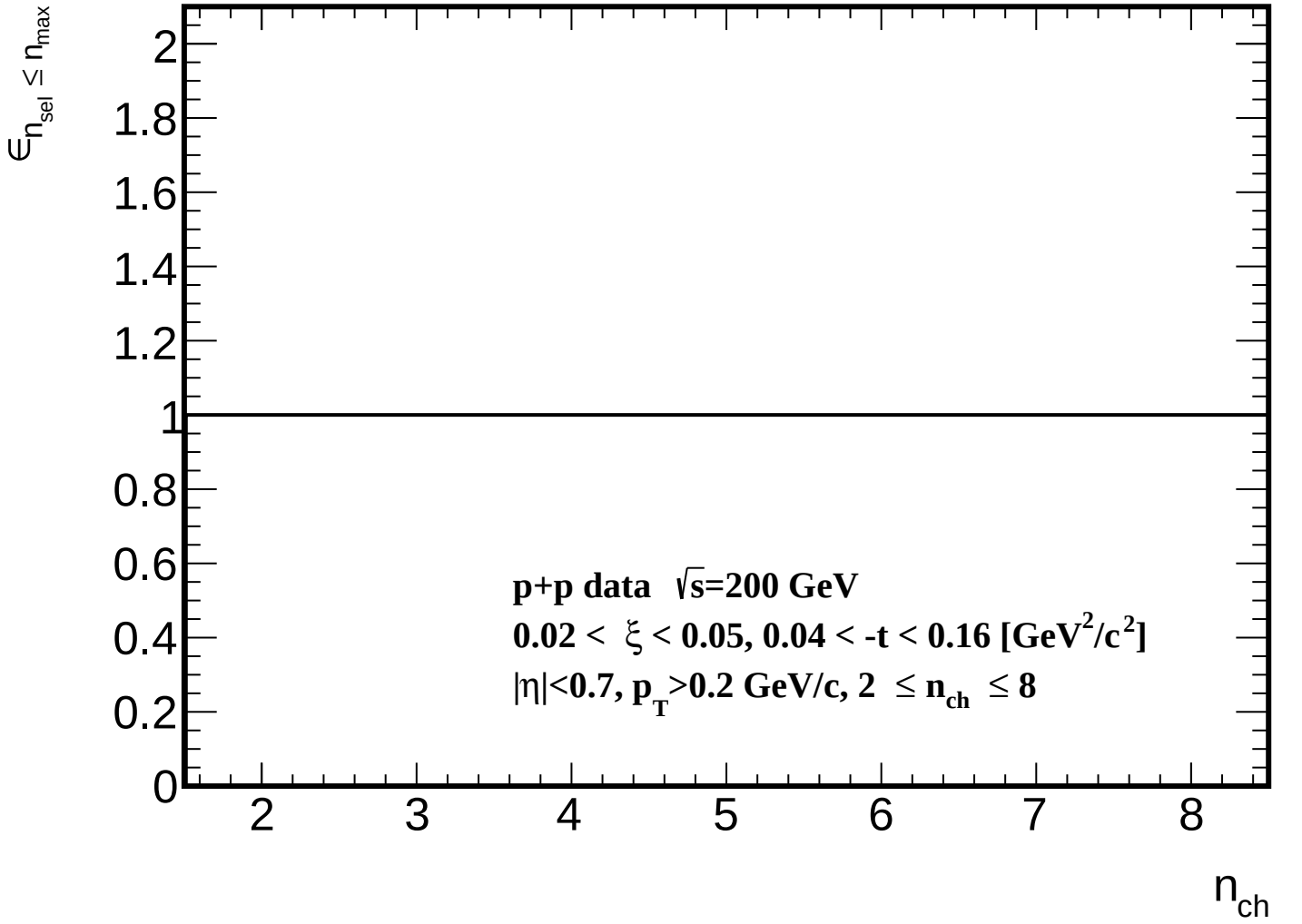

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
WEST

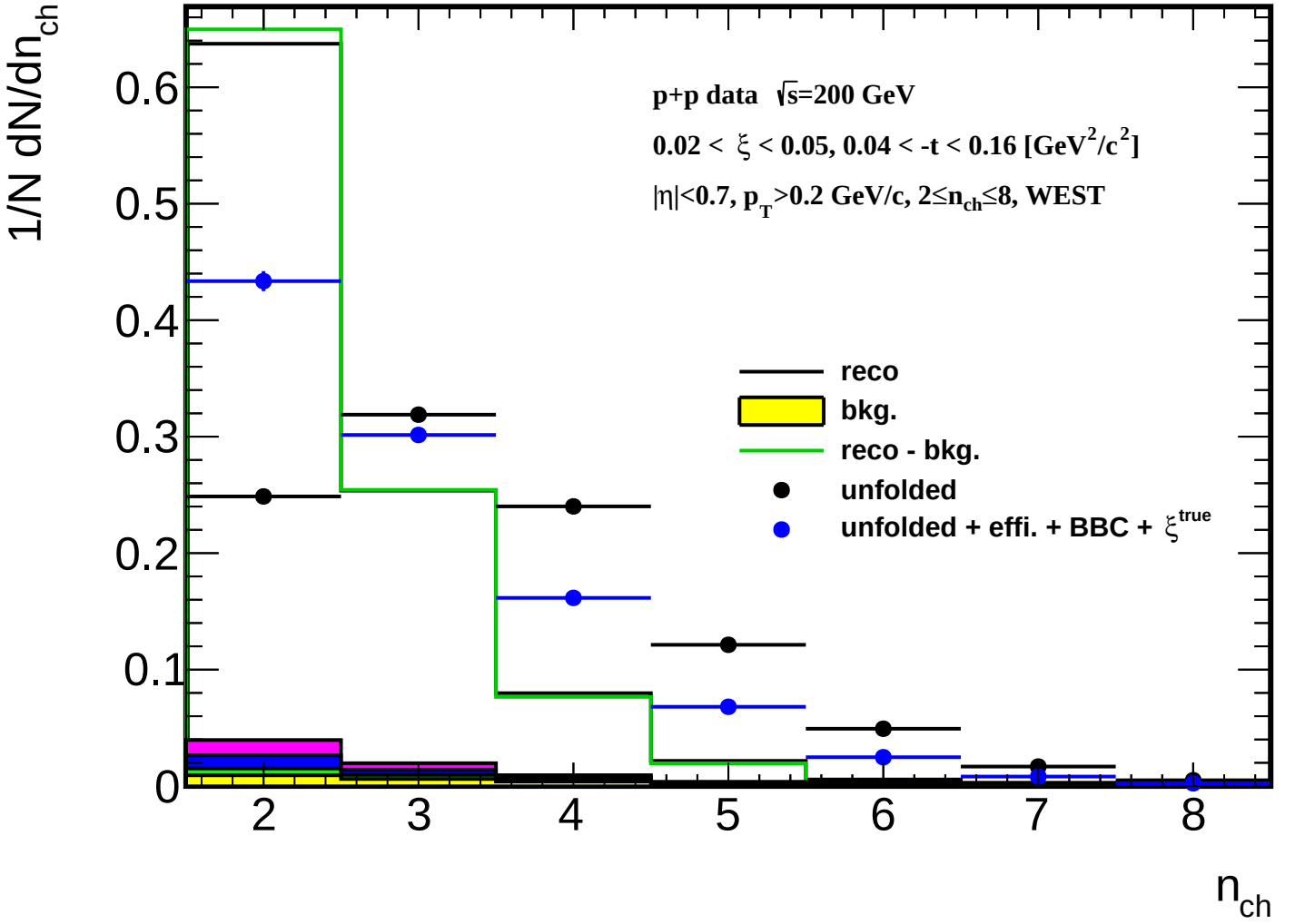

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
$|\eta|$<0.7, p_T>0.2 GeV/c, 2 $\leq n_{ch} \leq$ 8
WEST

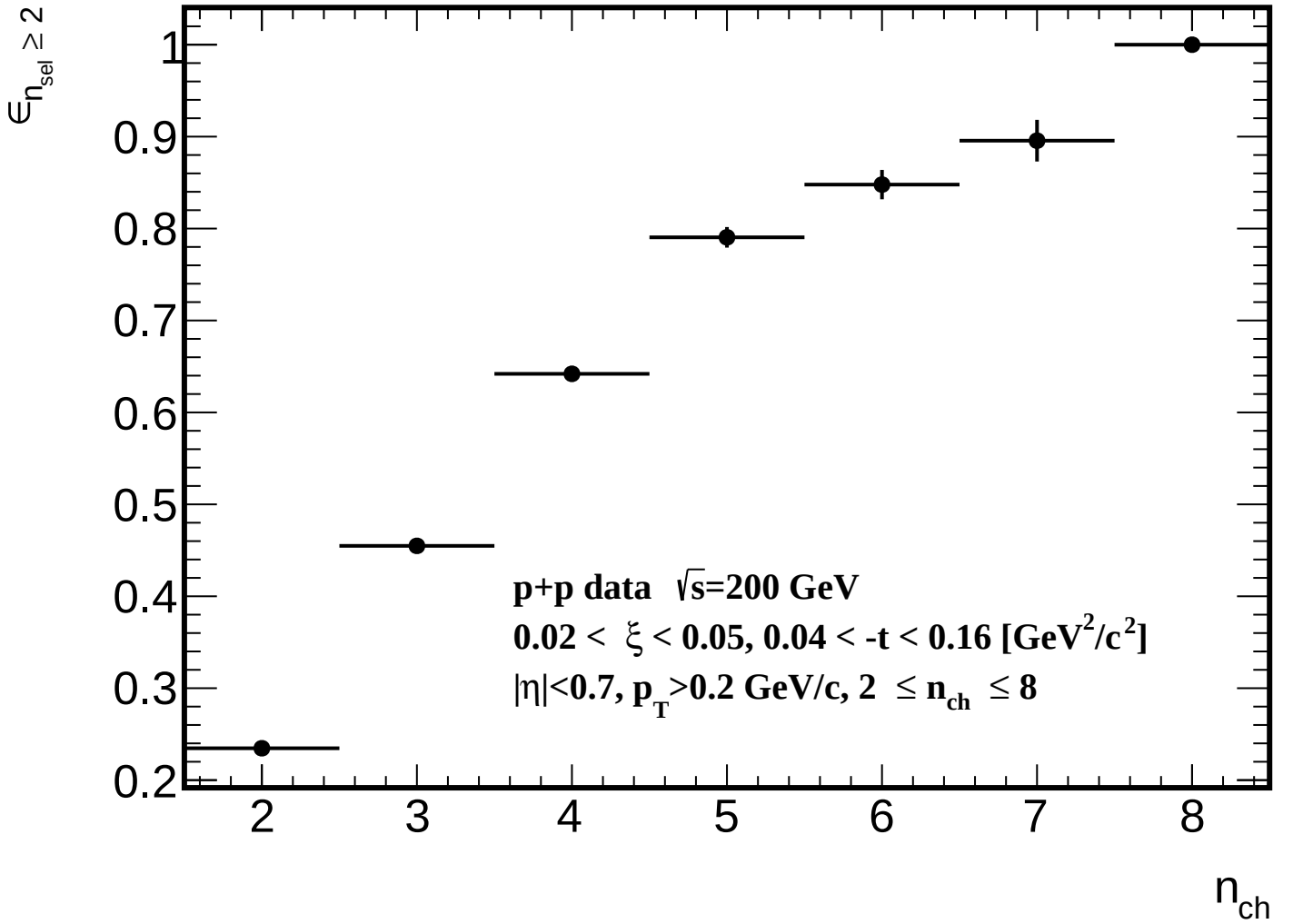

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

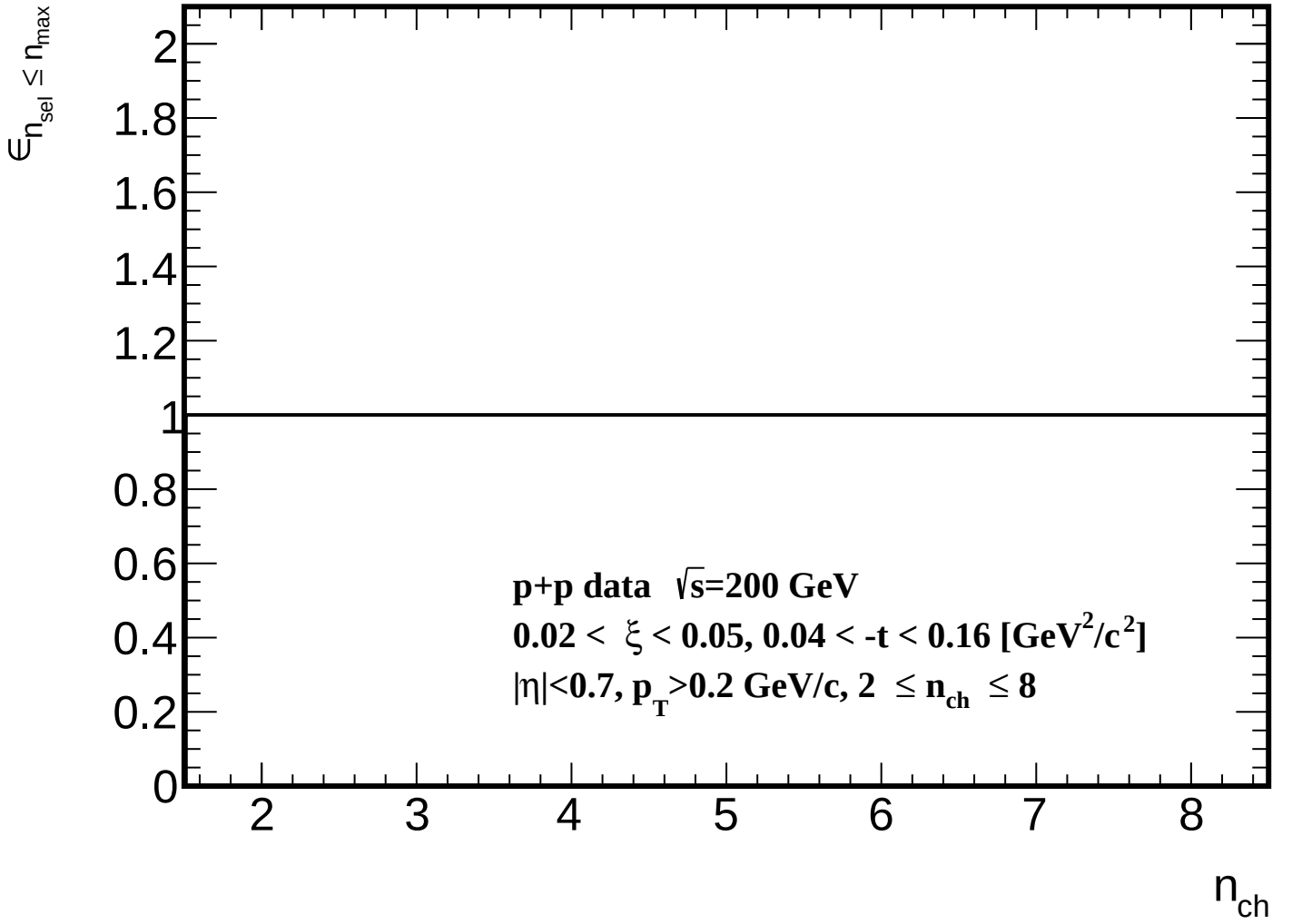

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
true MC, n_tr ≥2, no BBC, ξ^true, -t
true MC, n_tr ≥2, no BBC, ξ^true, -t, no vtx
unf/true
n_ch

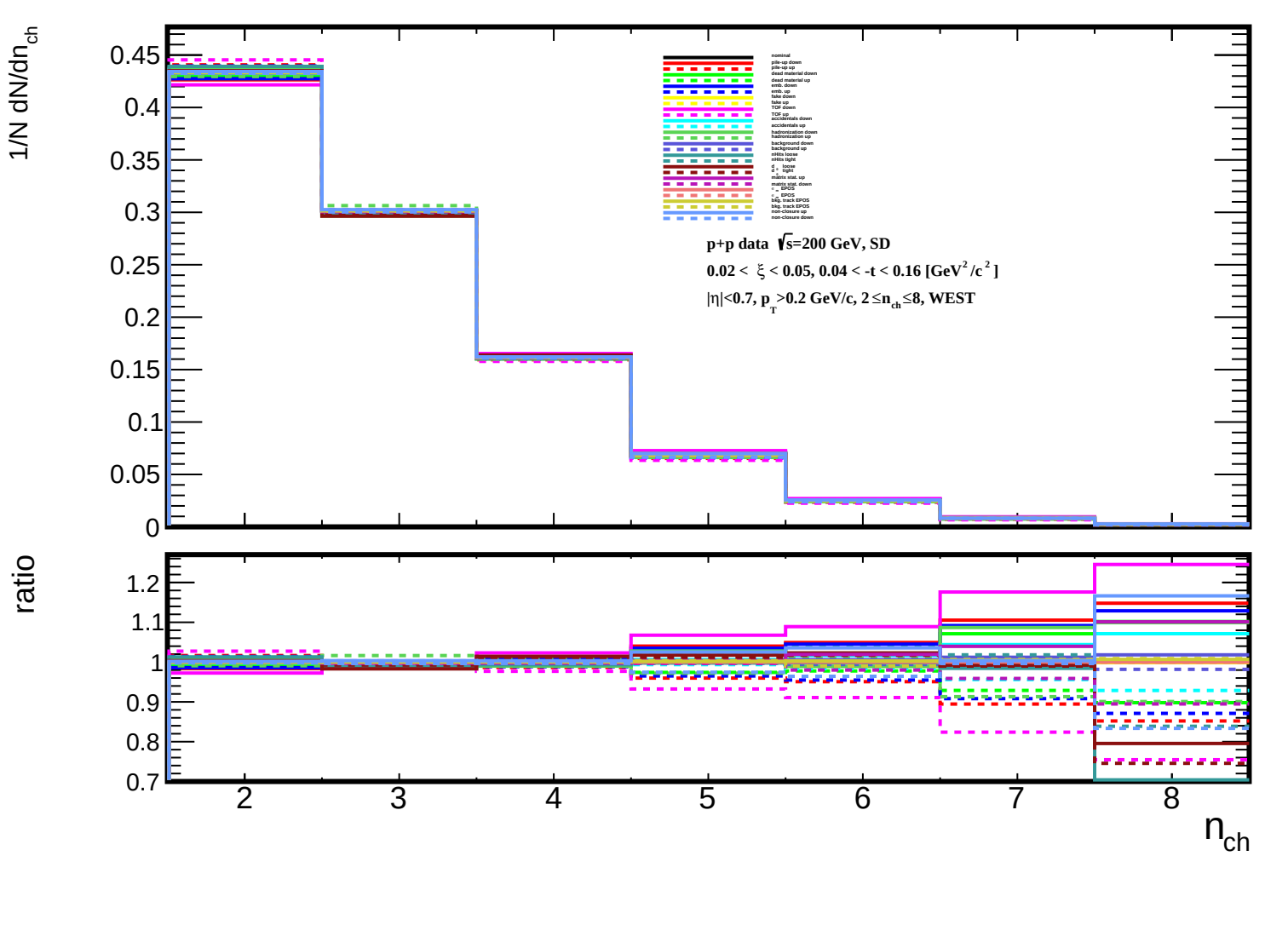

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

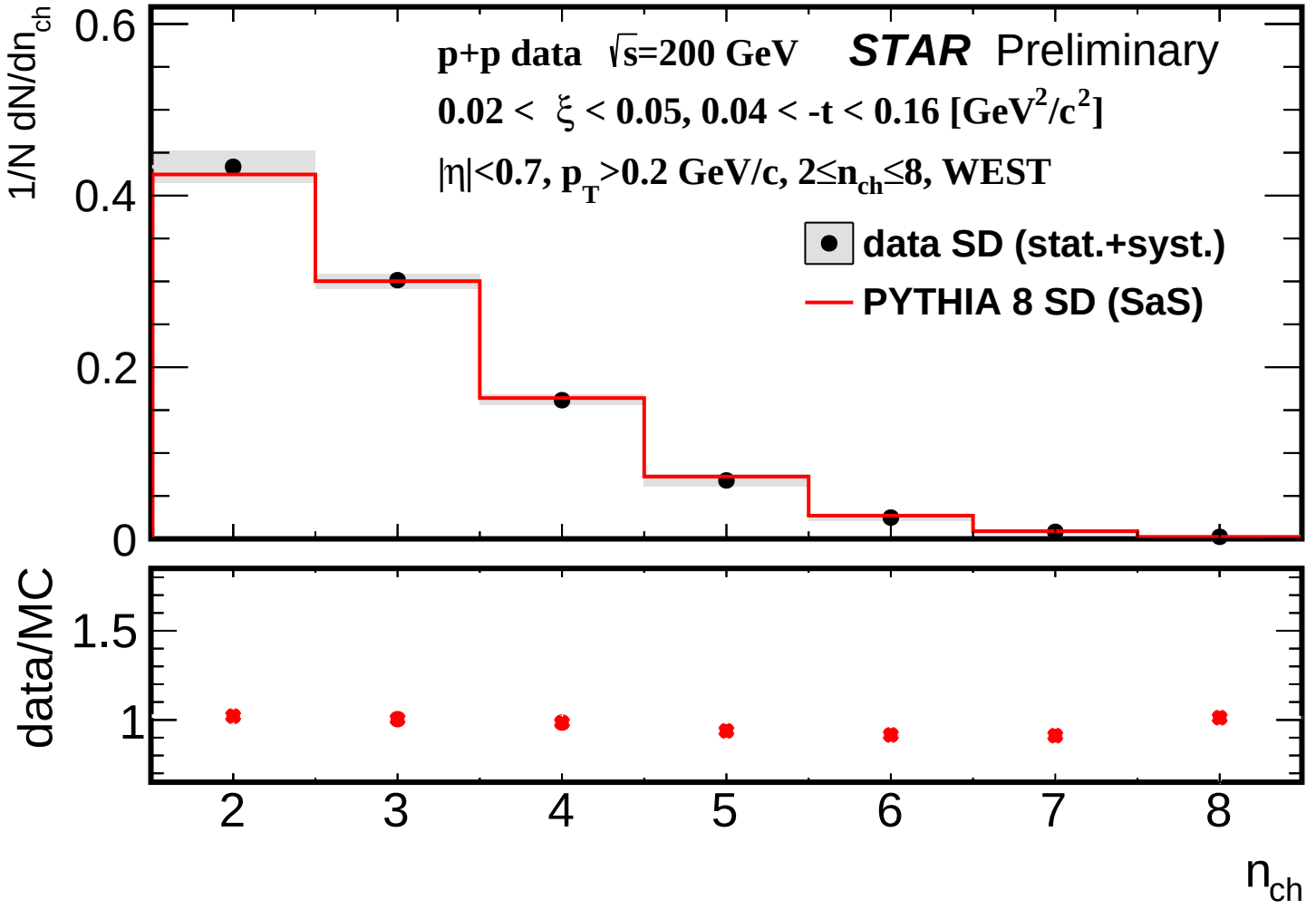

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

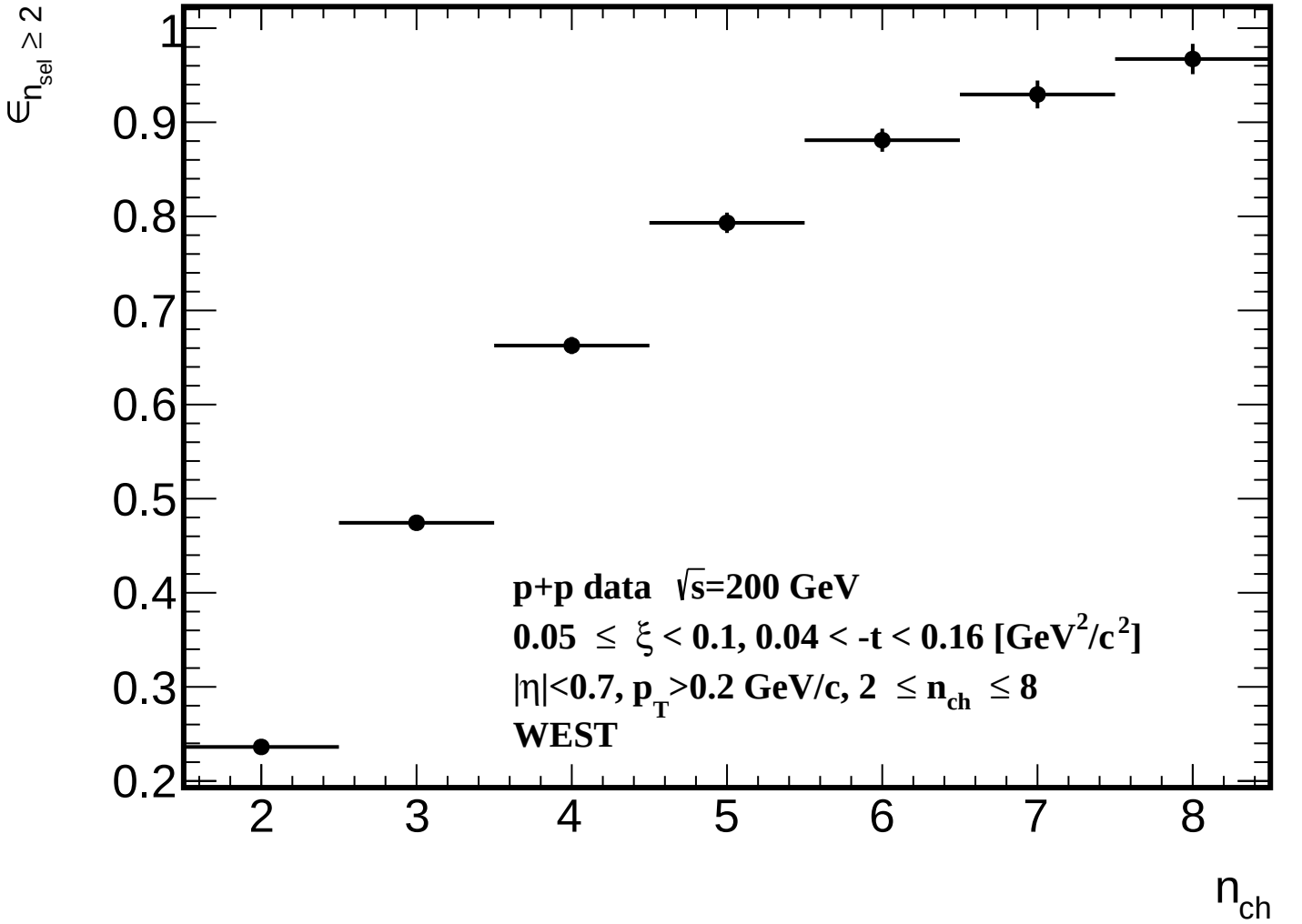

1/N dN/dn_ch
0.6
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

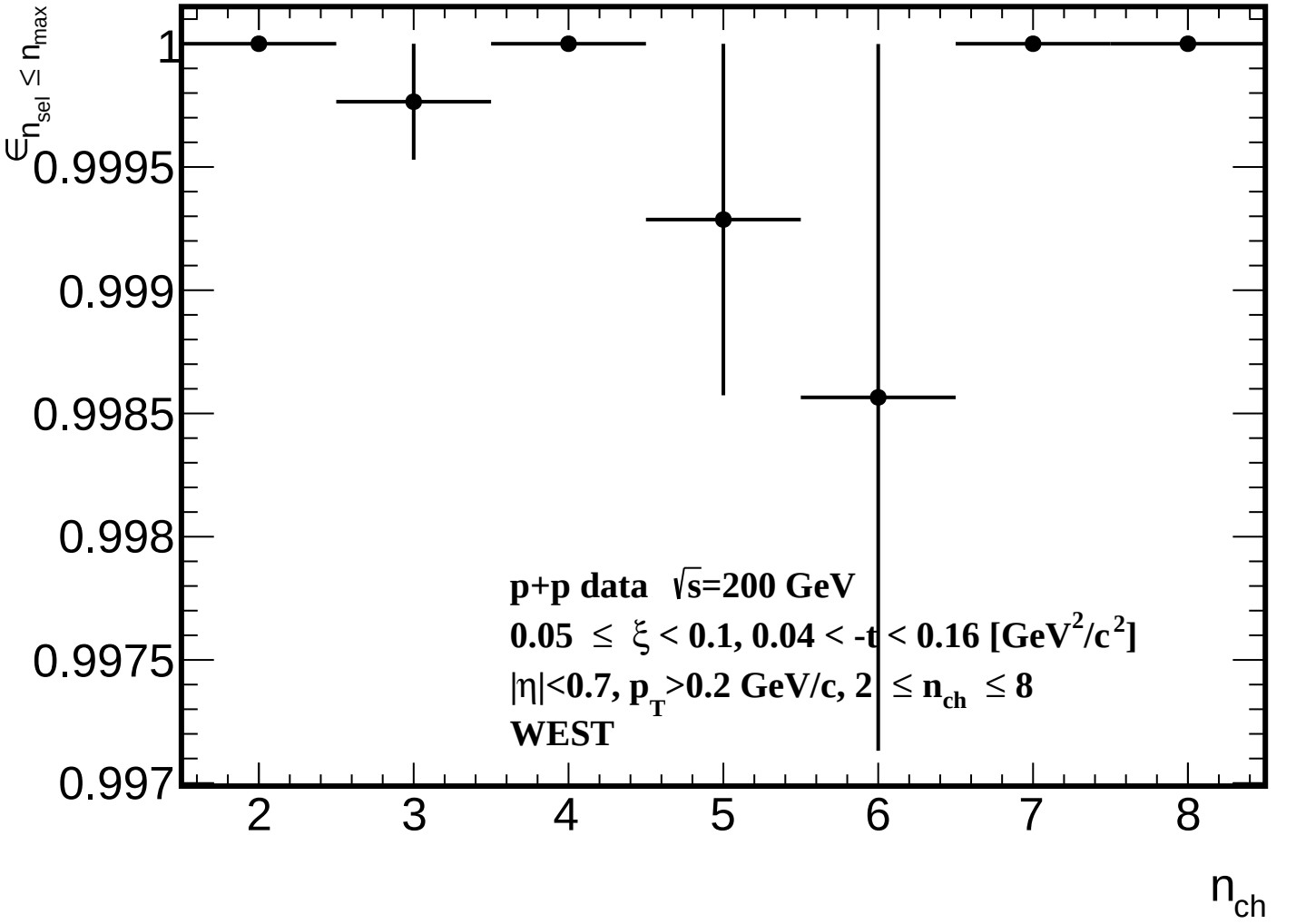

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

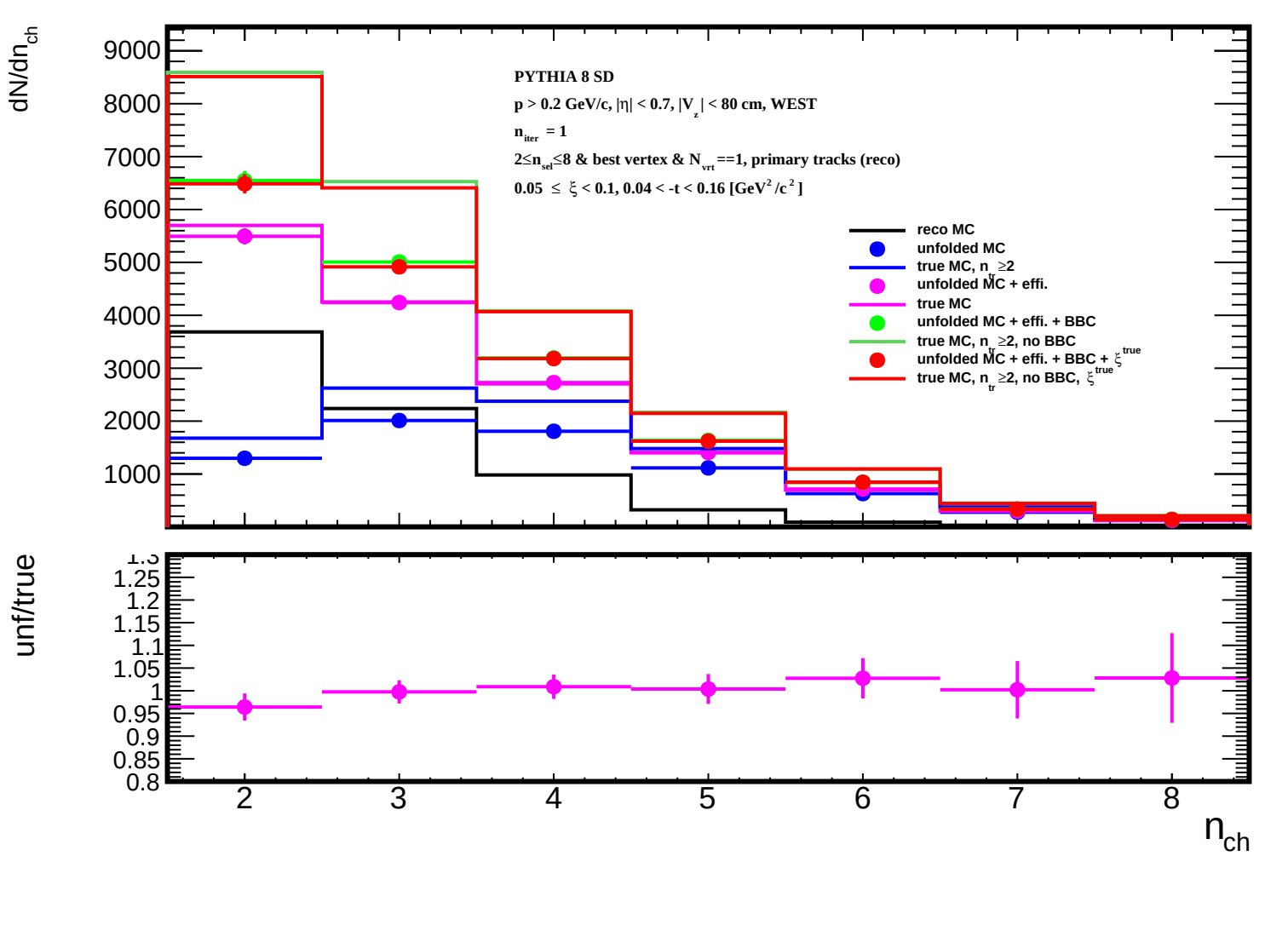

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

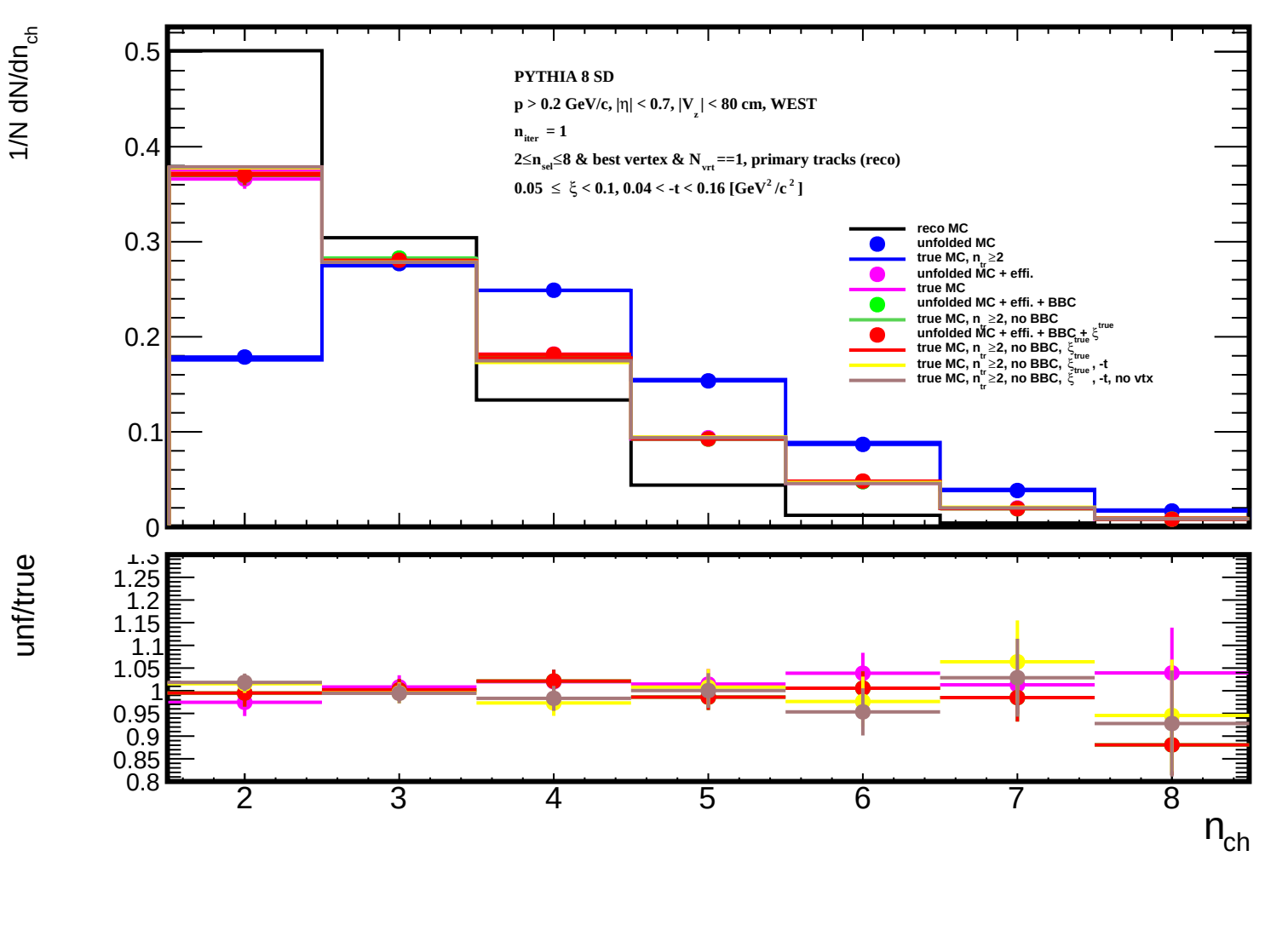

1/N dN/dn_ch
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
d_0 loose
d_0 tight
matrix stat. up
matrix stat. down
π_+ EPOS
π_- EPOS
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down
p+p data √s=200 GeV, SD
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
ratio
1.2
1.1
1
0.9
0.8
0.7
2
3
4
5
6
7
8
n_ch

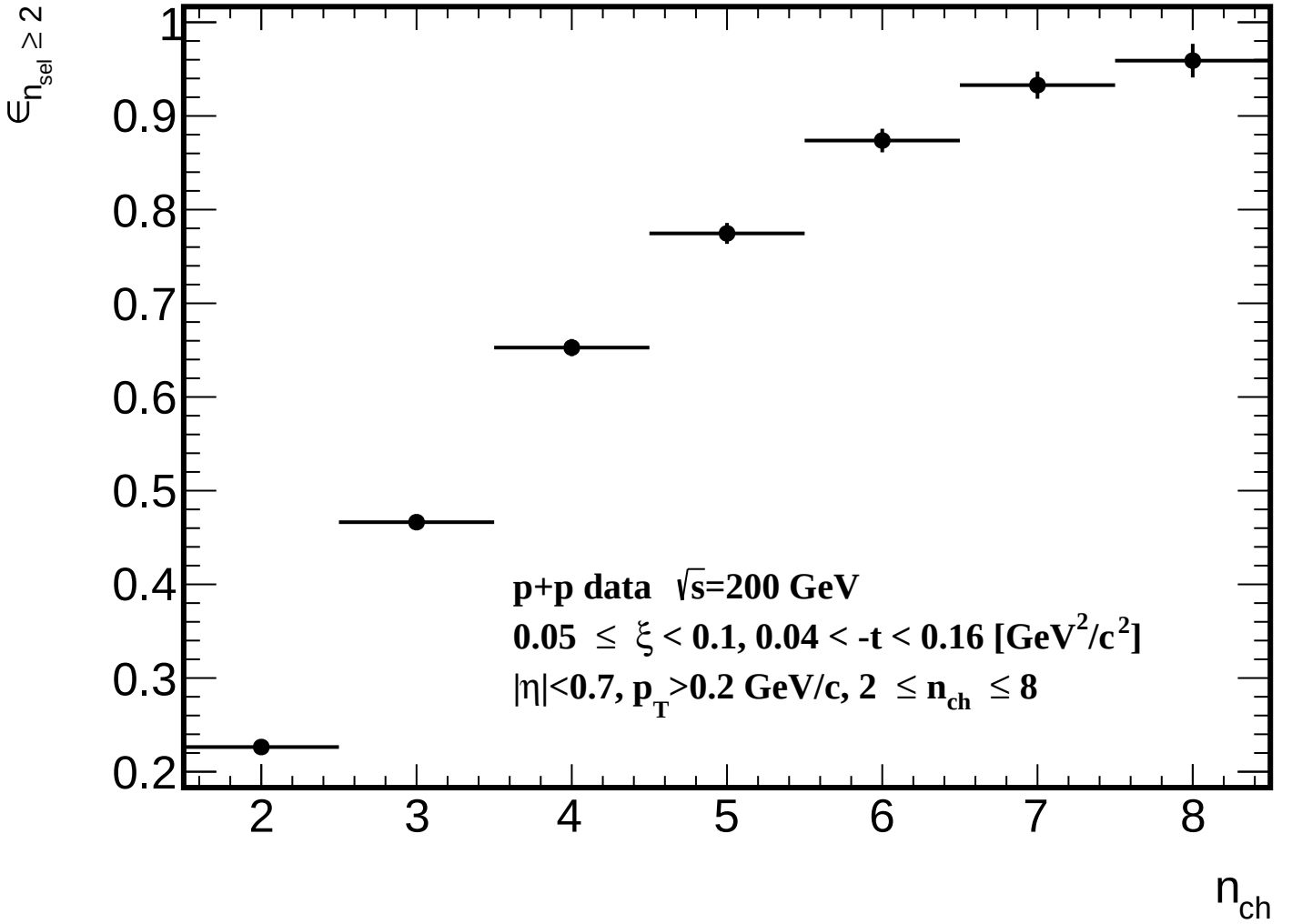

p+p data √s=200 GeV STAR Preliminary
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
data/MC
n_ch

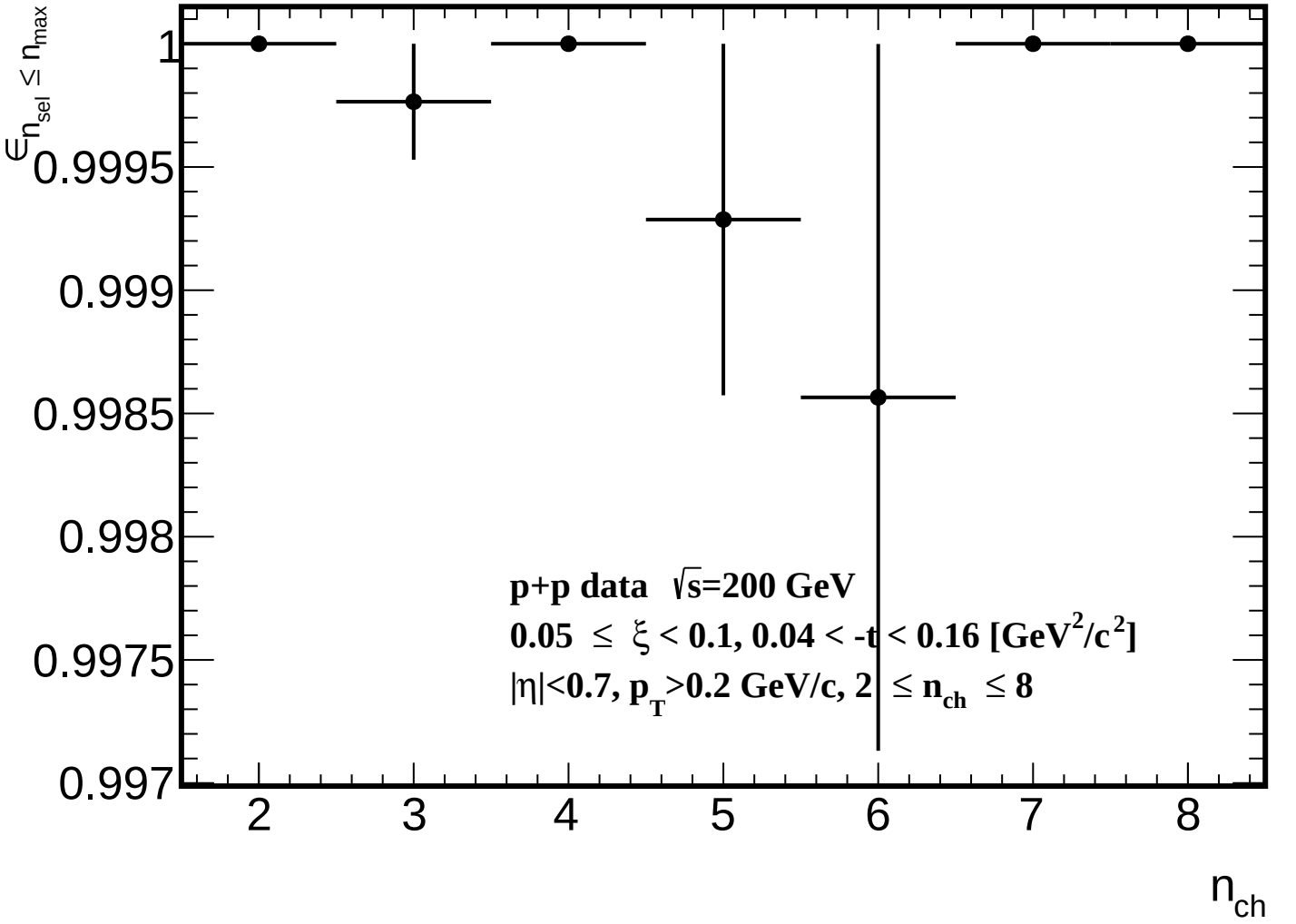

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
WEST

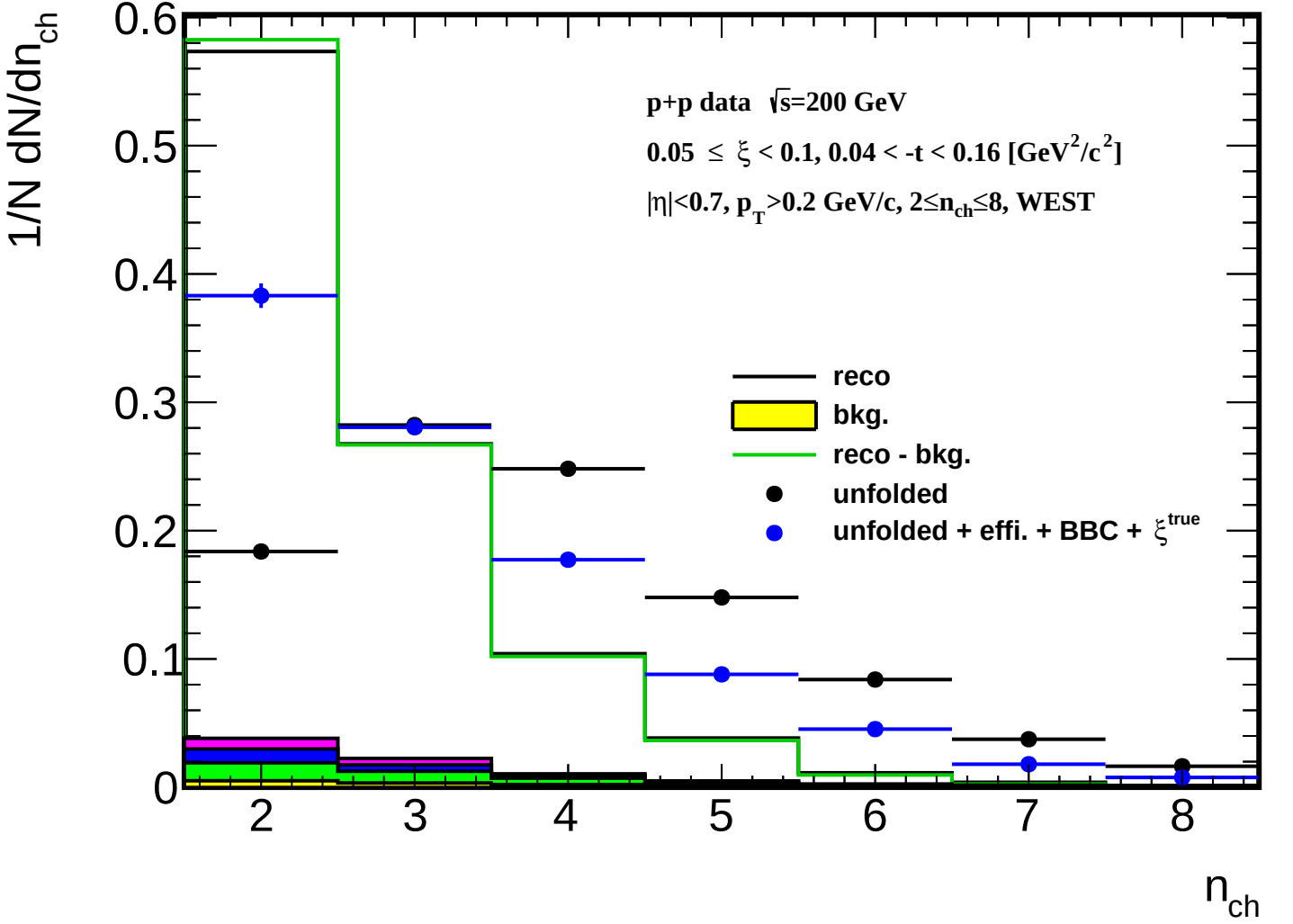

$\epsilon_{n_{sel} \le n_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
WEST

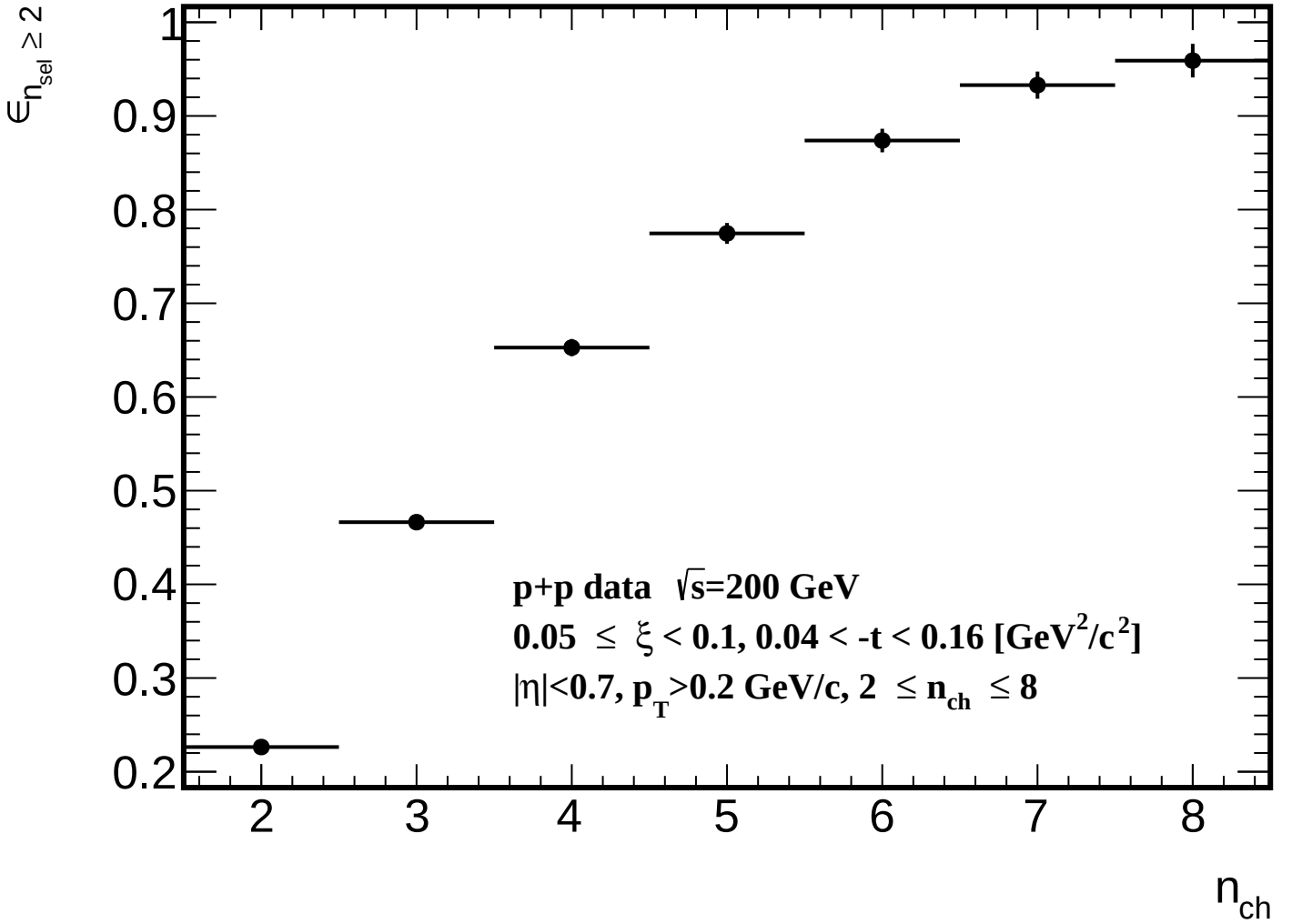

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

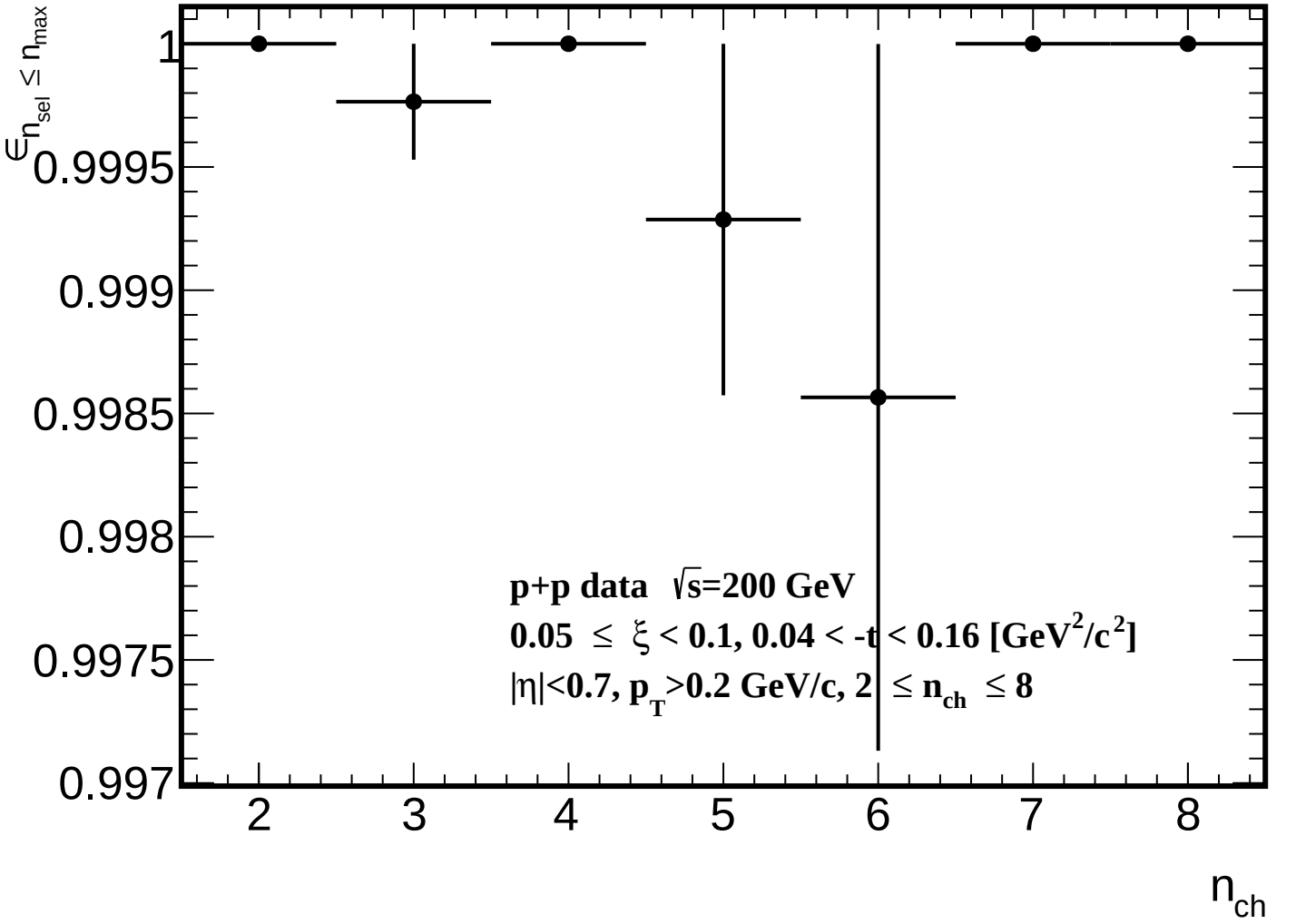

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2 /c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ_true
true MC, n_tr ≥2, no BBC, ξ_true, -t
true MC, n_tr ≥2, no BBC, ξ_true, -t, no vtx
unf/true
n_ch

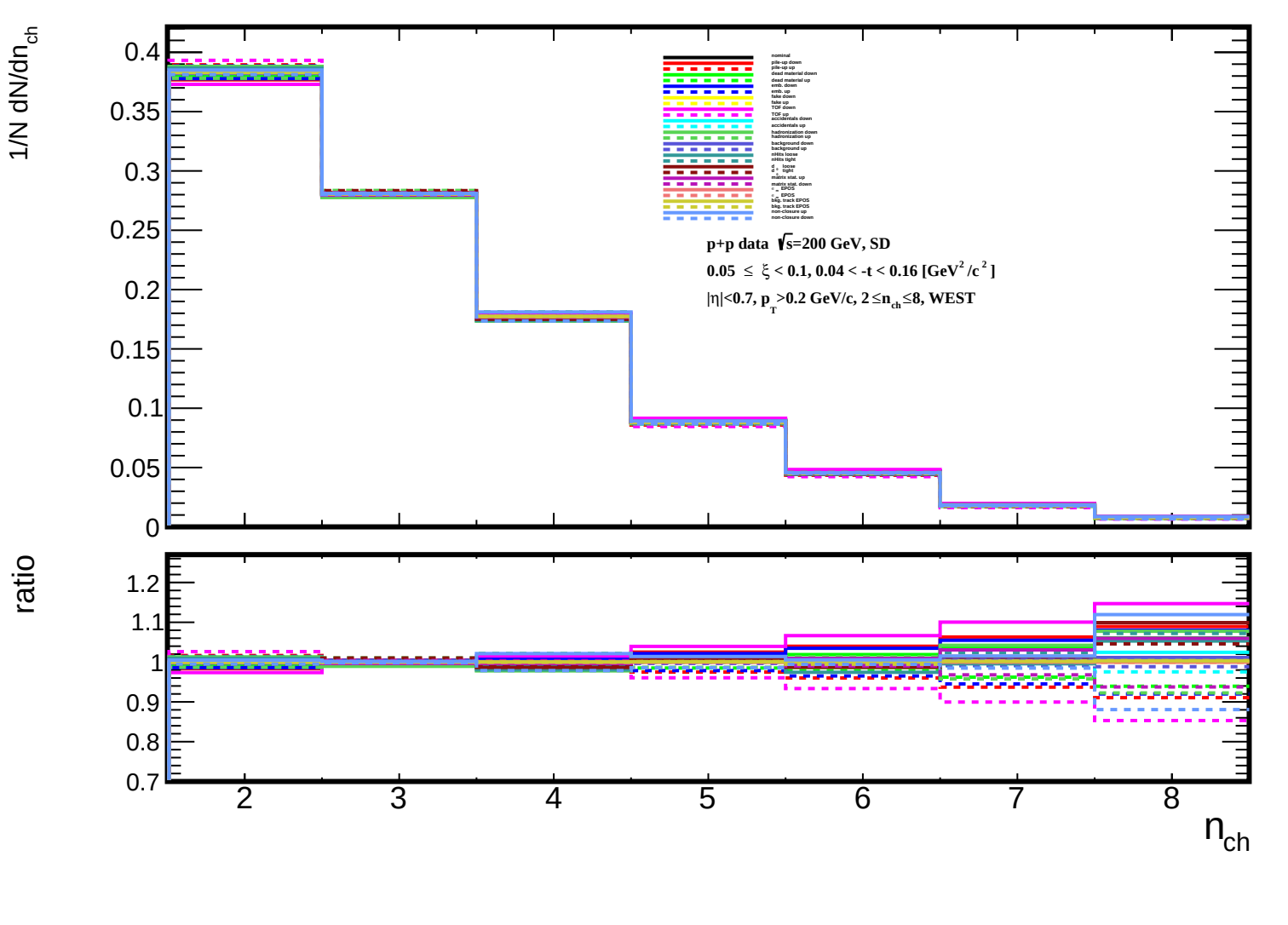

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

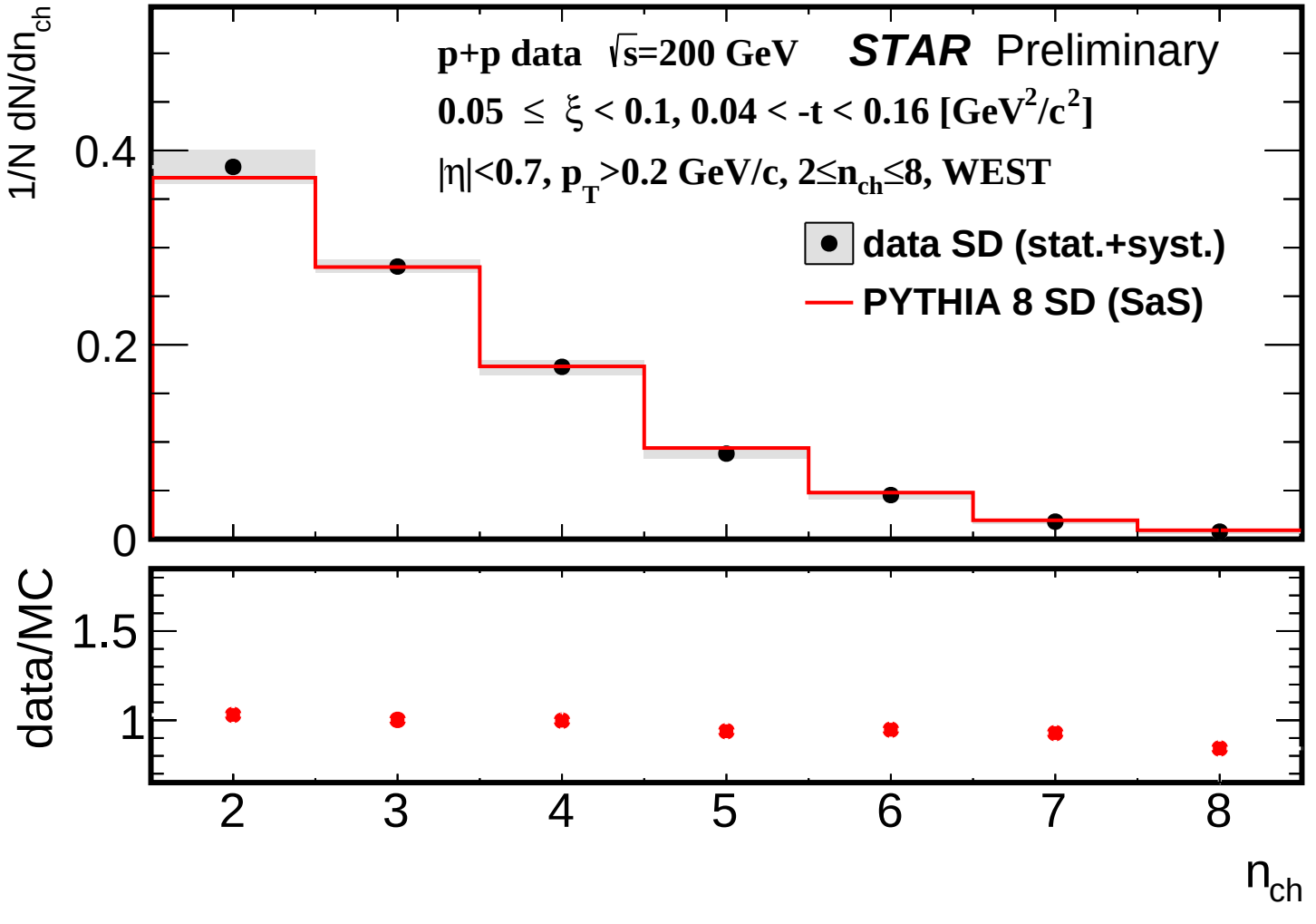

$\epsilon_{n_{sel} \le n_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

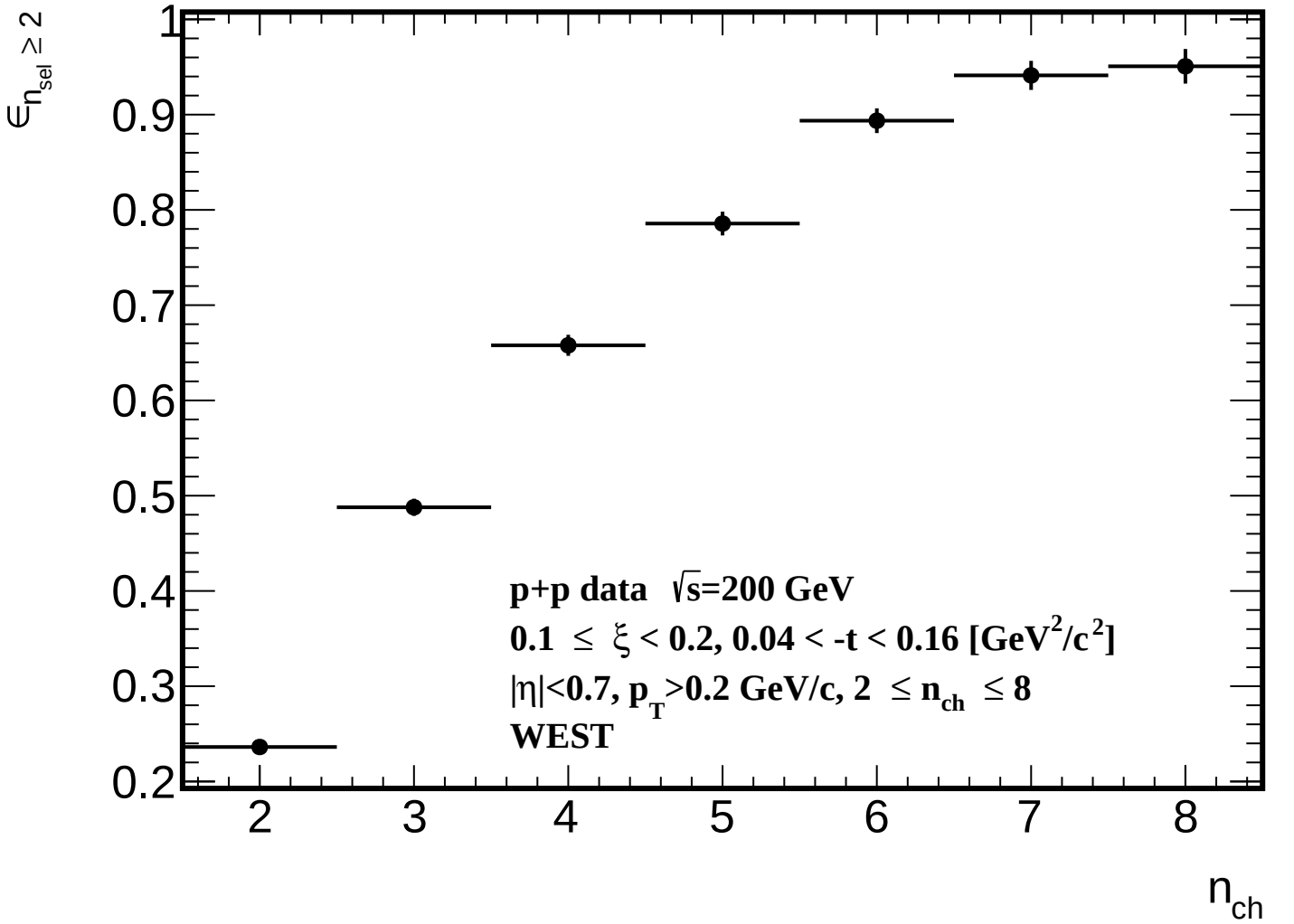

1/N dN/dn_ch
0.6
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

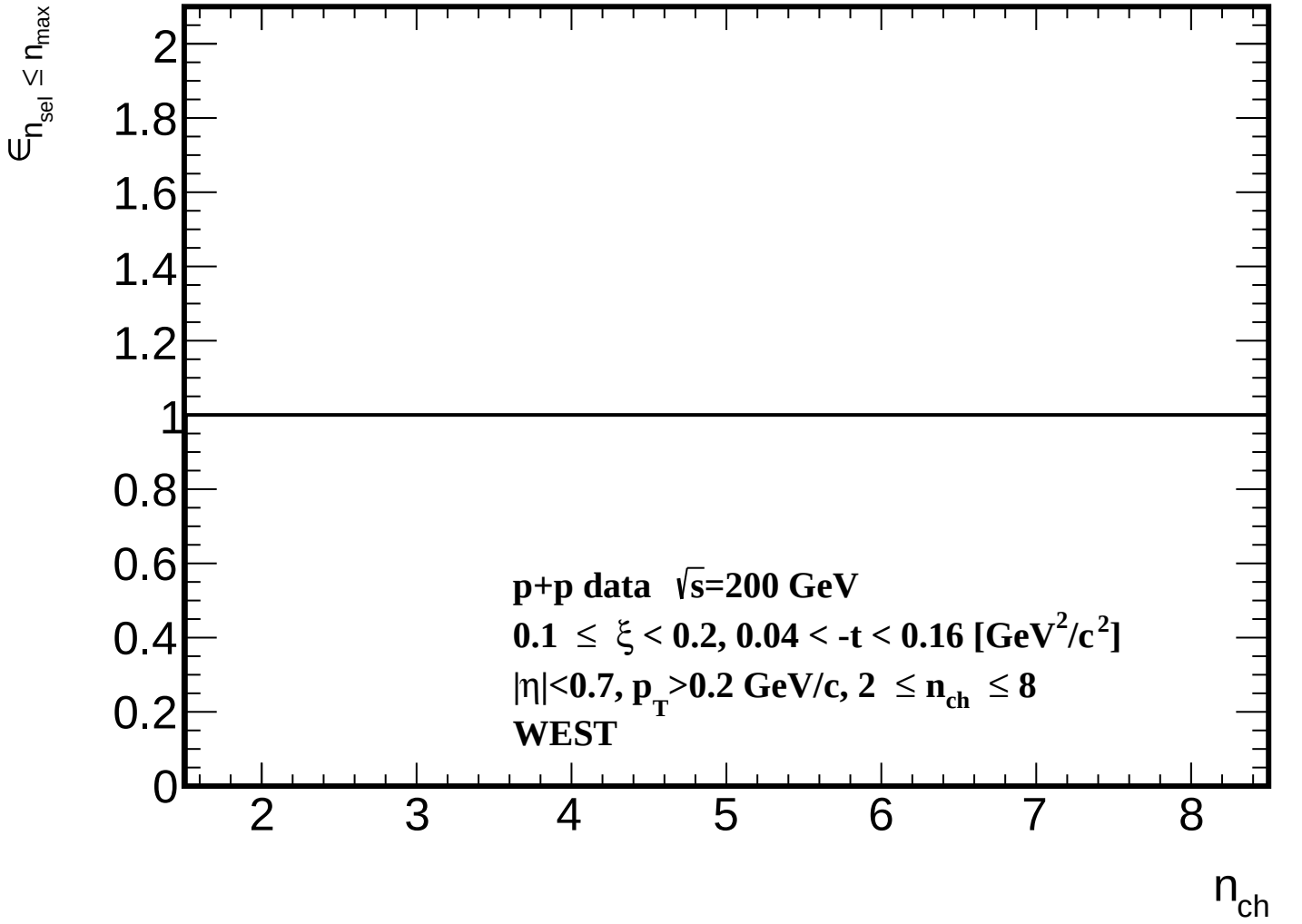

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

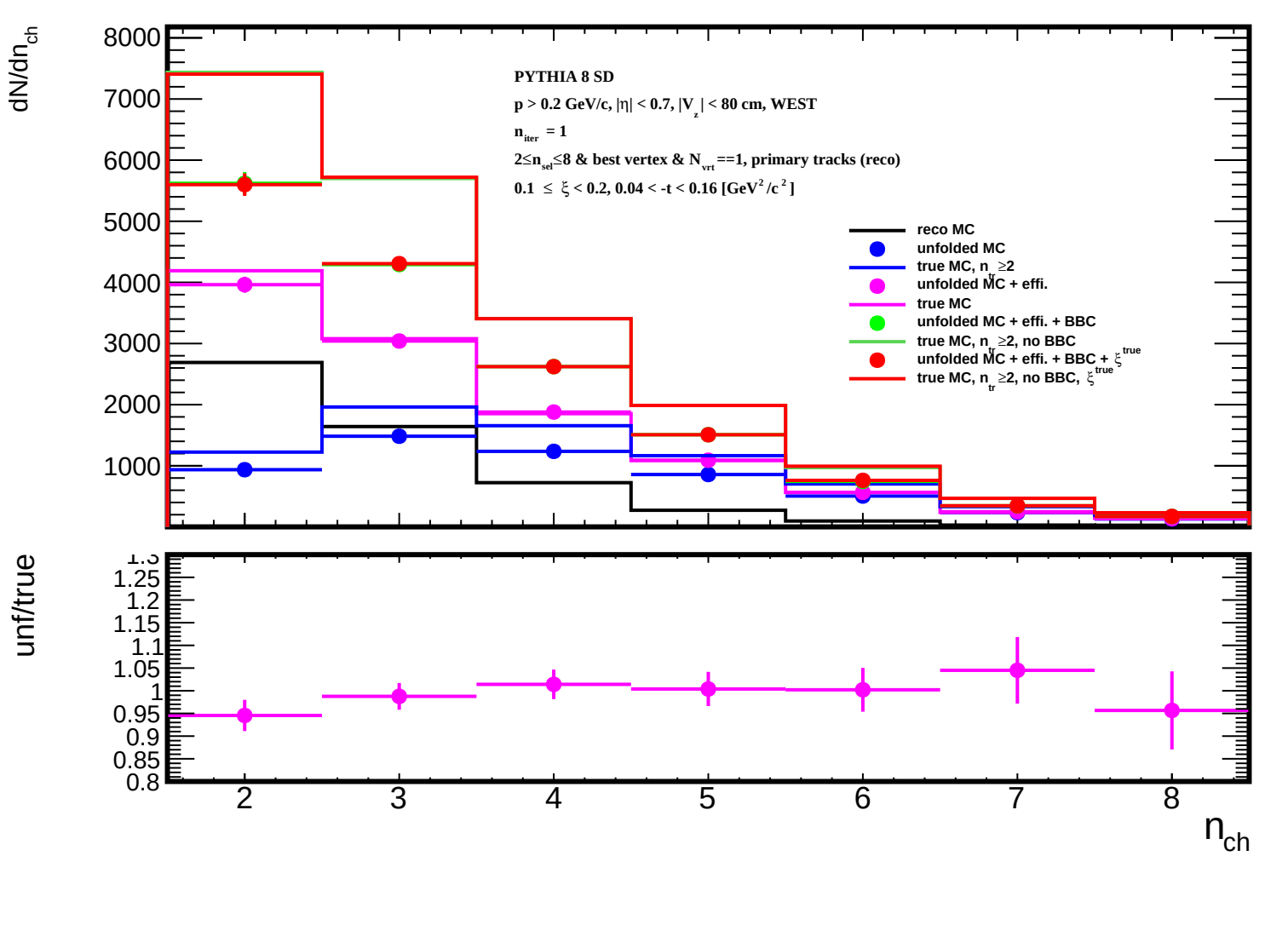

$\epsilon_{n_{sel} \le n_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

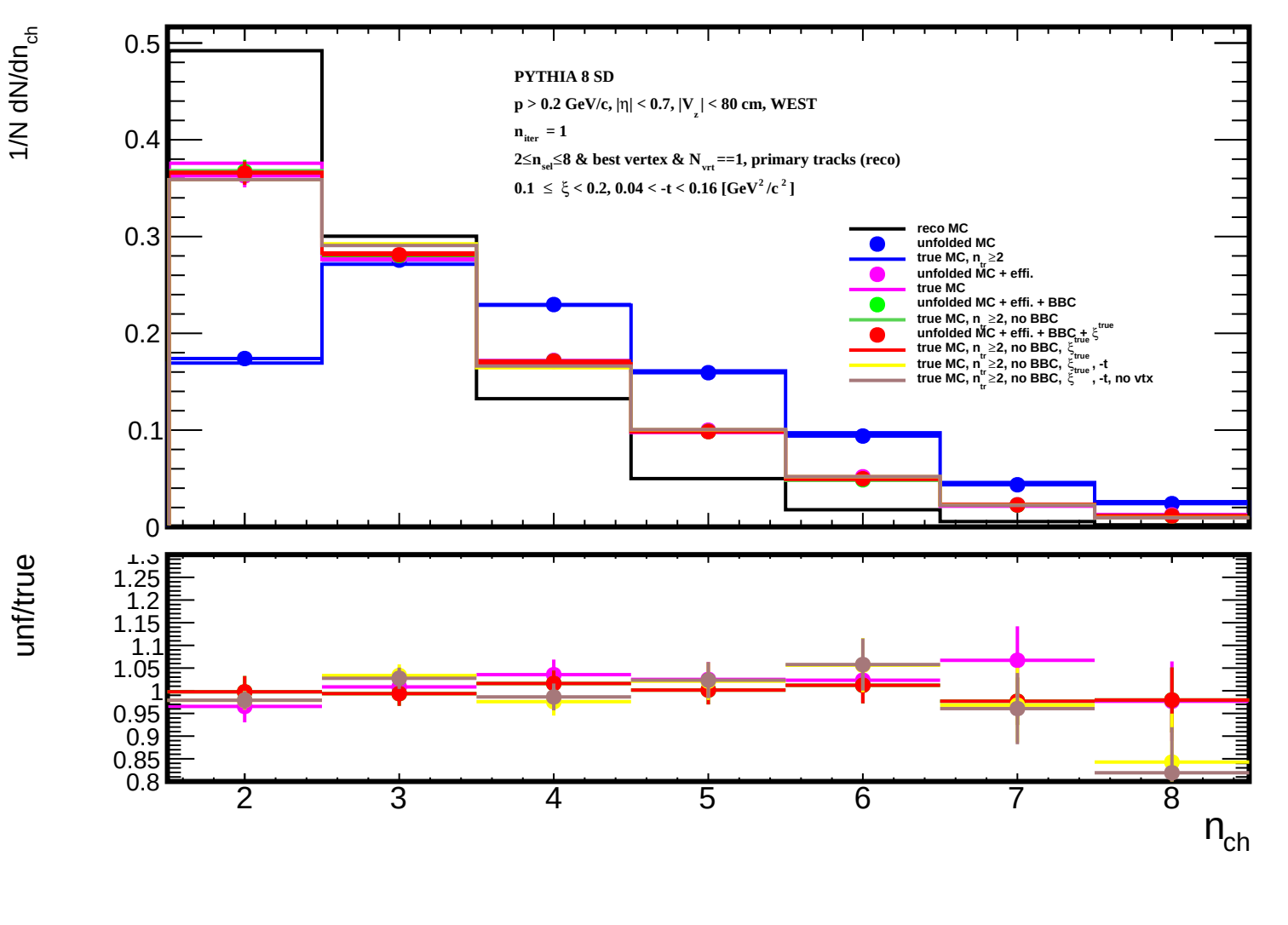

1/N dN/dn_ch
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals simple down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
d_ca loose
d_ca tight
matrix stat. up
matrix stat. down
π_xs EPOS
K_xs EPOS
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down
p+p data √s=200 GeV, SD
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
ratio
1.2
1.1
1
0.9
0.8
0.7
2
3
4
5
6
7
8
n_ch

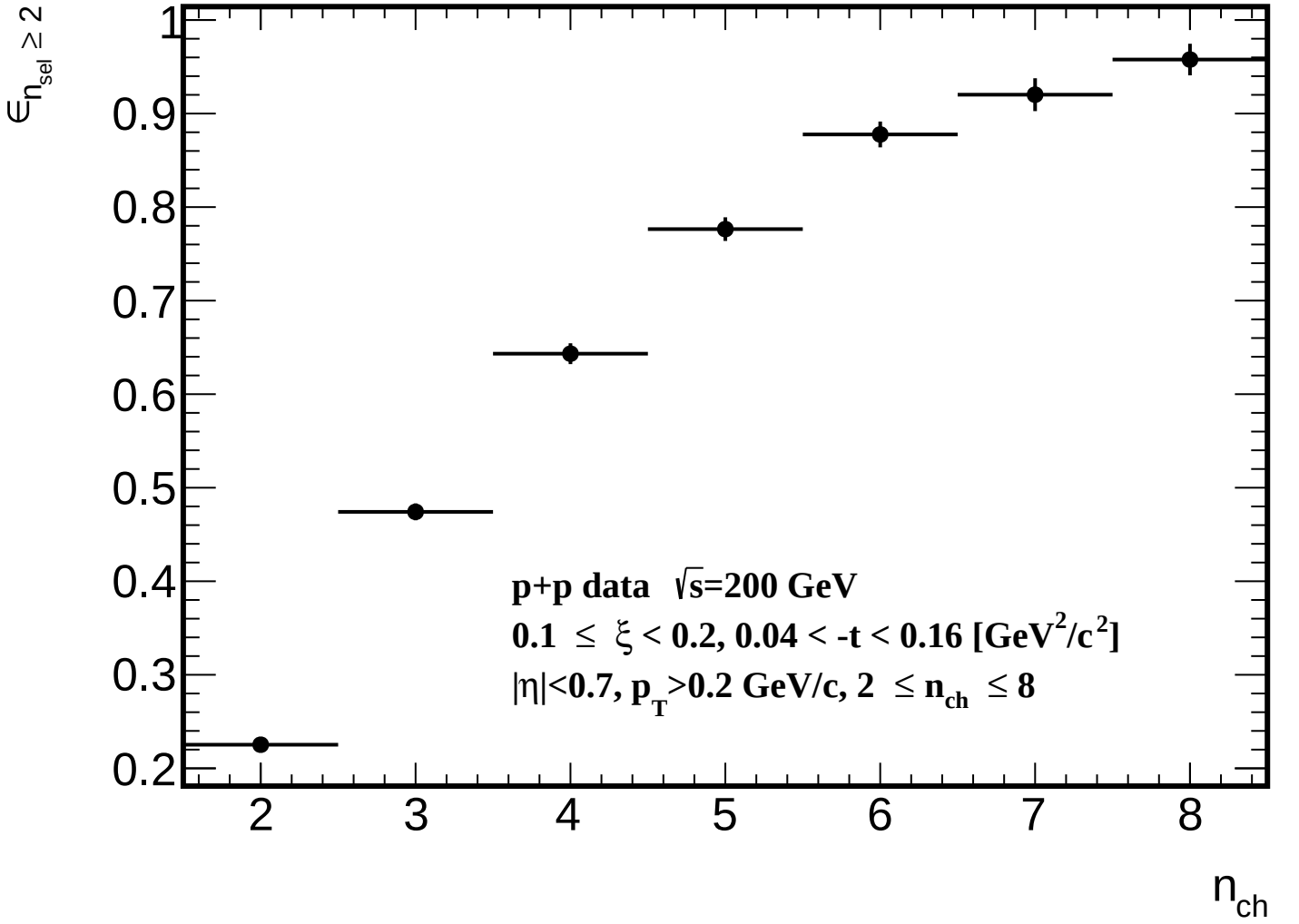

p+p data √s=200 GeV STAR Preliminary
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
0.4
0.2
0
data/MC
1.5
1
2
3
4
5
6
7
8
n_ch

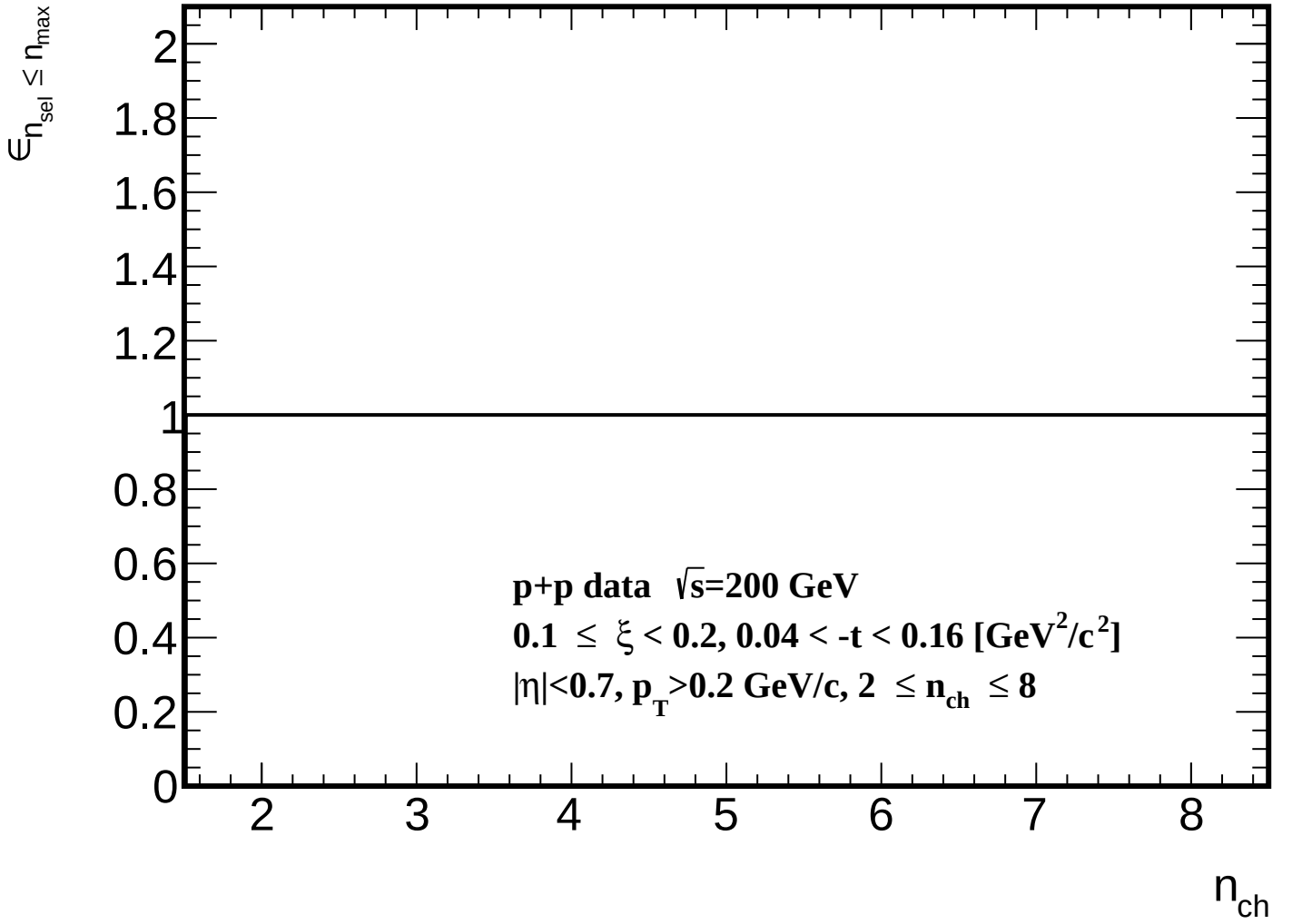

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
WEST

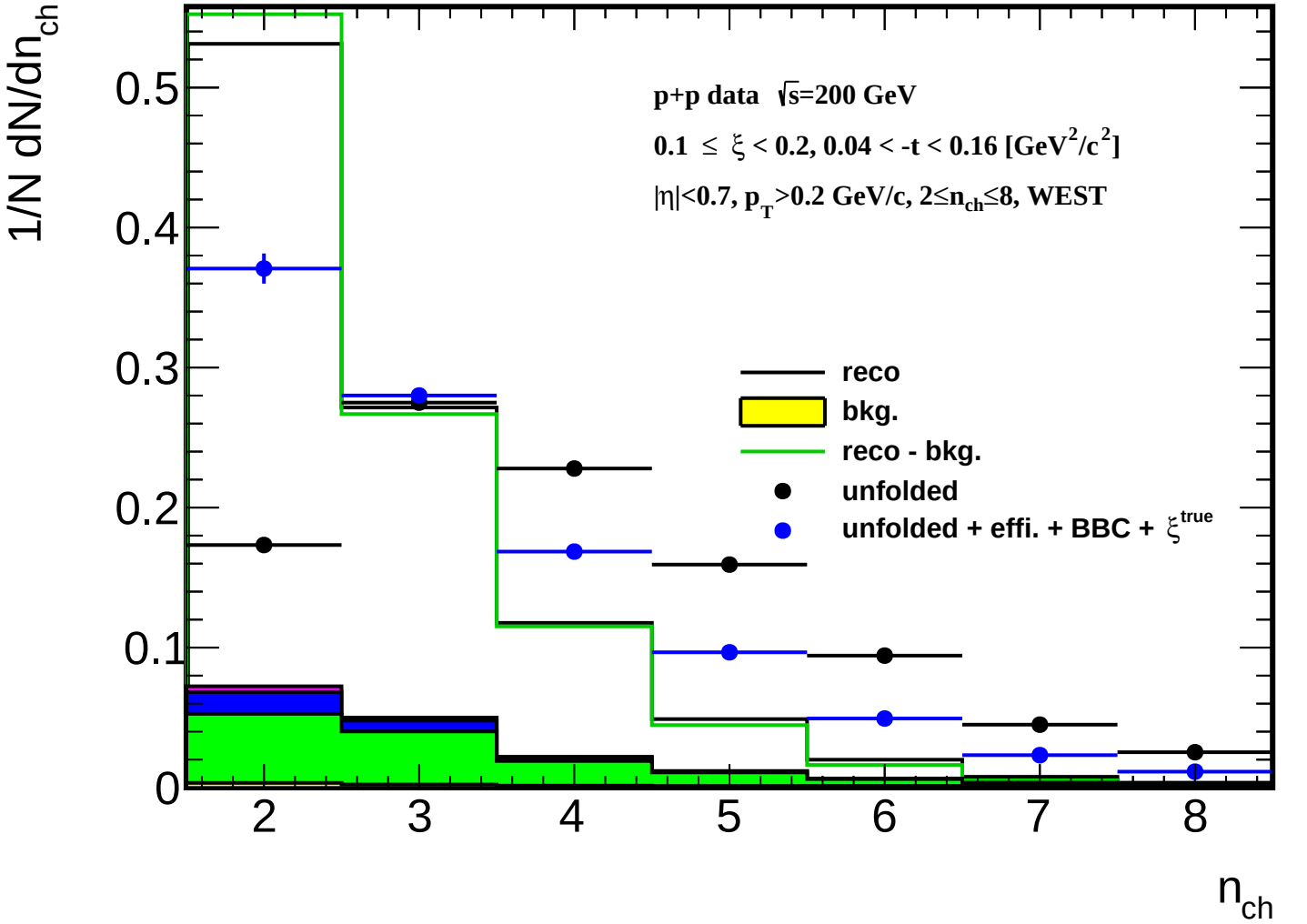

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8
WEST

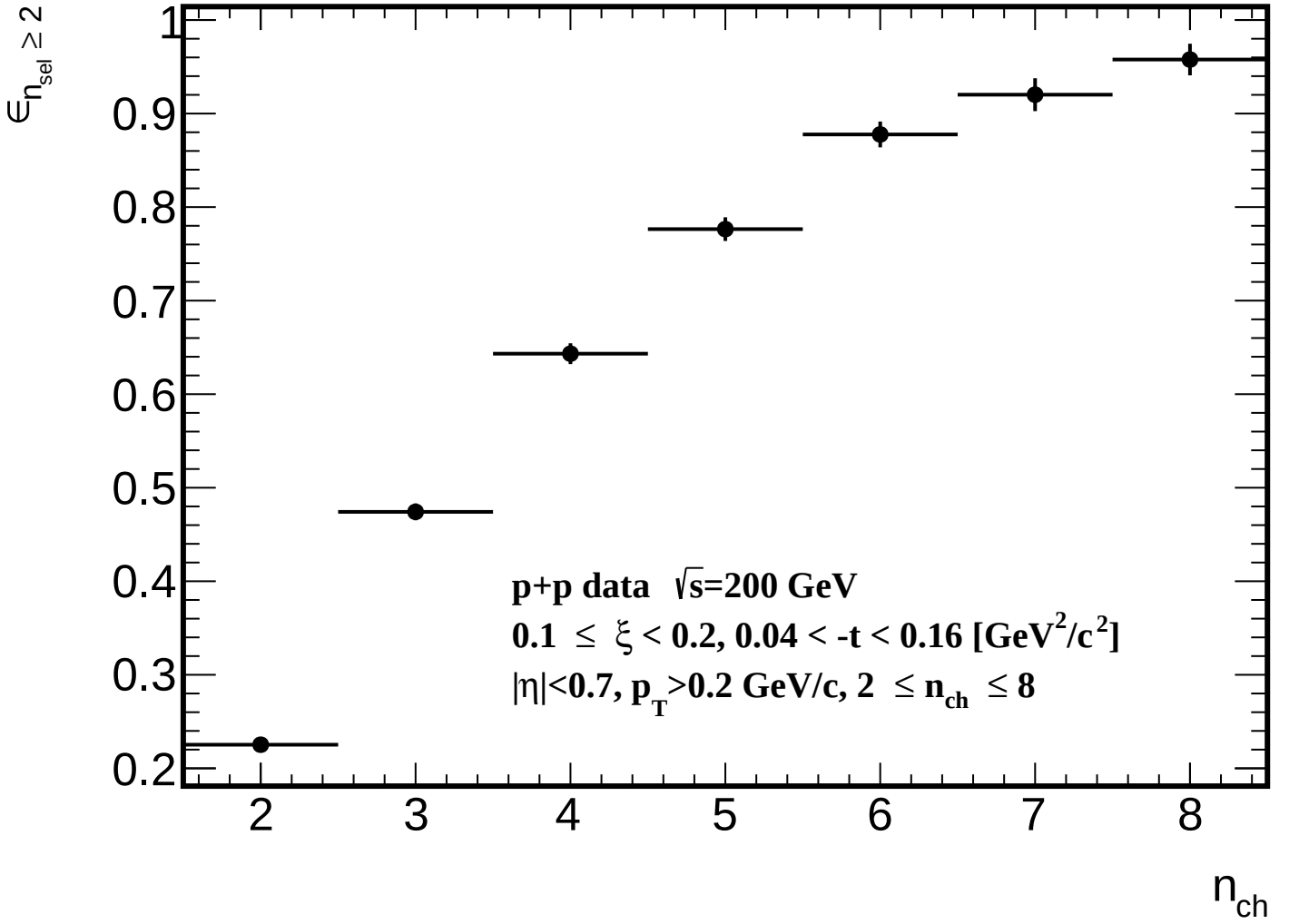

dN/dn_ch
8000
7000
6000
5000
4000
3000
2000
1000
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
1.3
1.25
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
2
3
4
5
6
7
8
n_ch

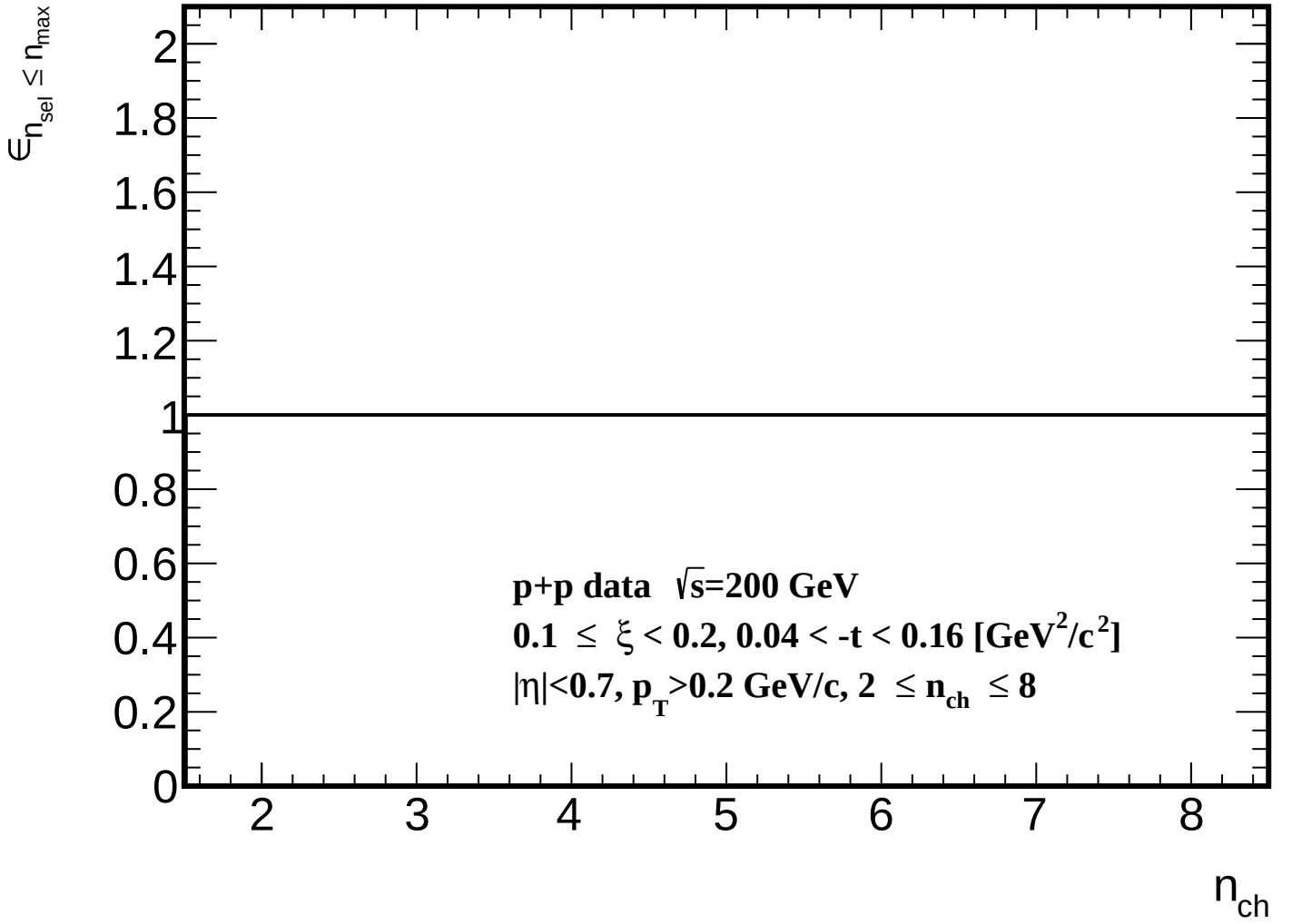

1/N dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm, WEST
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ_true
true MC, n_tr ≥2, no BBC, ξ_true, -t
true MC, n_tr ≥2, no BBC, ξ_true, -t, no vtx
unf/true
n_ch

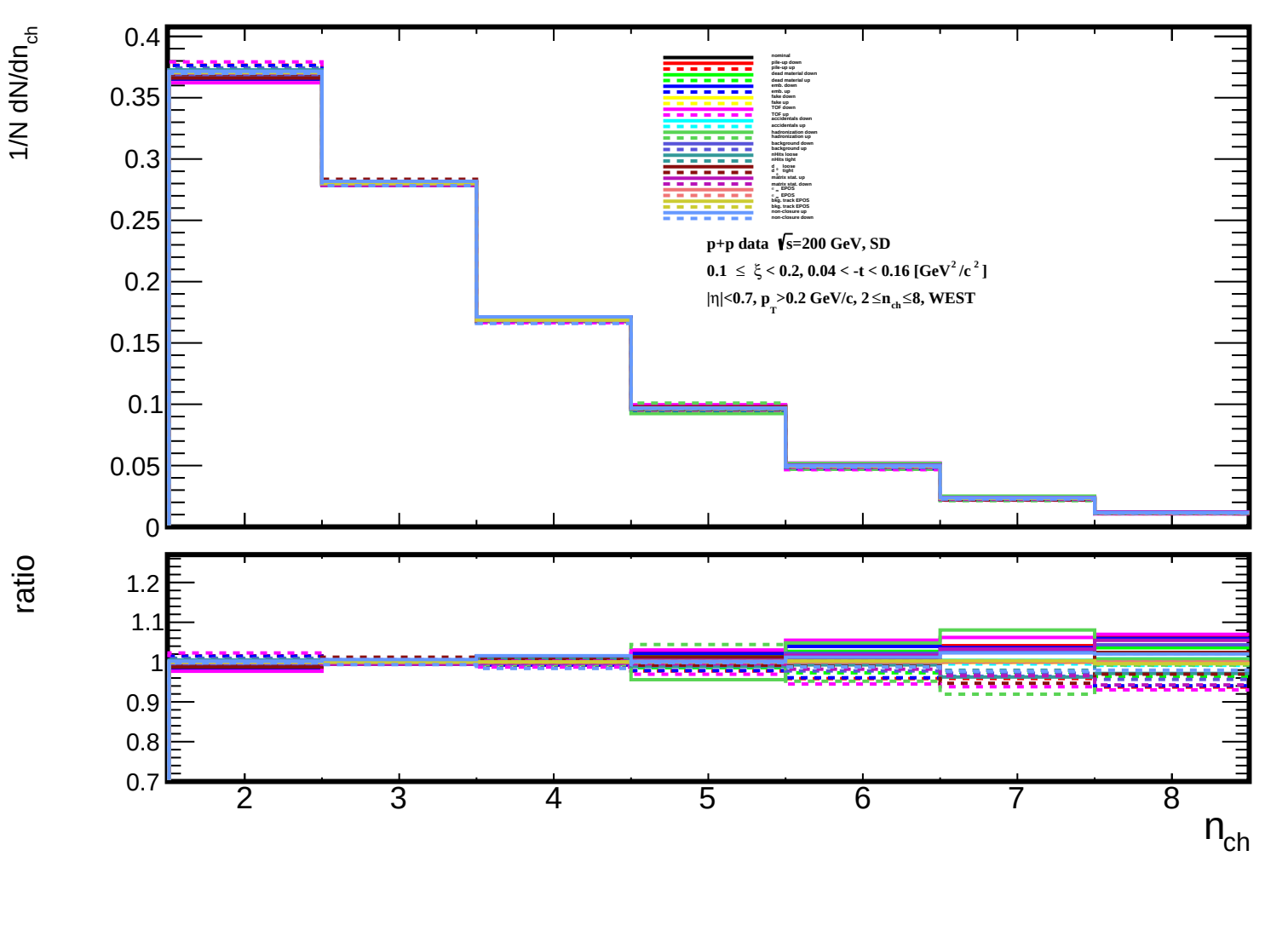

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

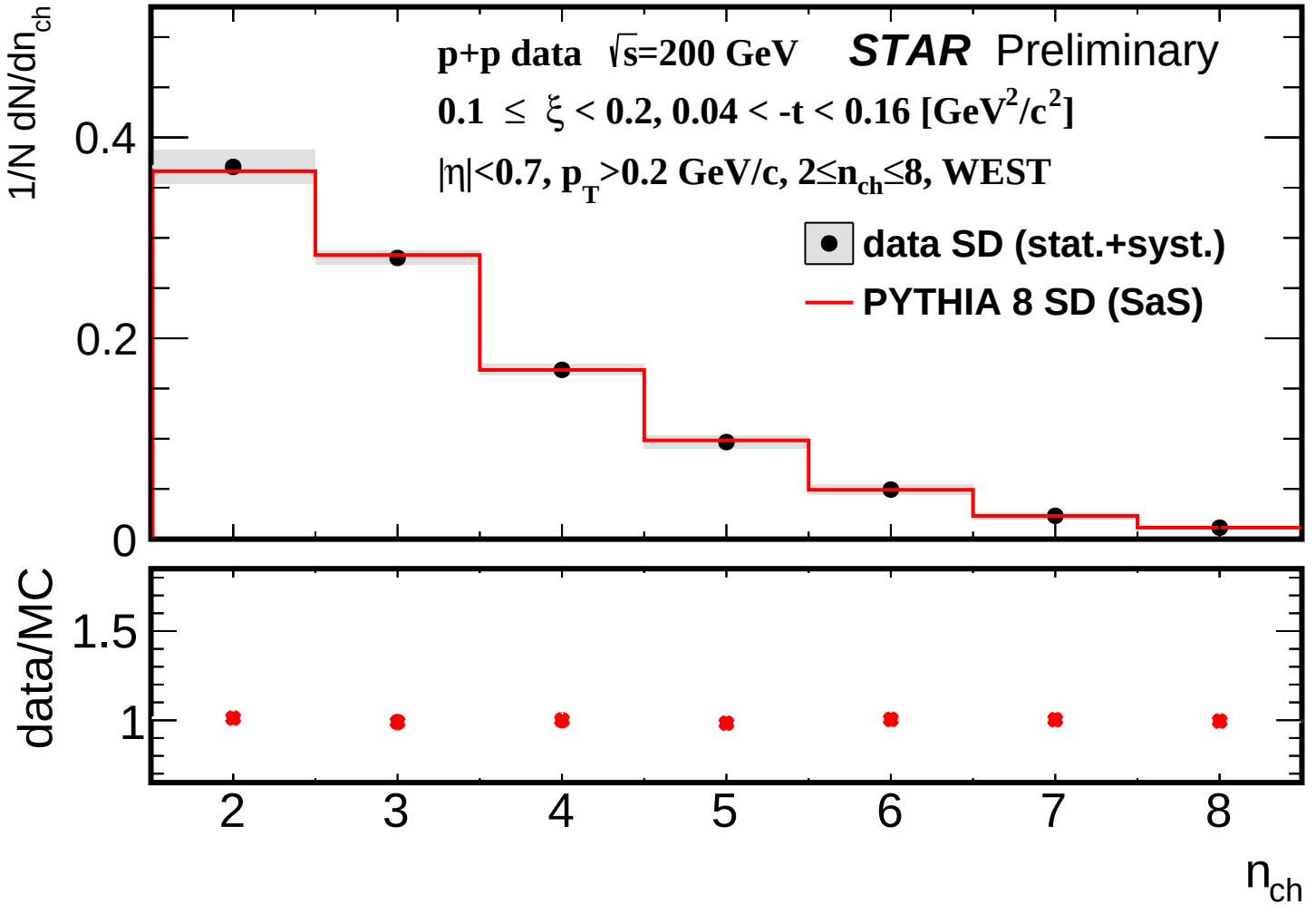

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

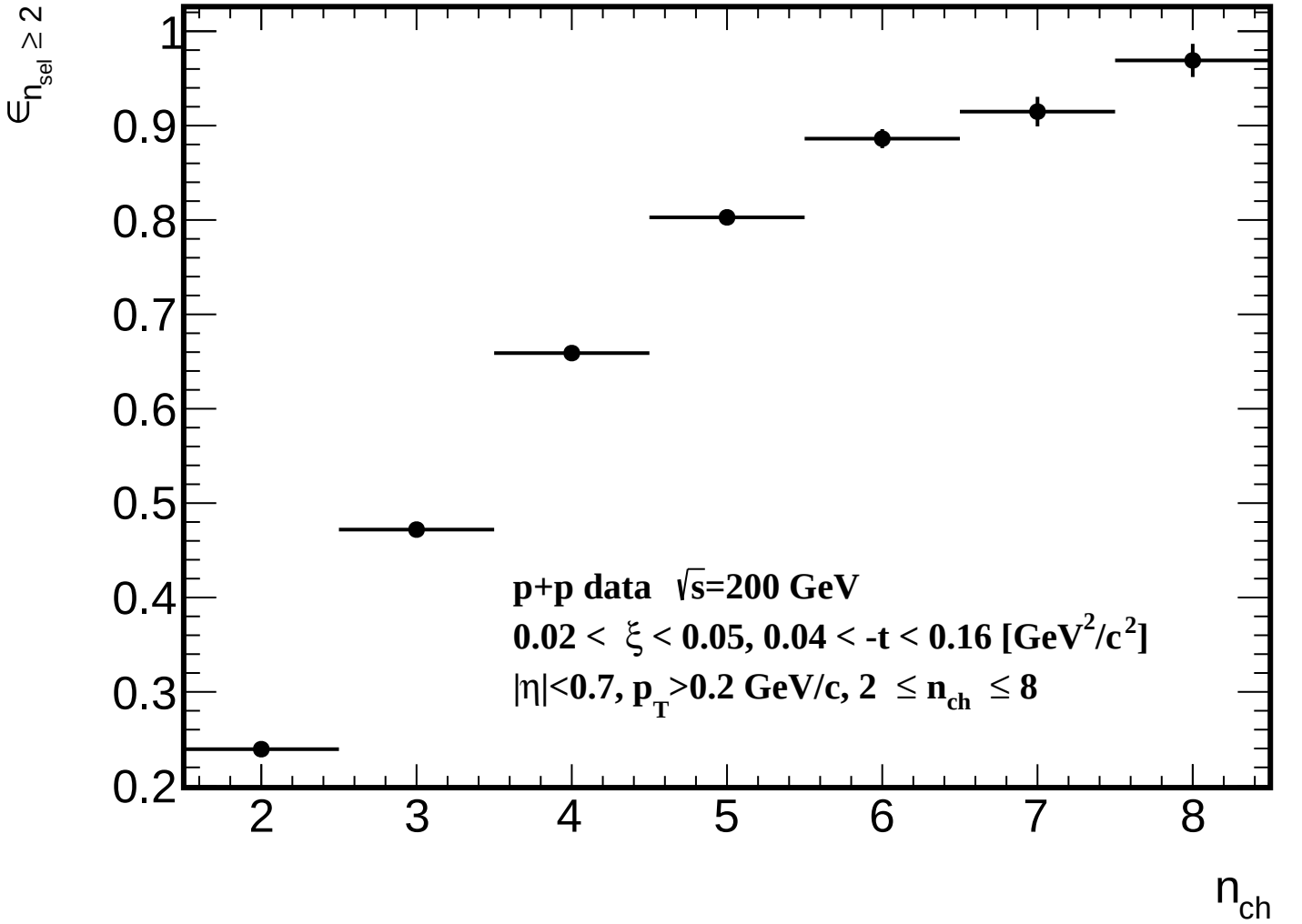

1/N dN/dn_ch
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

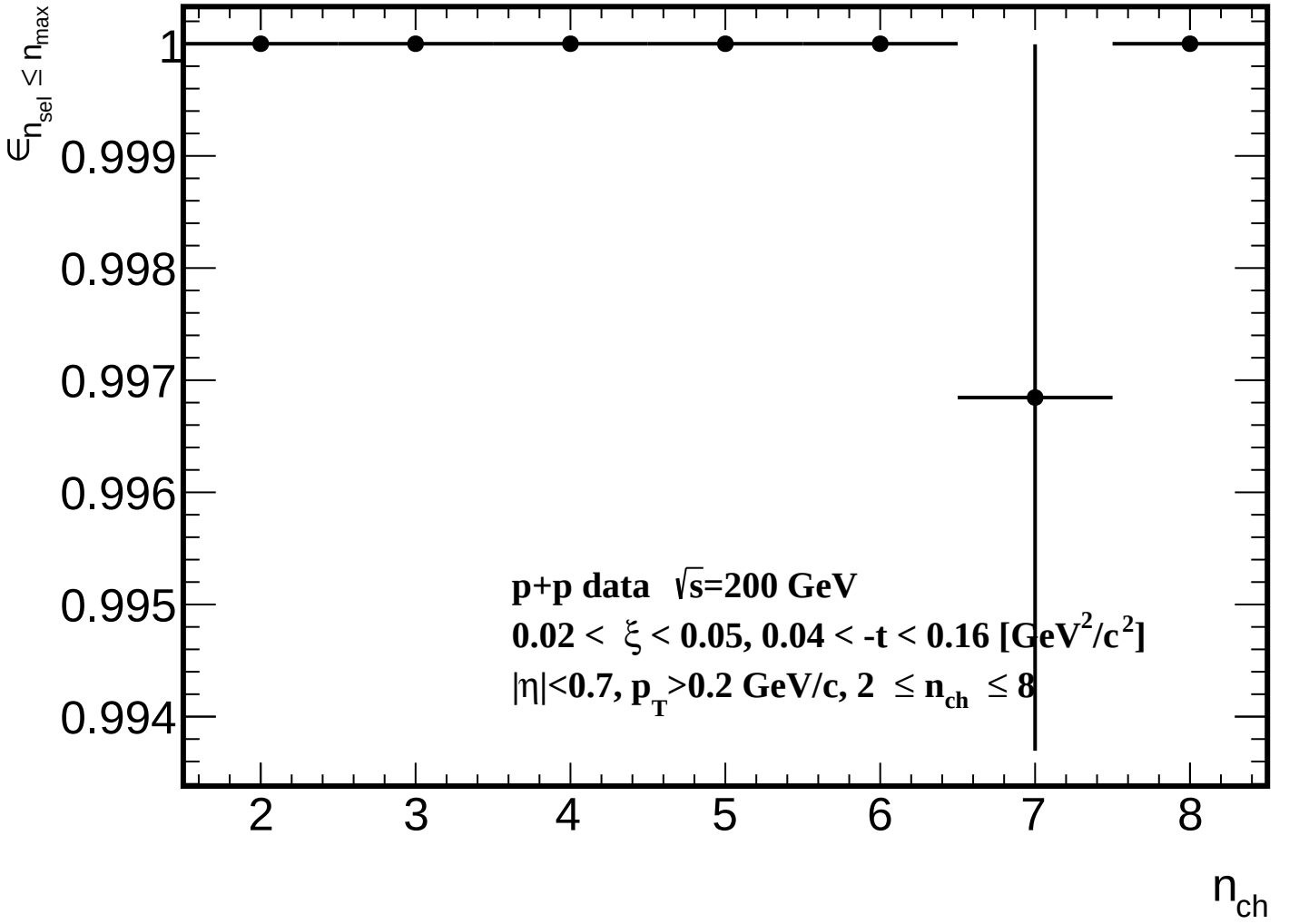

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

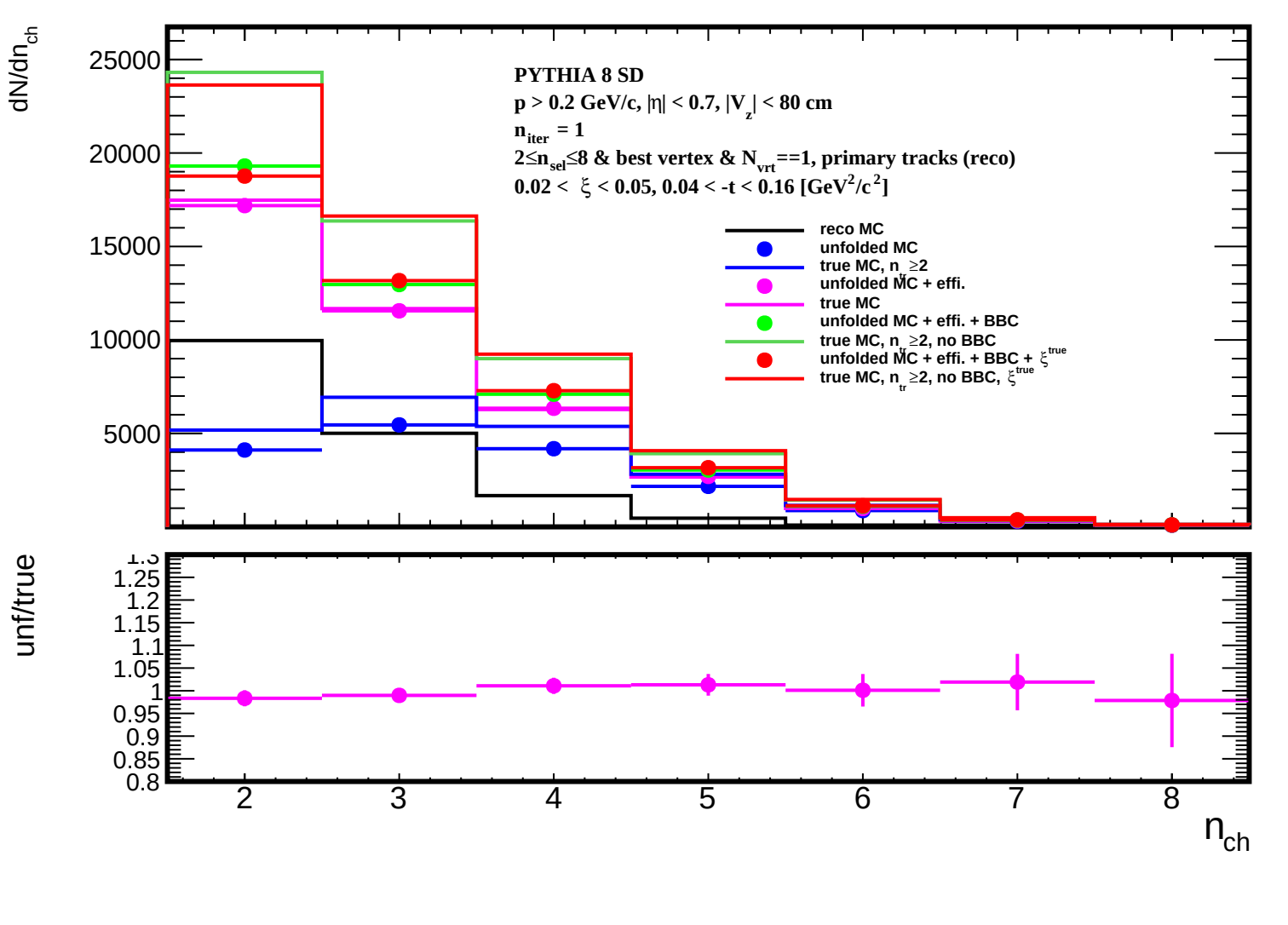

$\epsilon_{n_{sel} \leq n_{max}}$
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

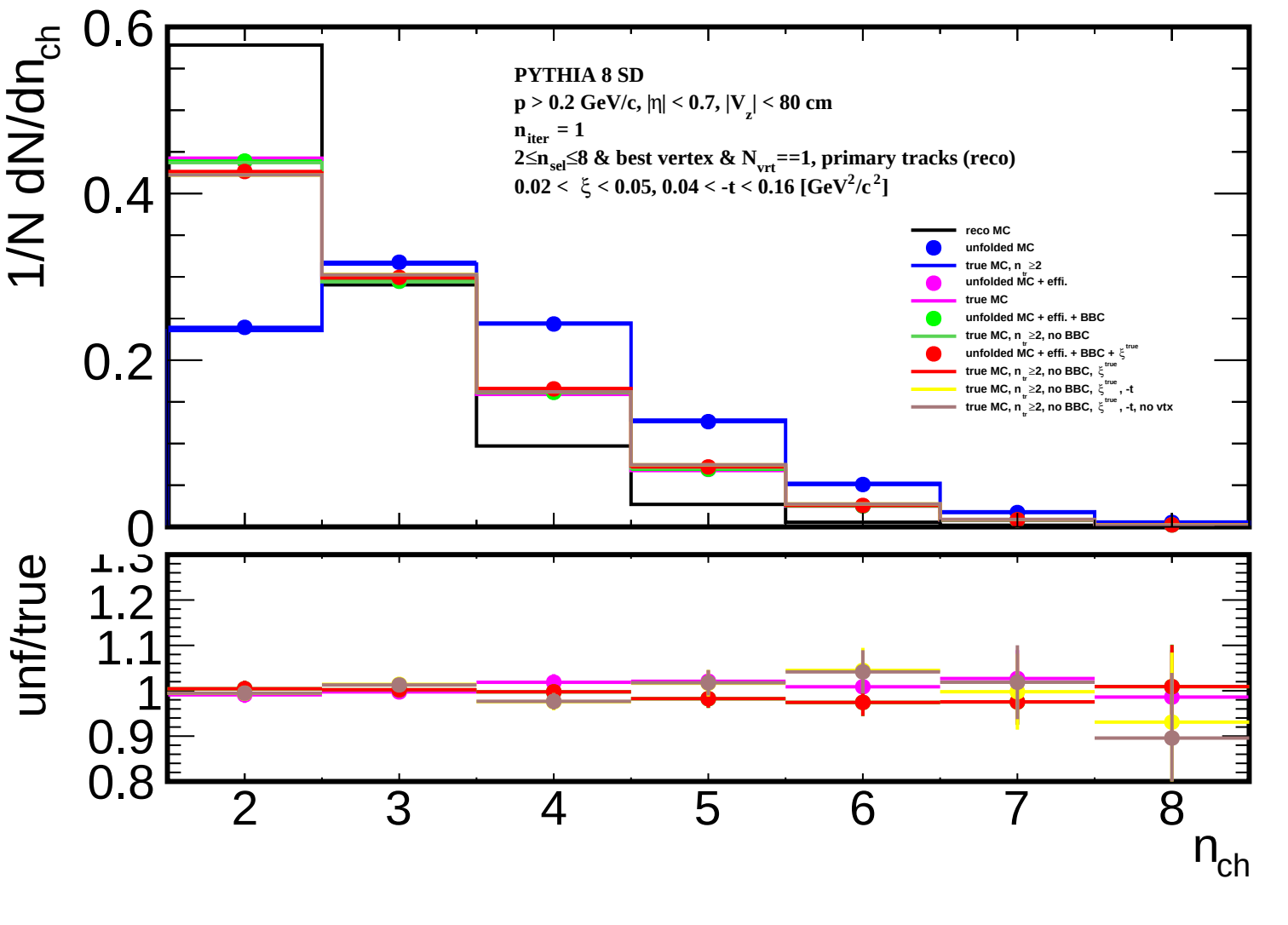

1/N dN/dn_ch
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
nominal
pile-up down
pile-up up
dead material down
dead material up
emb. down
emb. up
fake down
fake up
TOF down
TOF up
accidentals down
accidentals up
hadronization down
hadronization up
background down
background up
nHits loose
nHits tight
d_ca loose
d_ca tight
matrix stat. up
matrix stat. down
π_+ EPOS
π_- EPOS
bkg. track EPOS
bkg. track EPOS
non-closure up
non-closure down
p+p data √s=200 GeV, SD
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
ratio
1.2
1.1
1
0.9
0.8
0.7
2
3
4
5
6
7
8
n_ch

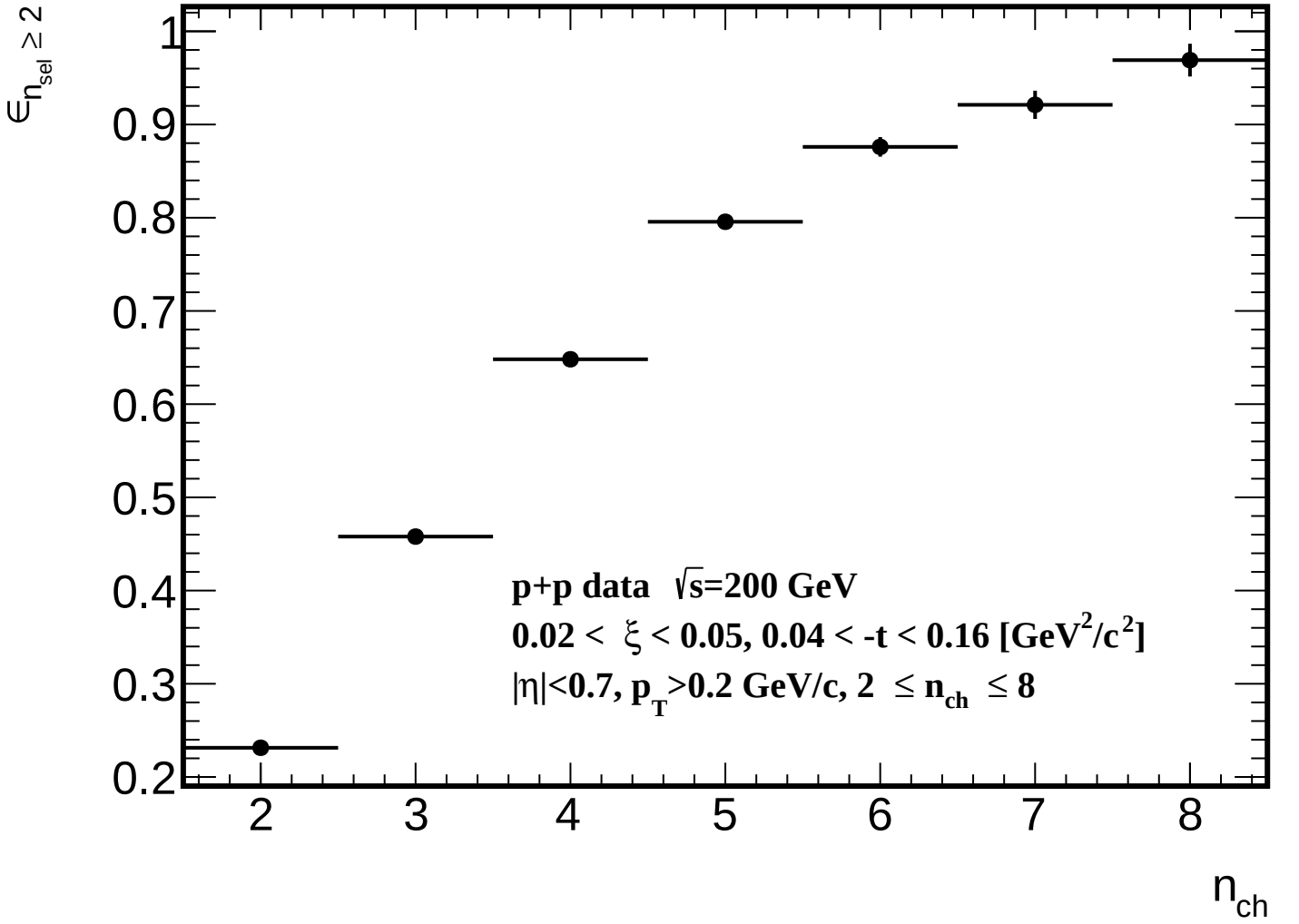

p+p data √s=200 GeV STAR Preliminary
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8, WEST
data SD (stat.+syst.)
PYTHIA 8 SD (SaS)
1/N dN/dn_ch
0.4
0.2
0
data/MC
1.5
1
2
3
4
5
6
7
8
n_ch

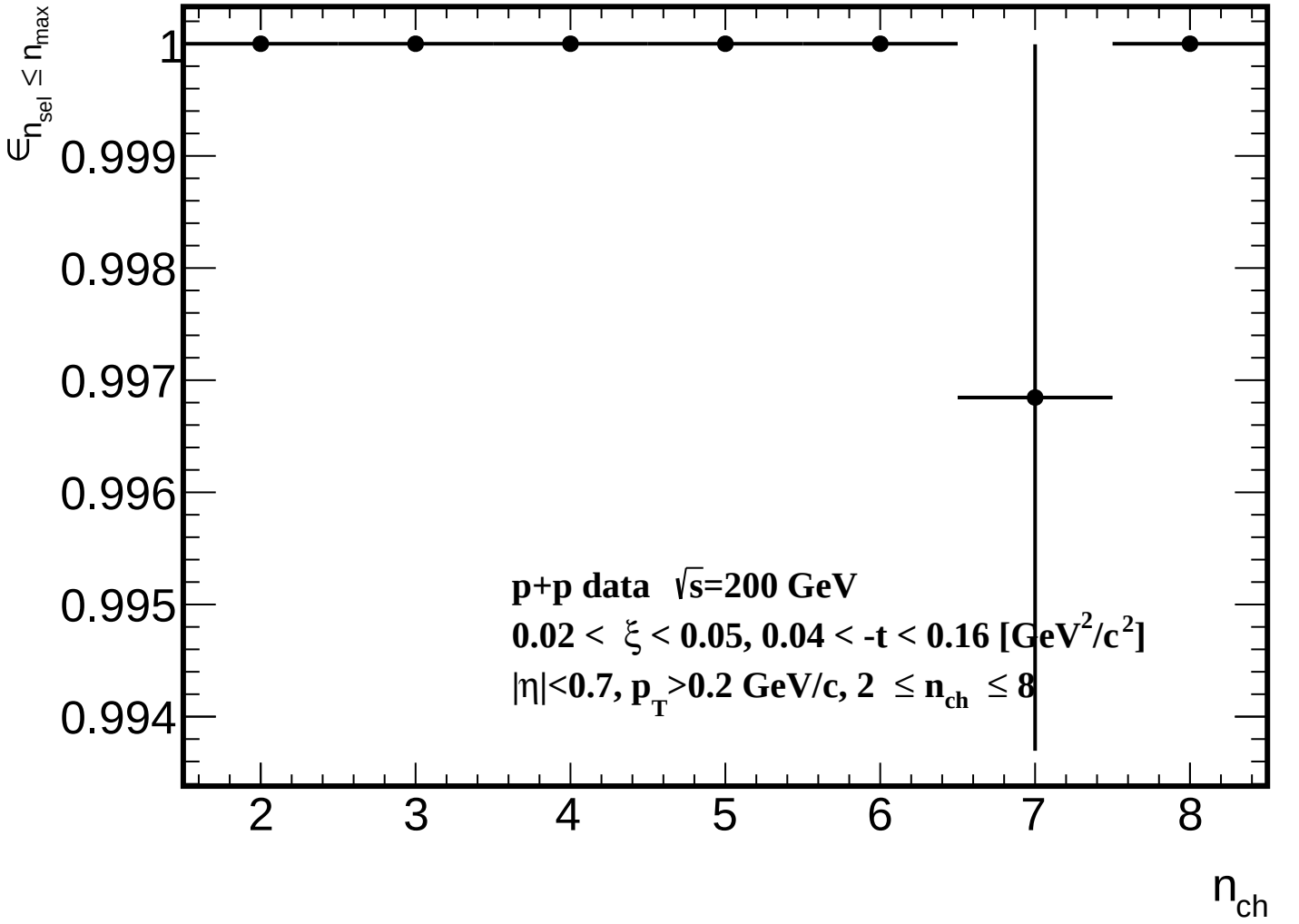

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

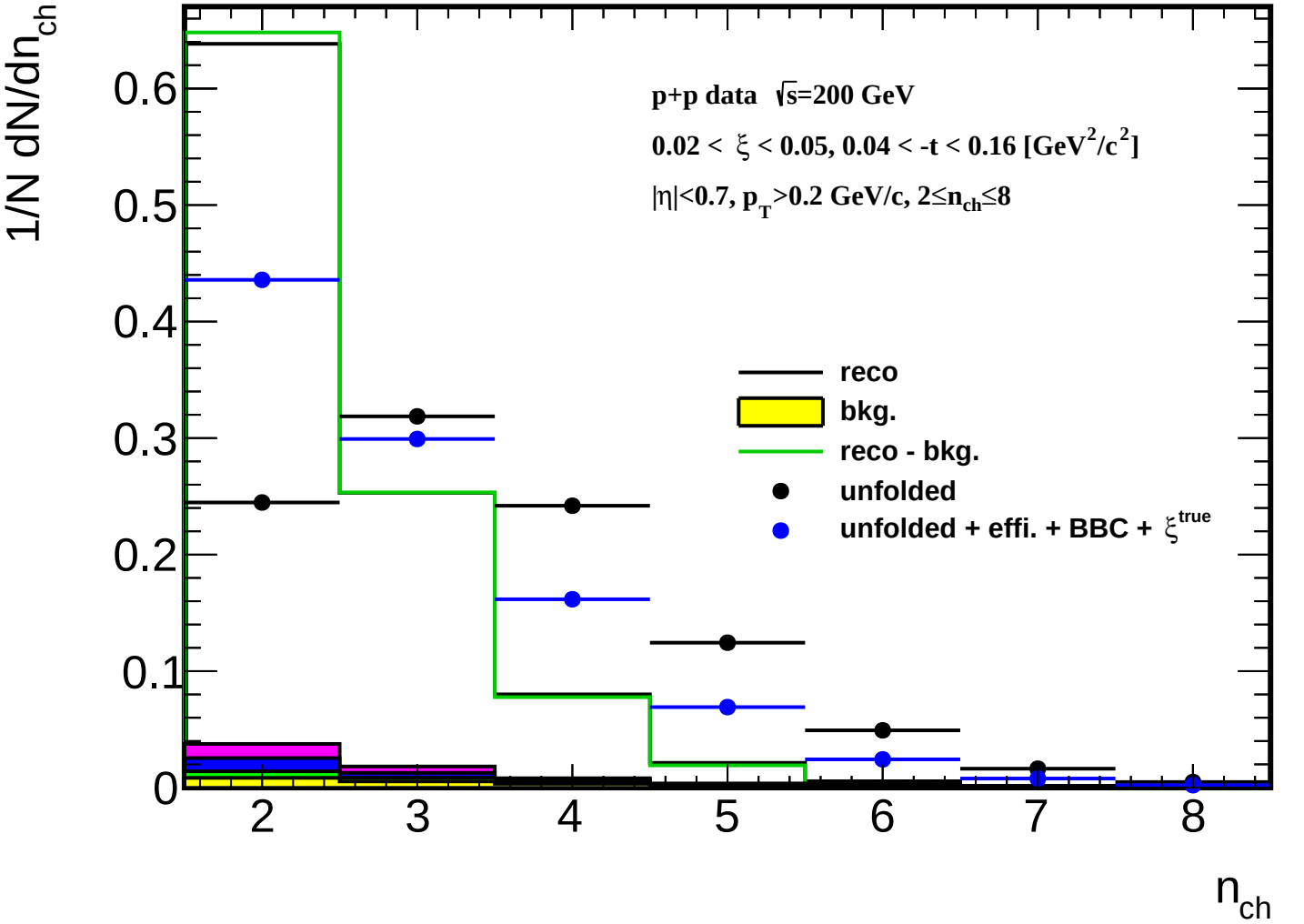

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
$|\eta|$<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

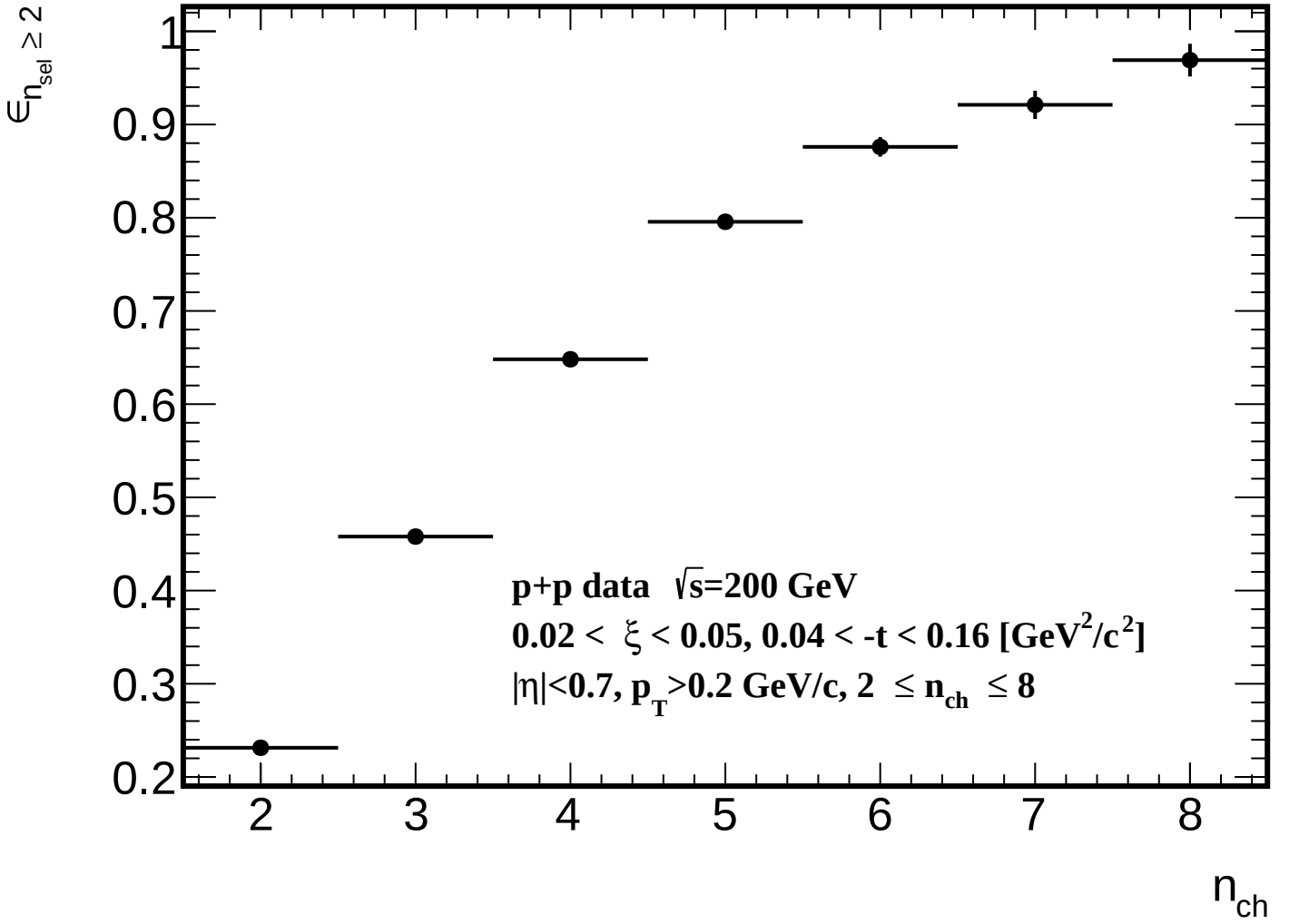

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

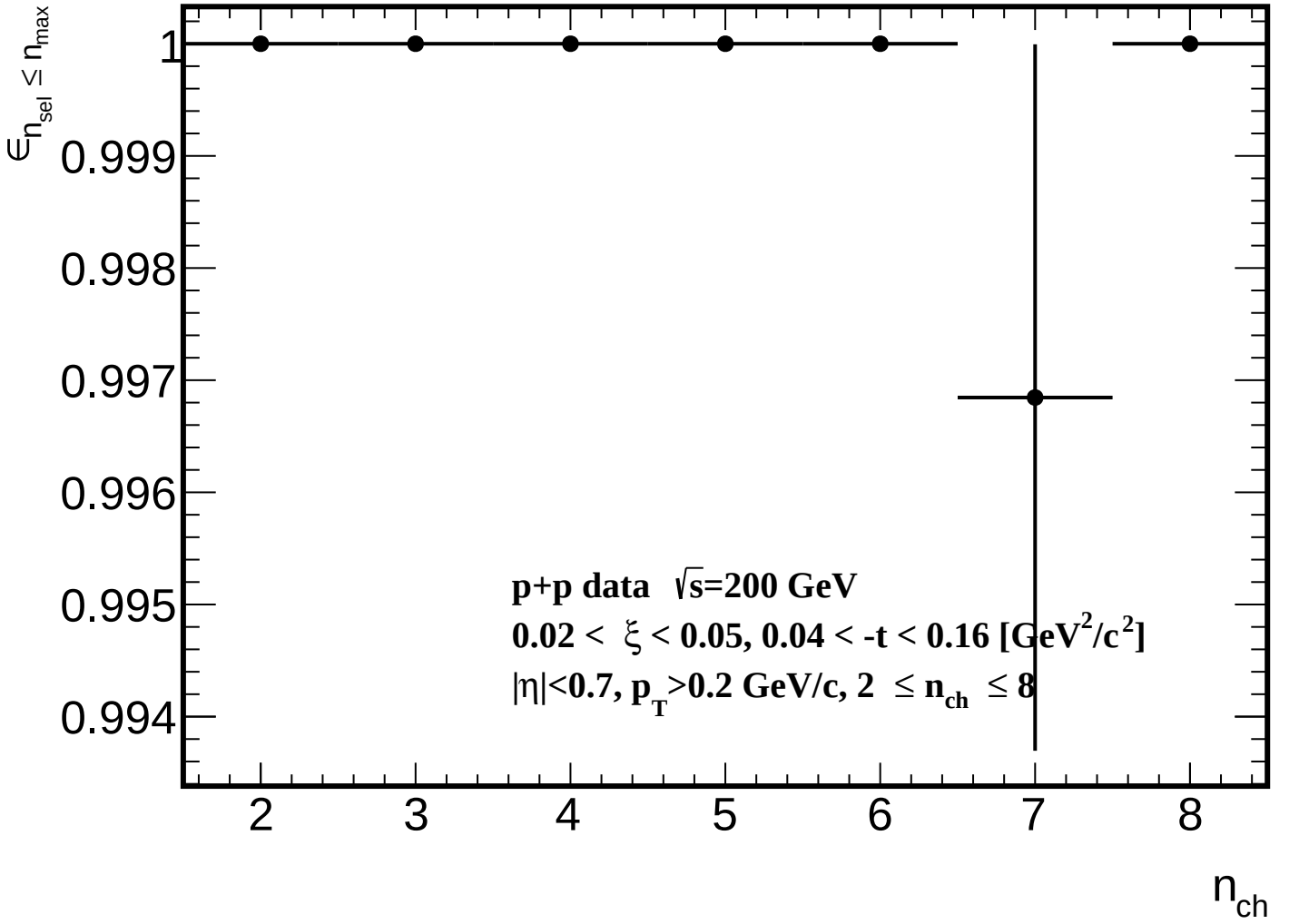

PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
true MC, n_tr ≥2, no BBC, ξ^true, -t
true MC, n_tr ≥2, no BBC, ξ^true, -t, no vtx
1/N dN/dn_ch
unf/true
n_ch

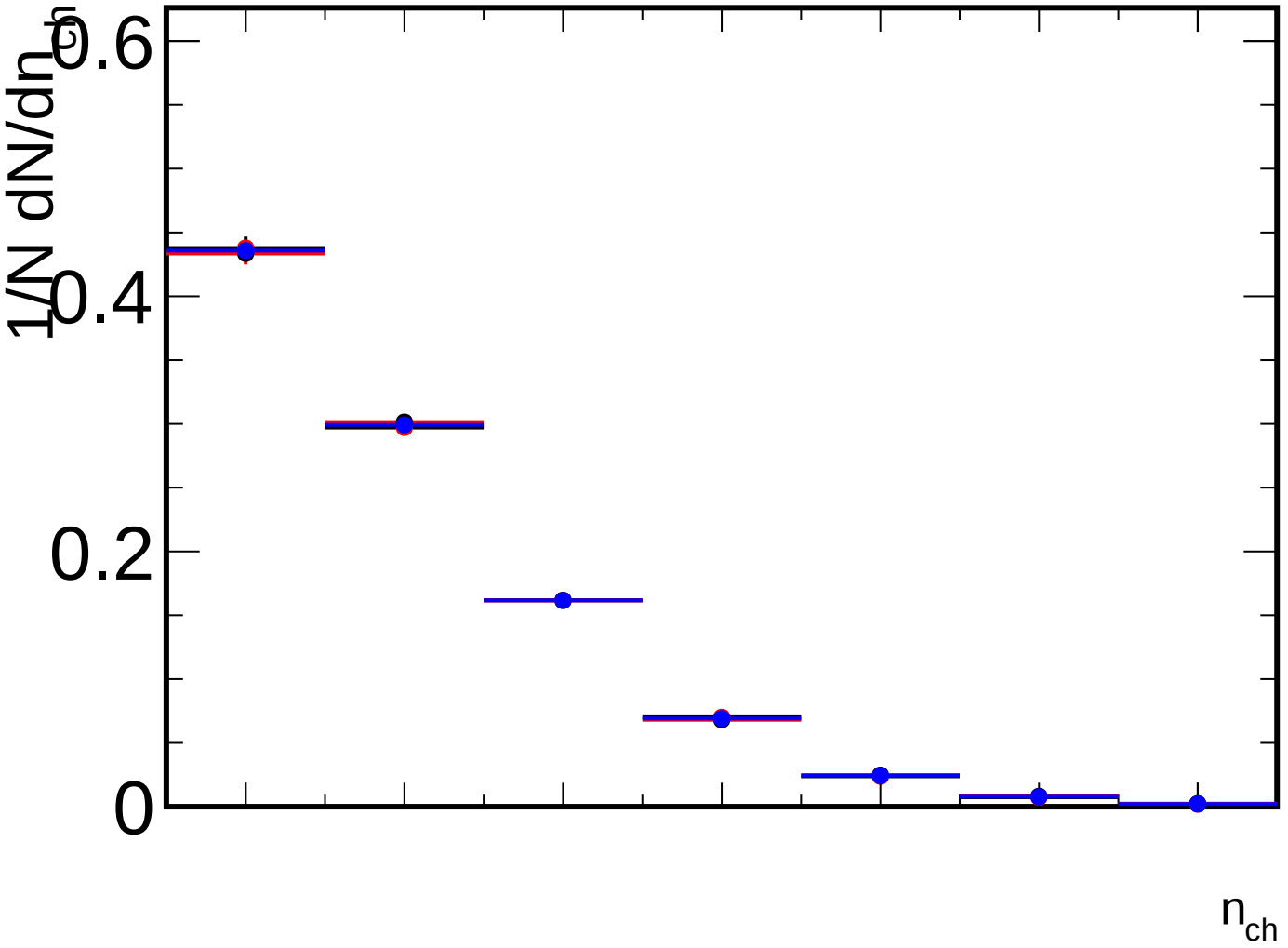

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

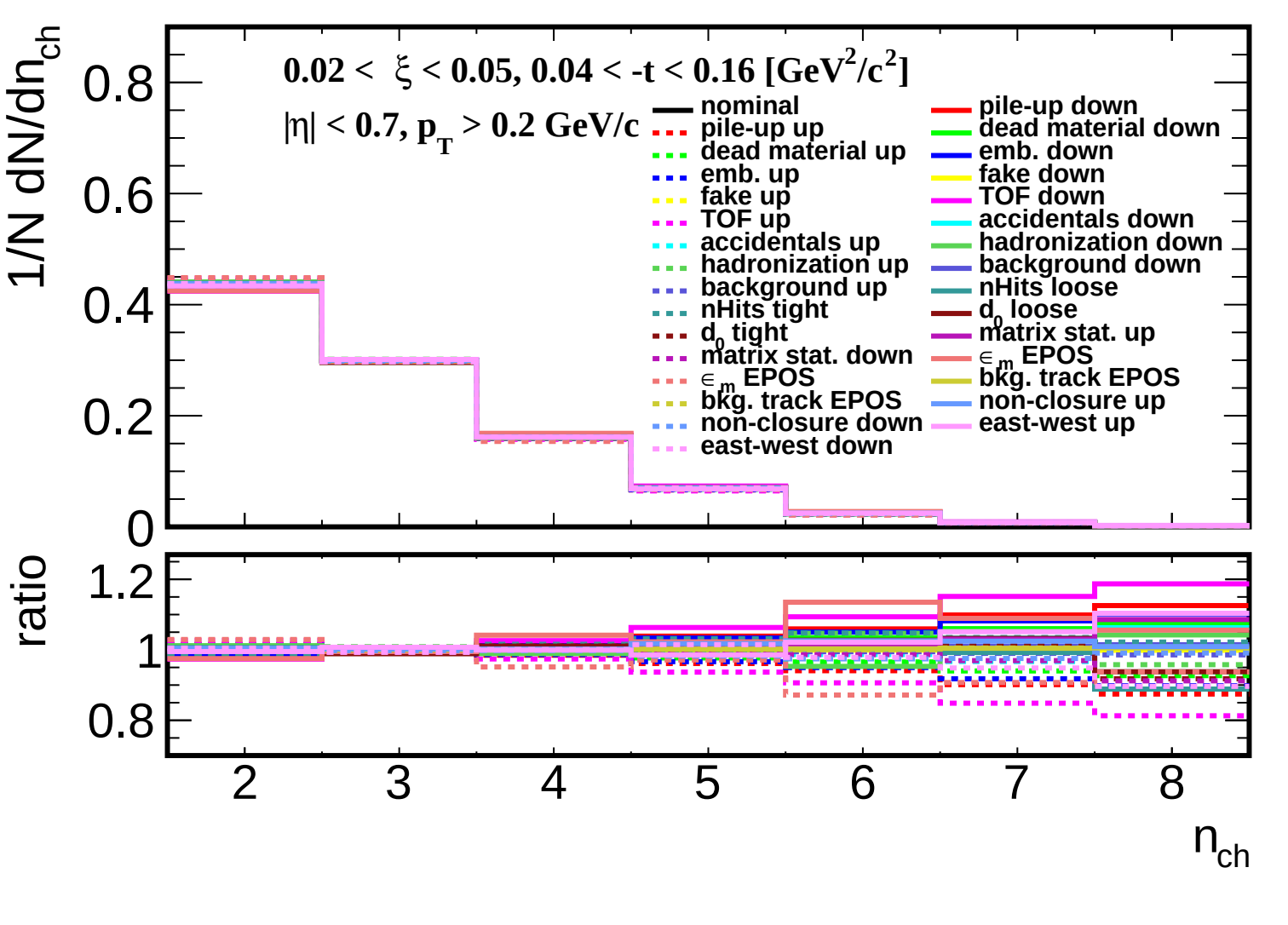

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
$|\eta|$<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

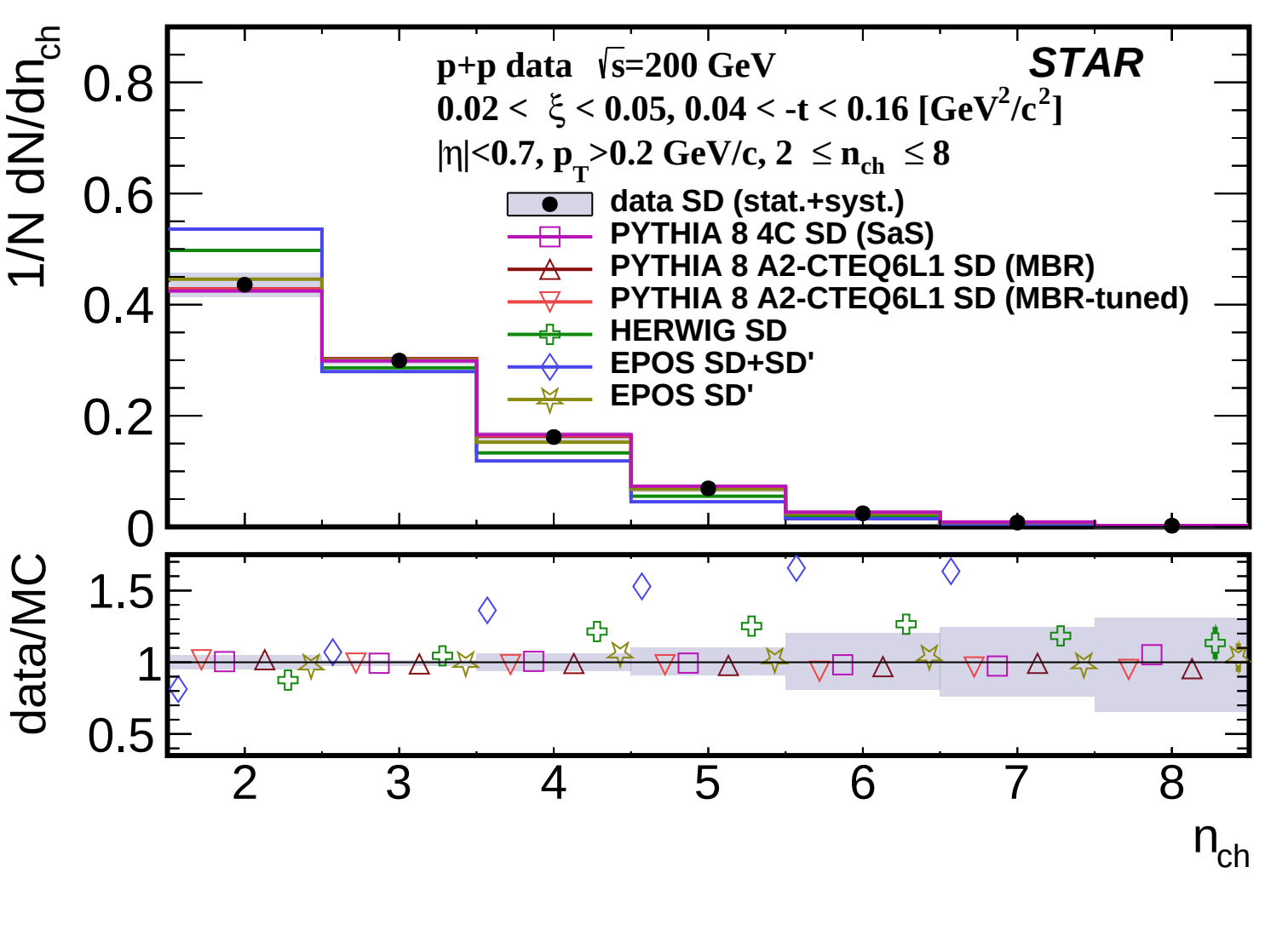

1/N dN/dn_ch
0.6
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

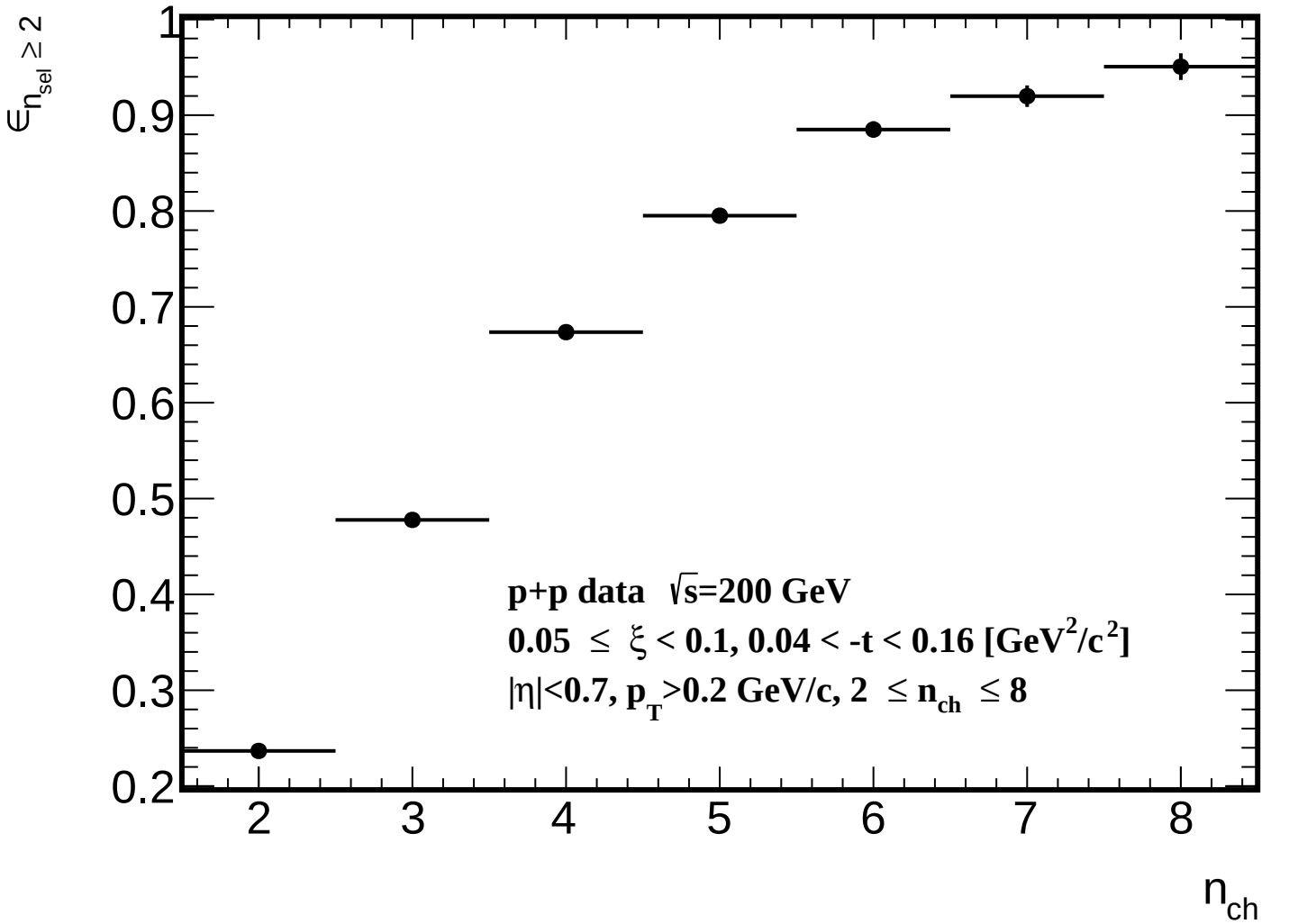

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

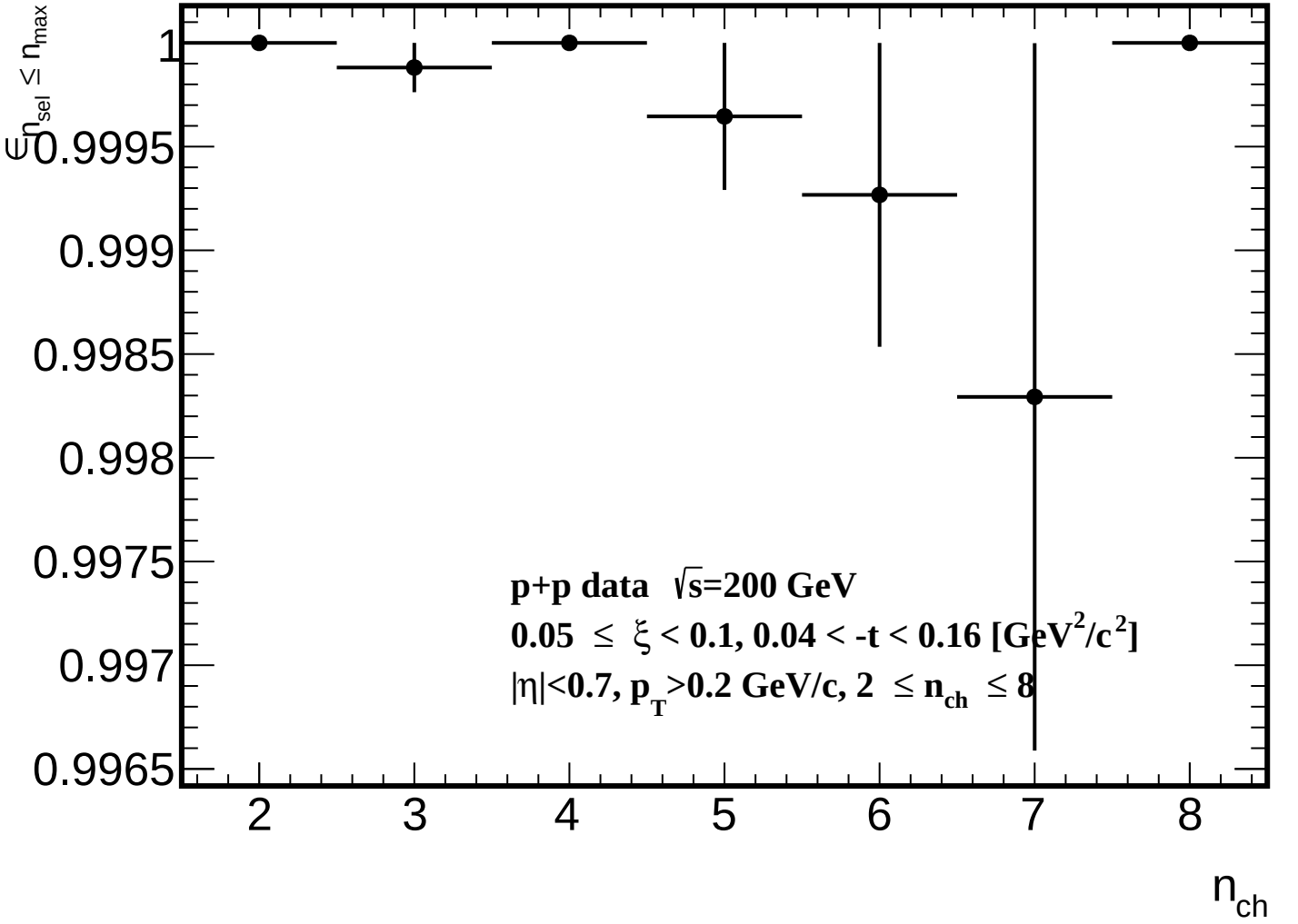

$\epsilon_{n_{sel} \le n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV^2/c^2]
$|\eta|$<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

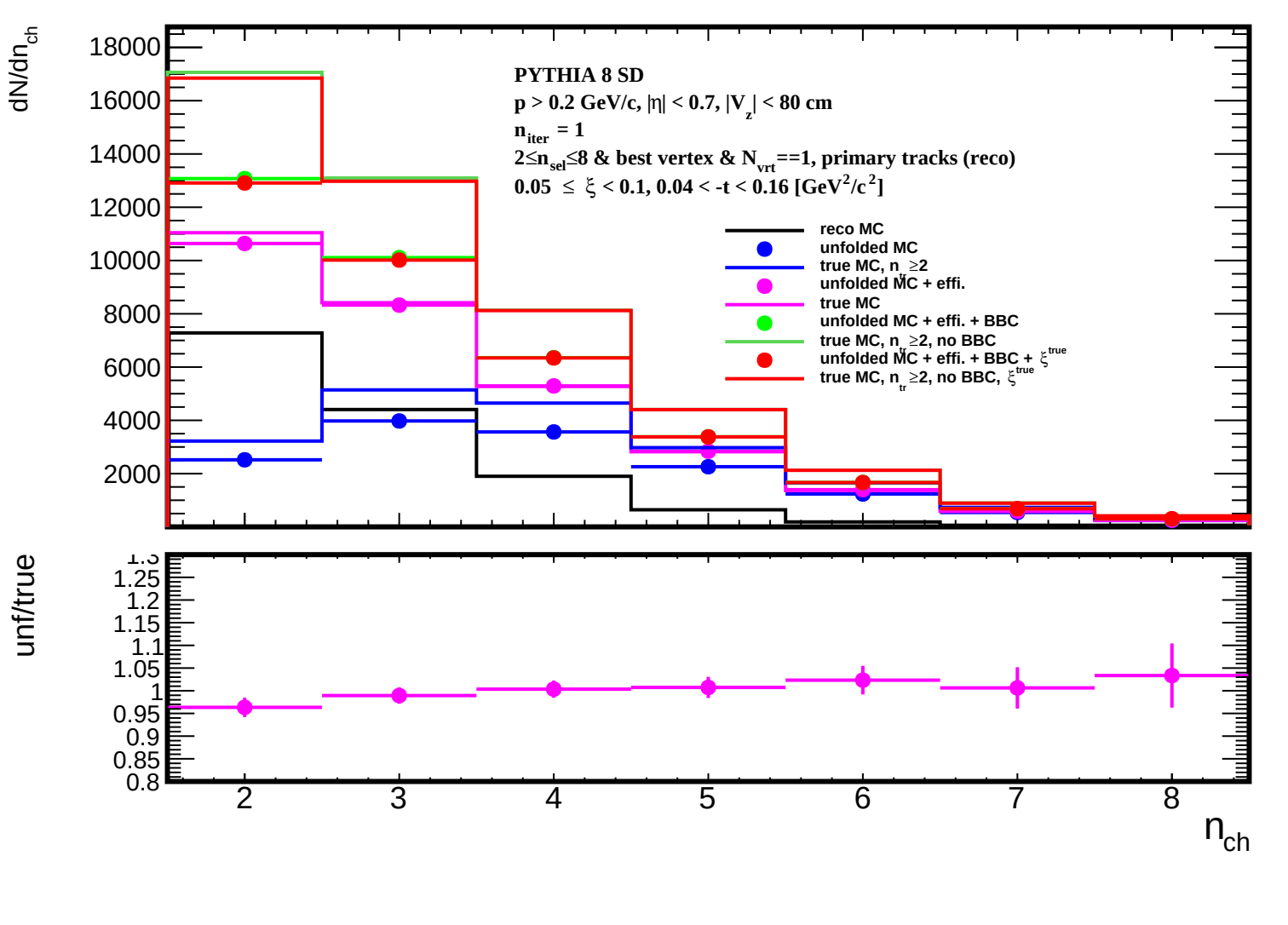

1/N dN/dn_ch
0.6
0.4
0.2
0
n_ch

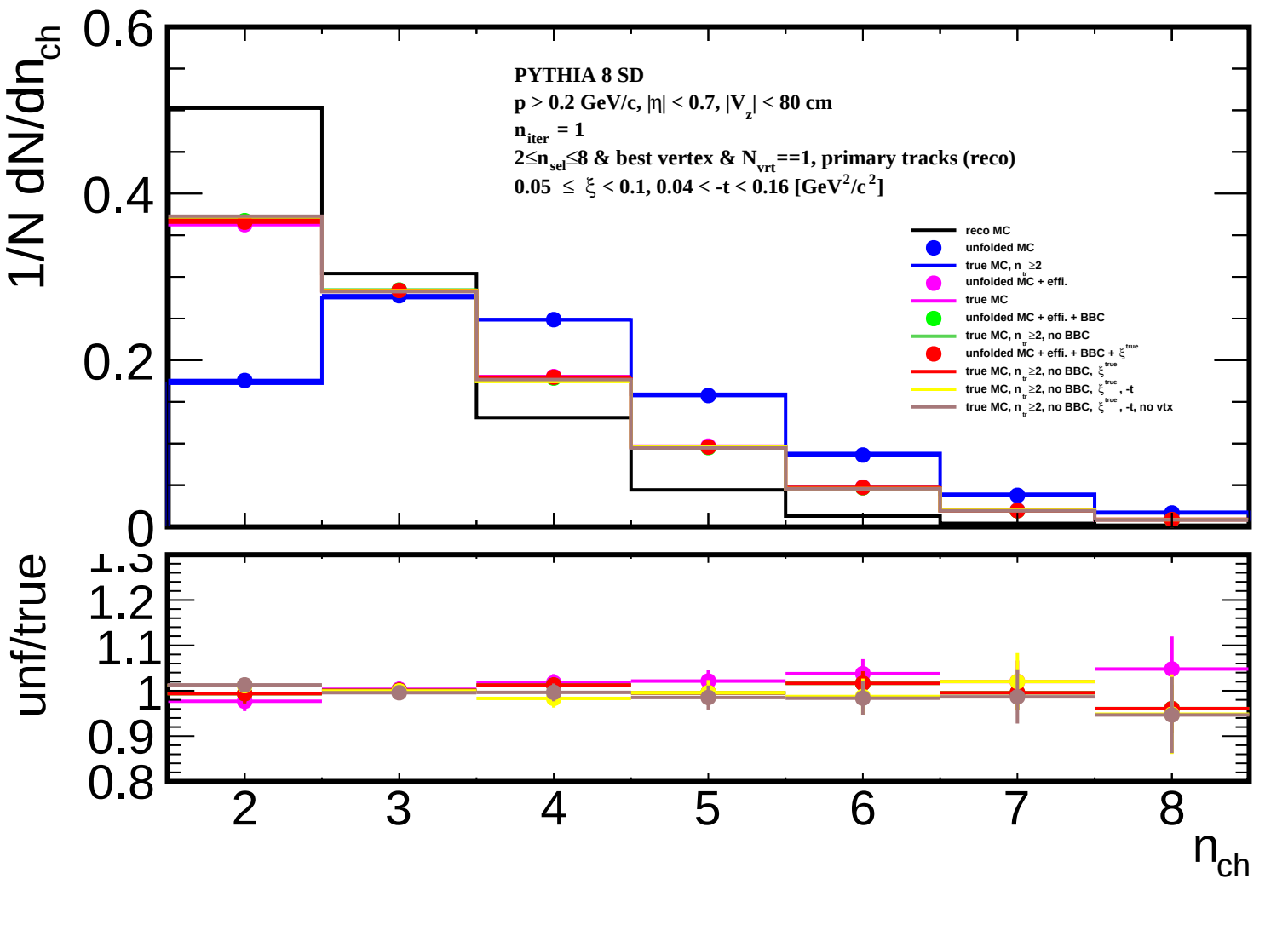

0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η| < 0.7, p_T > 0.2 GeV/c
nominal
pile-up up
dead material up
emb. up
fake up
TOF up
accidentals up
hadronization up
background up
nHits tight
d0 tight
matrix stat. down
∈m EPOS
bkg. track EPOS
non-closure down
east-west down
pile-up down
dead material down
emb. down
fake down
TOF down
accidentals down
hadronization down
background down
nHits loose
d0 loose
matrix stat. up
∈m EPOS
bkg. track EPOS
non-closure up
east-west up
1/N dN/dn_ch
ratio
n_ch

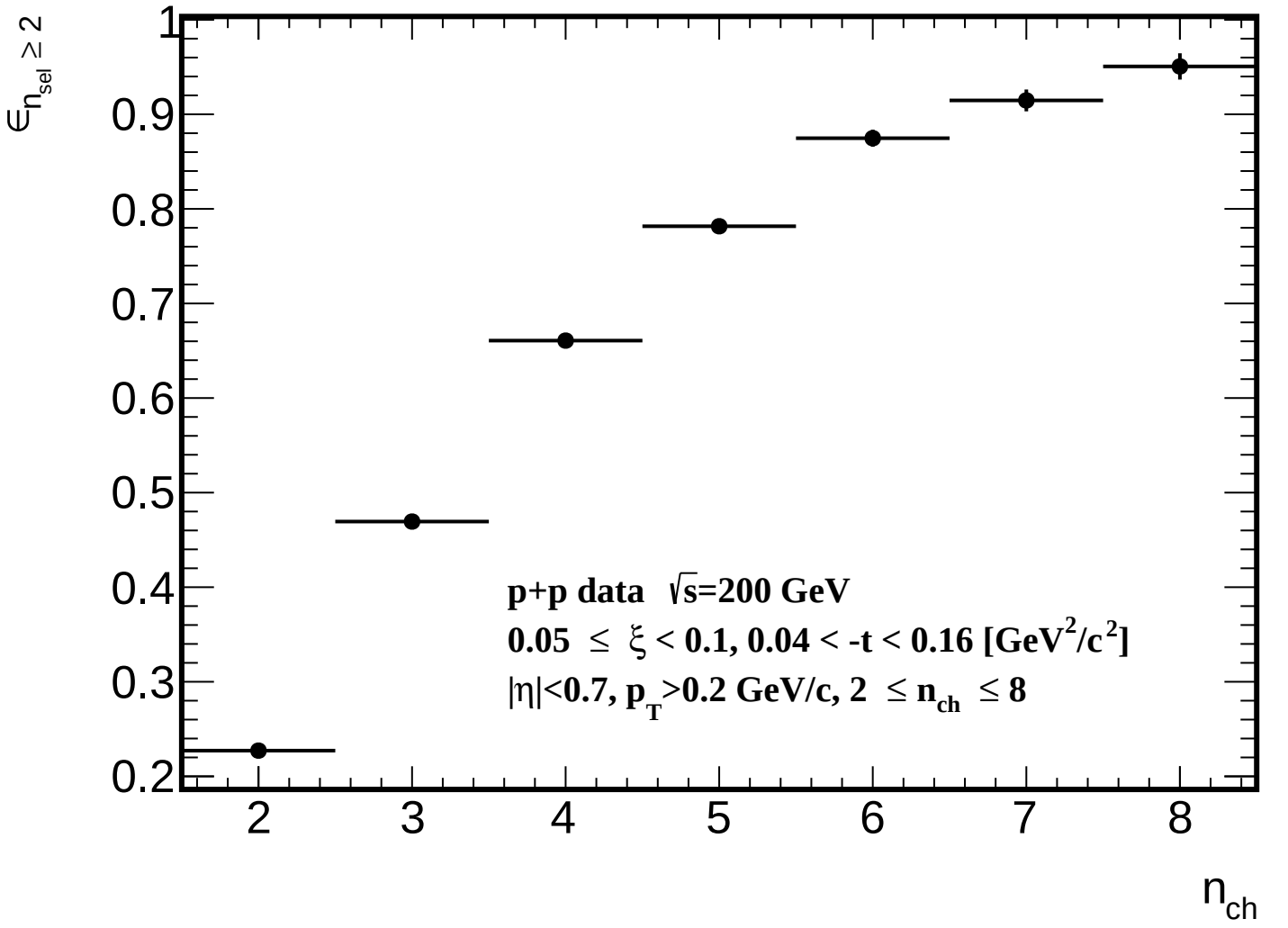

p+p data √s=200 GeV
STAR
0.02 < ξ < 0.05, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_ch ≤ 8
data SD (stat.+syst.)
PYTHIA 8 4C SD (SaS)
PYTHIA 8 A2-CTEQ6L1 SD (MBR)
PYTHIA 8 A2-CTEQ6L1 SD (MBR-tuned)
HERWIG SD
EPOS SD+SD'
EPOS SD'
1/N dN/dn_ch
data/MC
n_ch

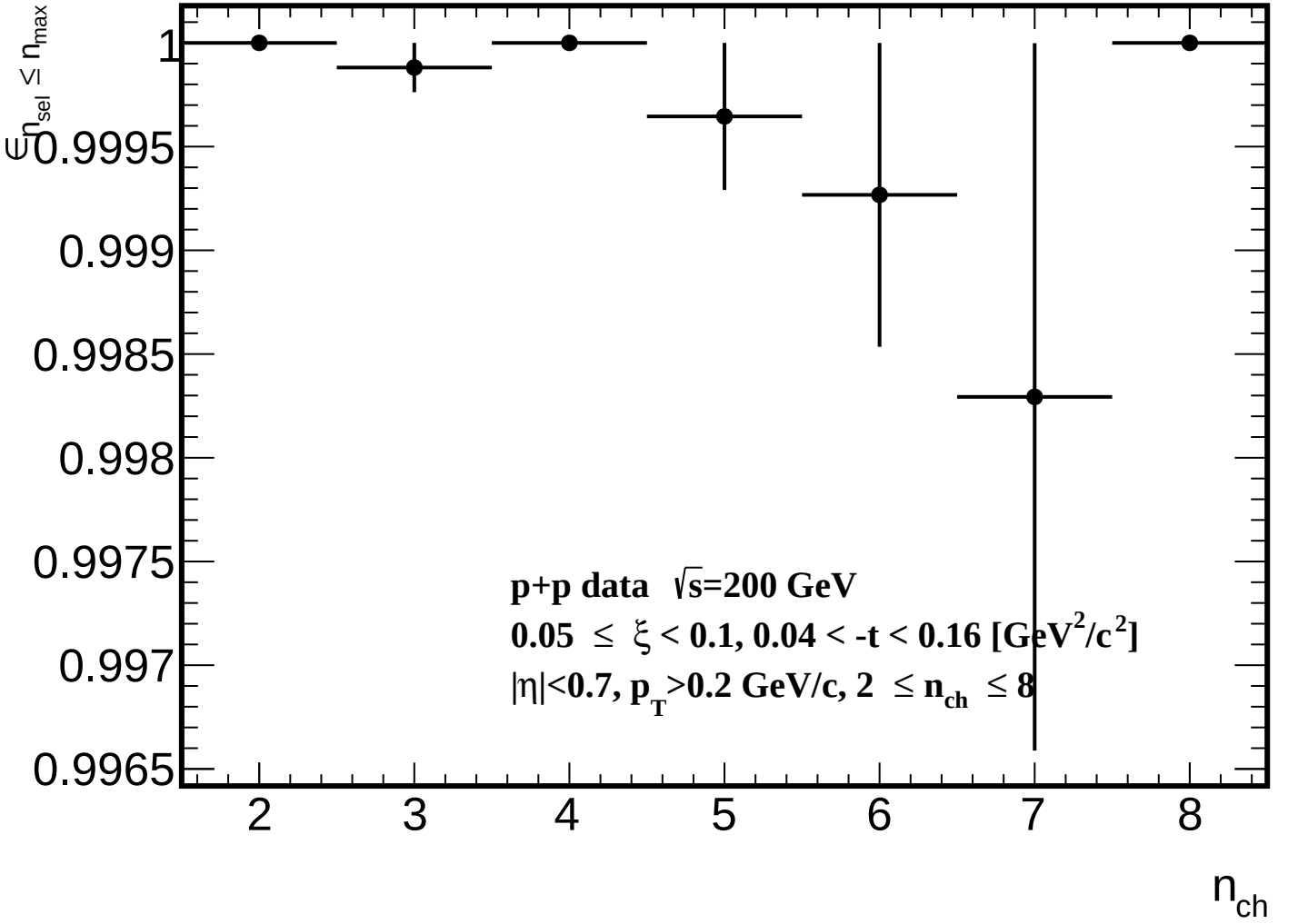

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

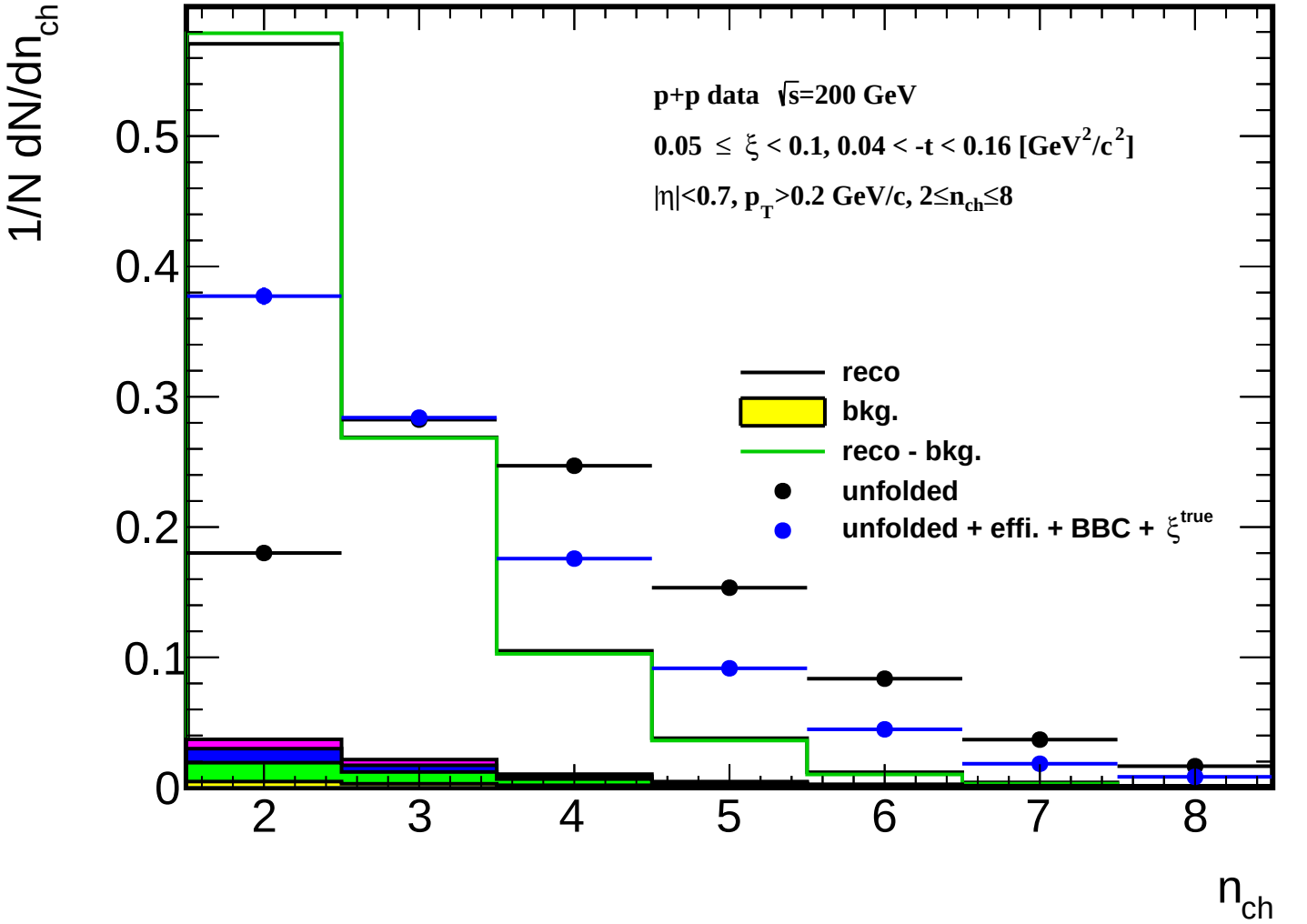

$\epsilon_{\eta_{sel} \le \eta_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
0.9965
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

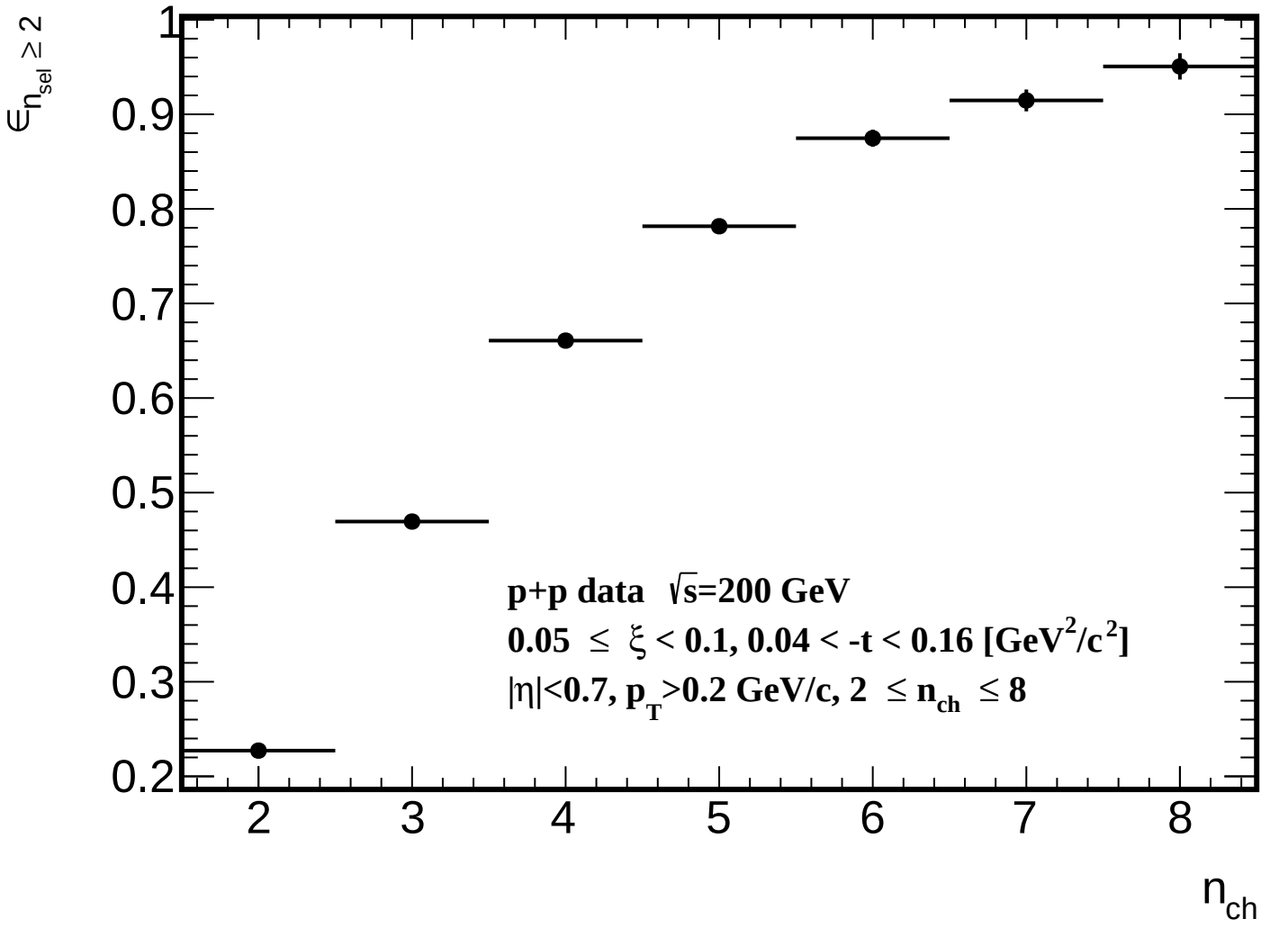

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

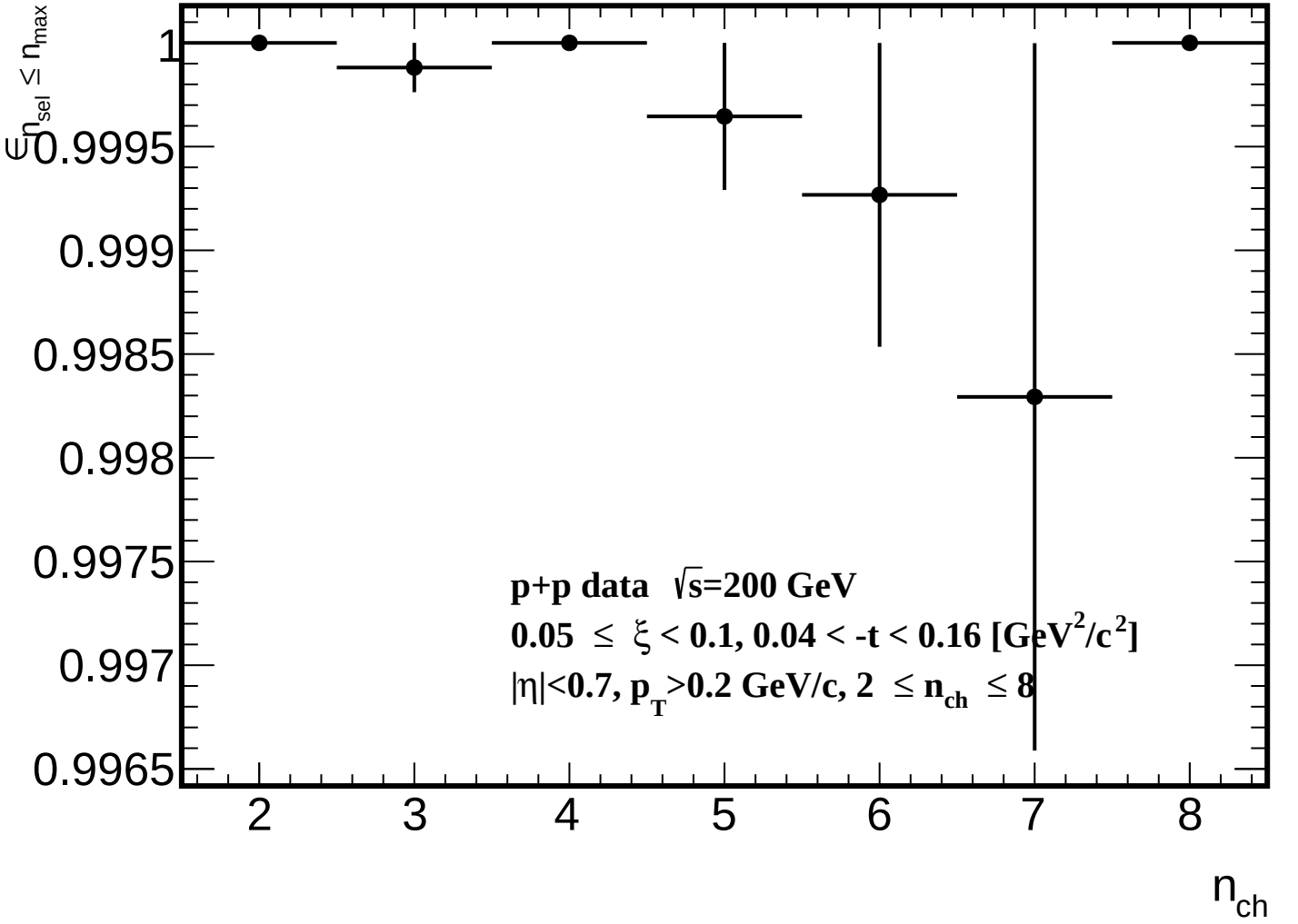

PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
reco MC
unfolded MC
true MC, n_tr≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr≥2, no BBC, ξ^true
true MC, n_tr≥2, no BBC, ξ^true, -t
true MC, n_tr≥2, no BBC, ξ^true, -t, no vtx
1/N dN/dn_ch
unf/true
n_ch

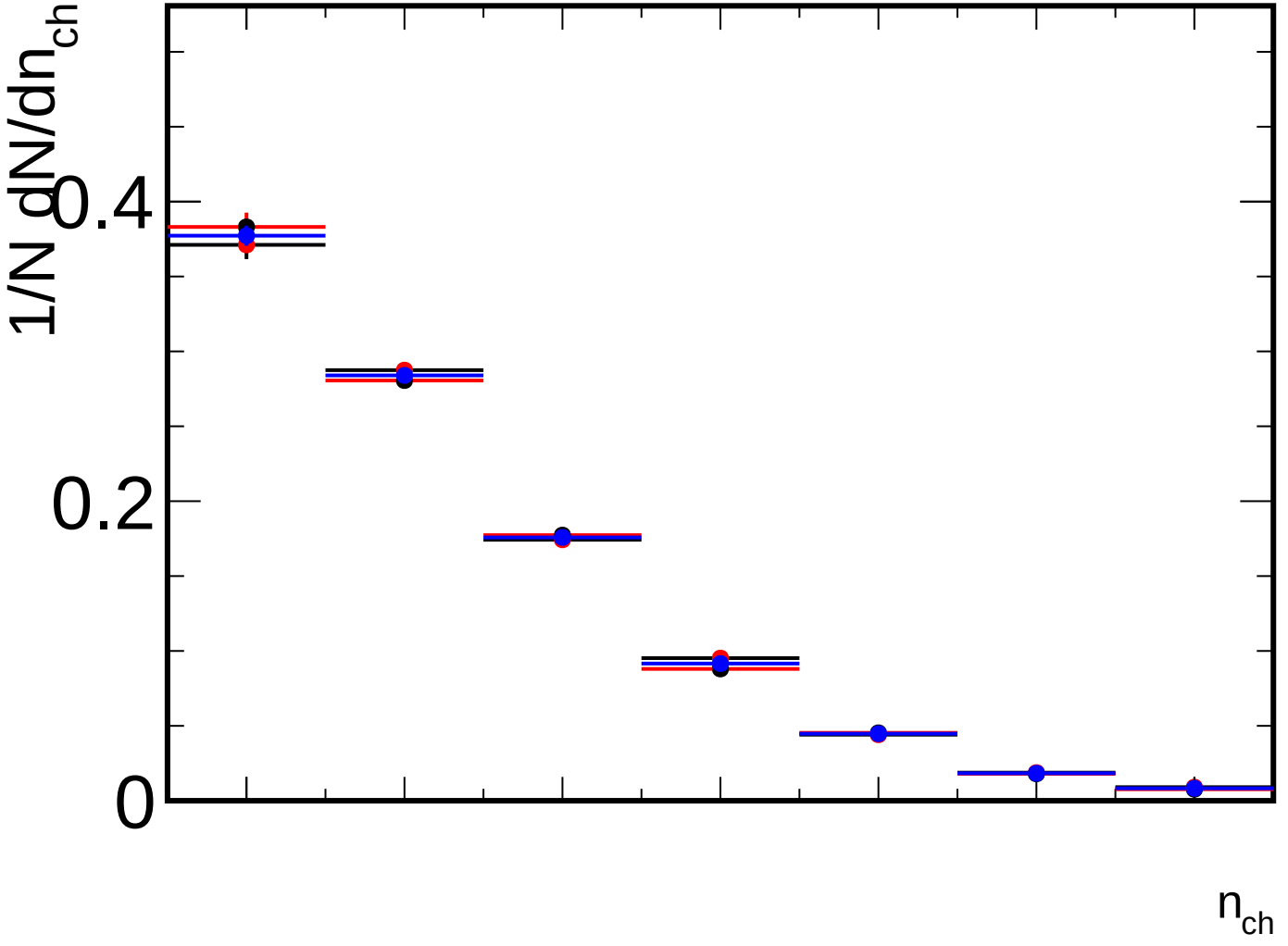

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

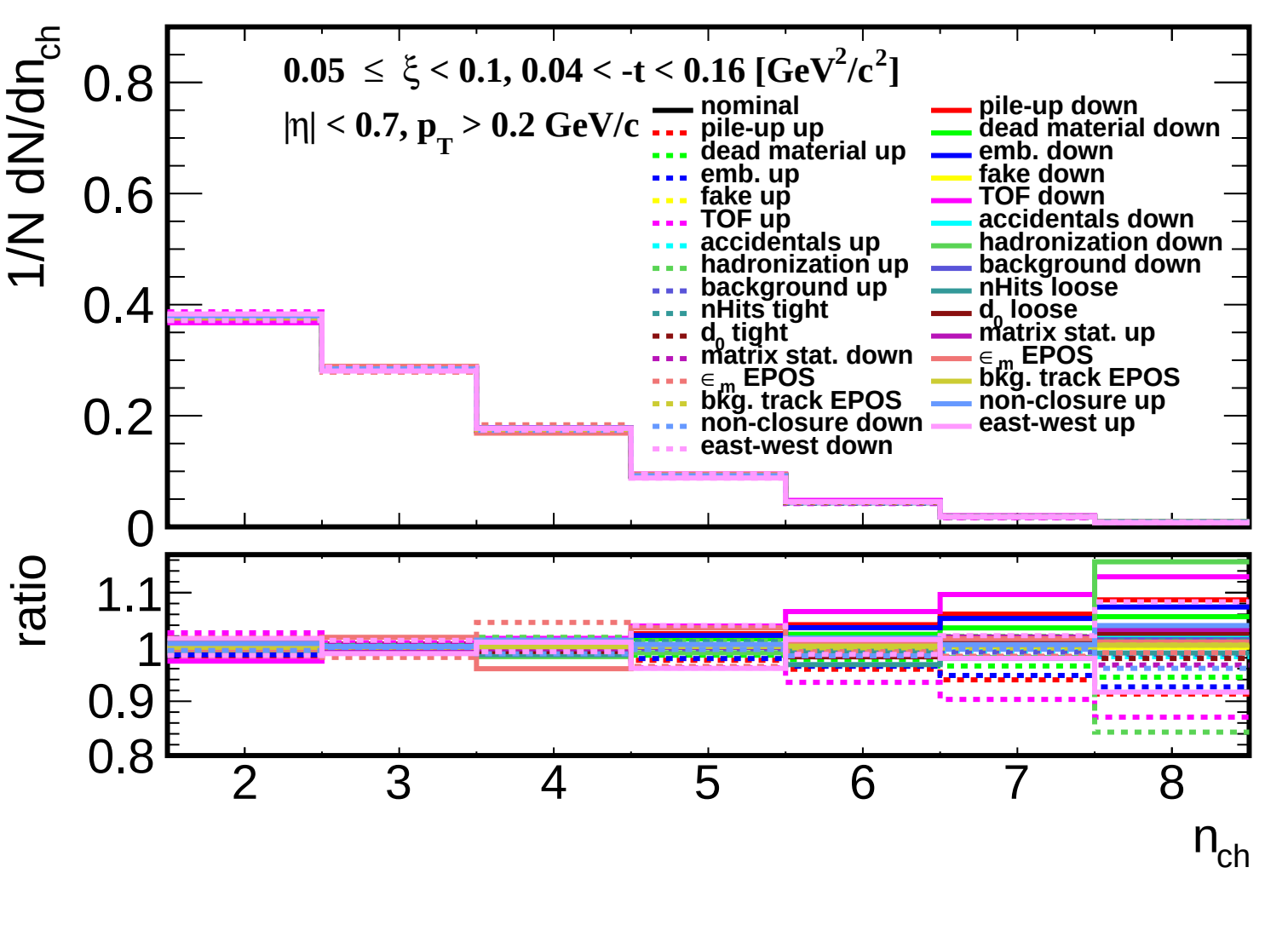

$\epsilon_{\eta_{sel} \le \eta_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
0.9965
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

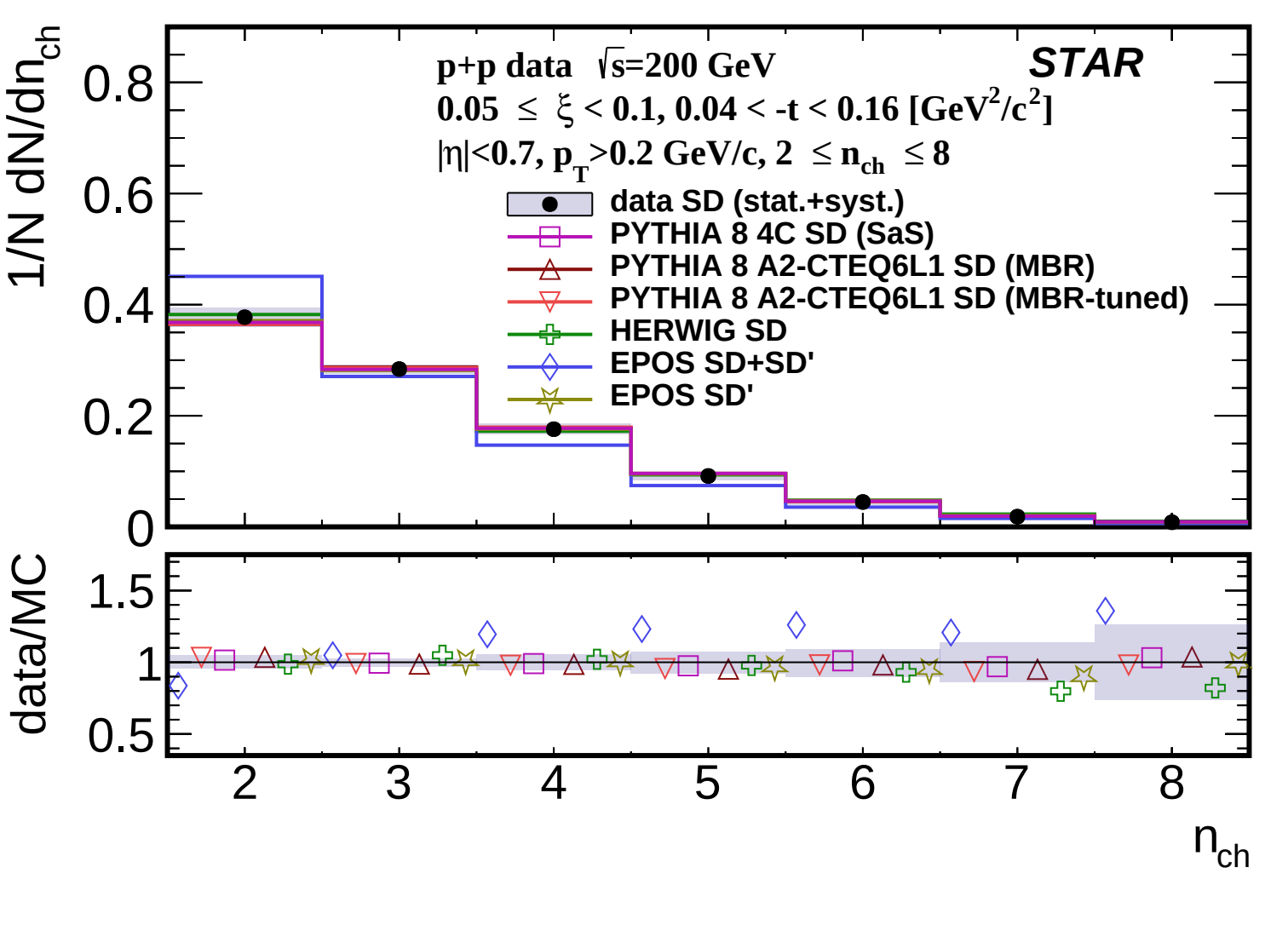

1/N dN/dn_ch
p+p data √s=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch

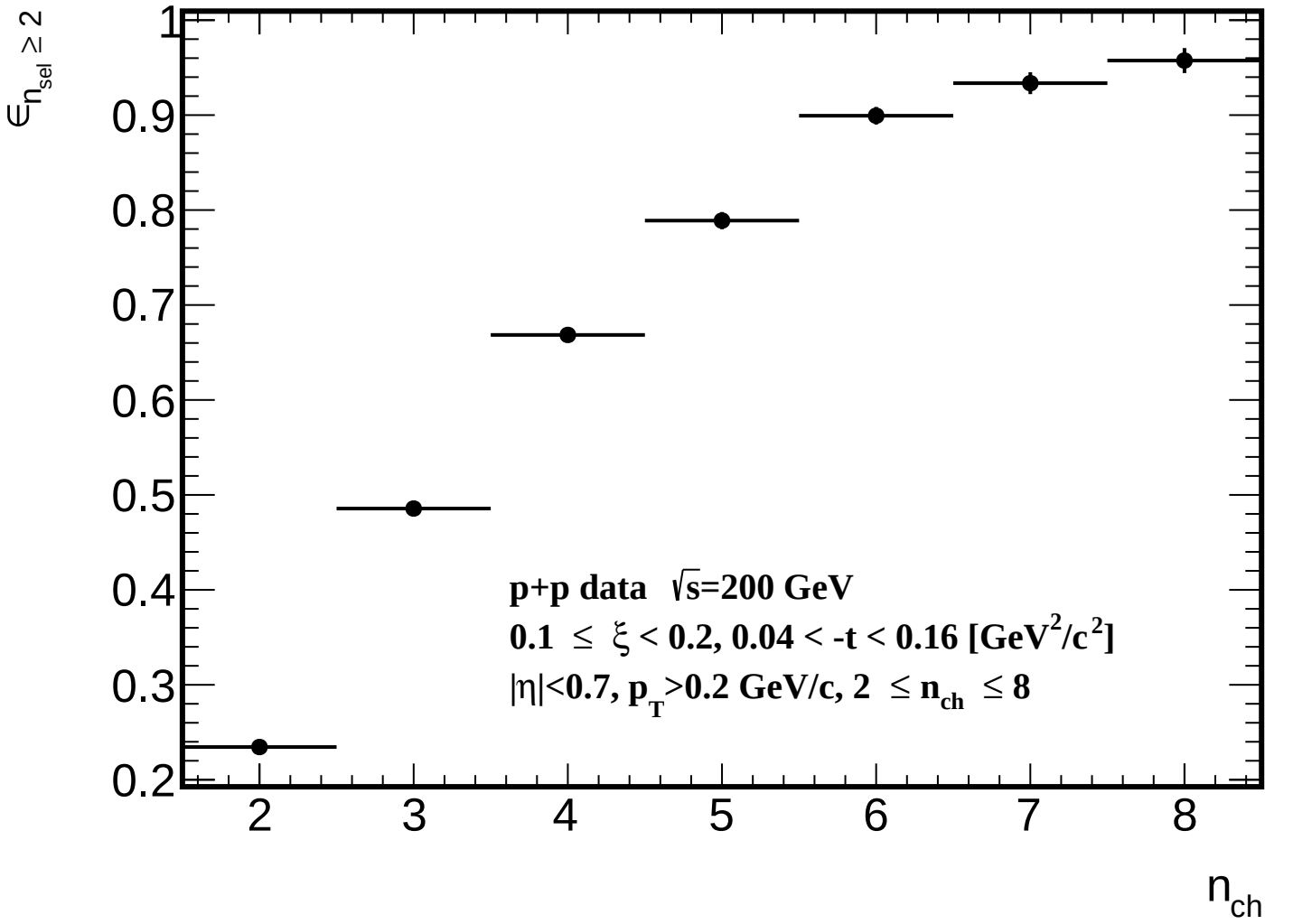

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

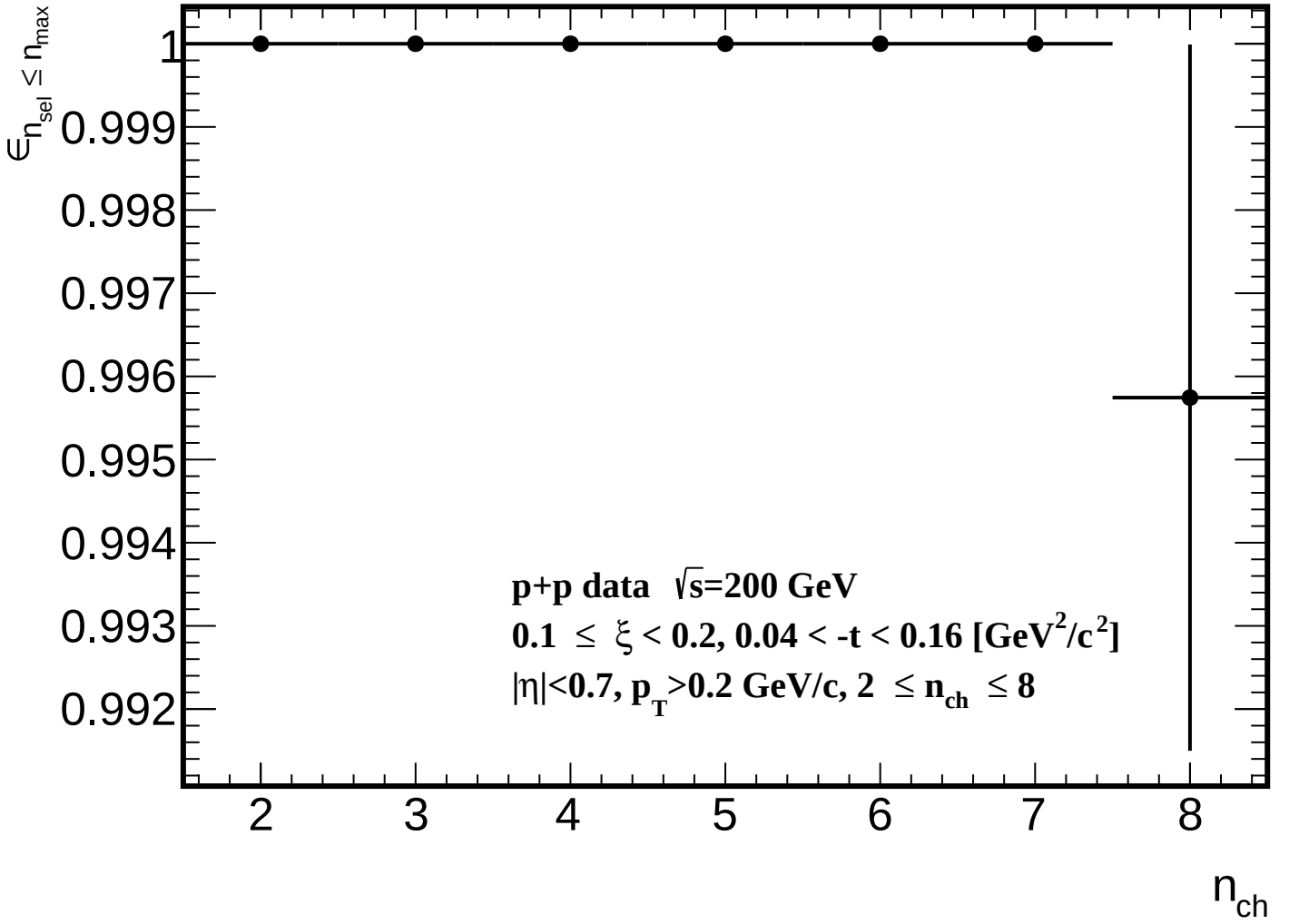

$\epsilon_{\eta_{sel} \le \eta_{max}}$
1
0.9995
0.999
0.9985
0.998
0.9975
0.997
0.9965
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

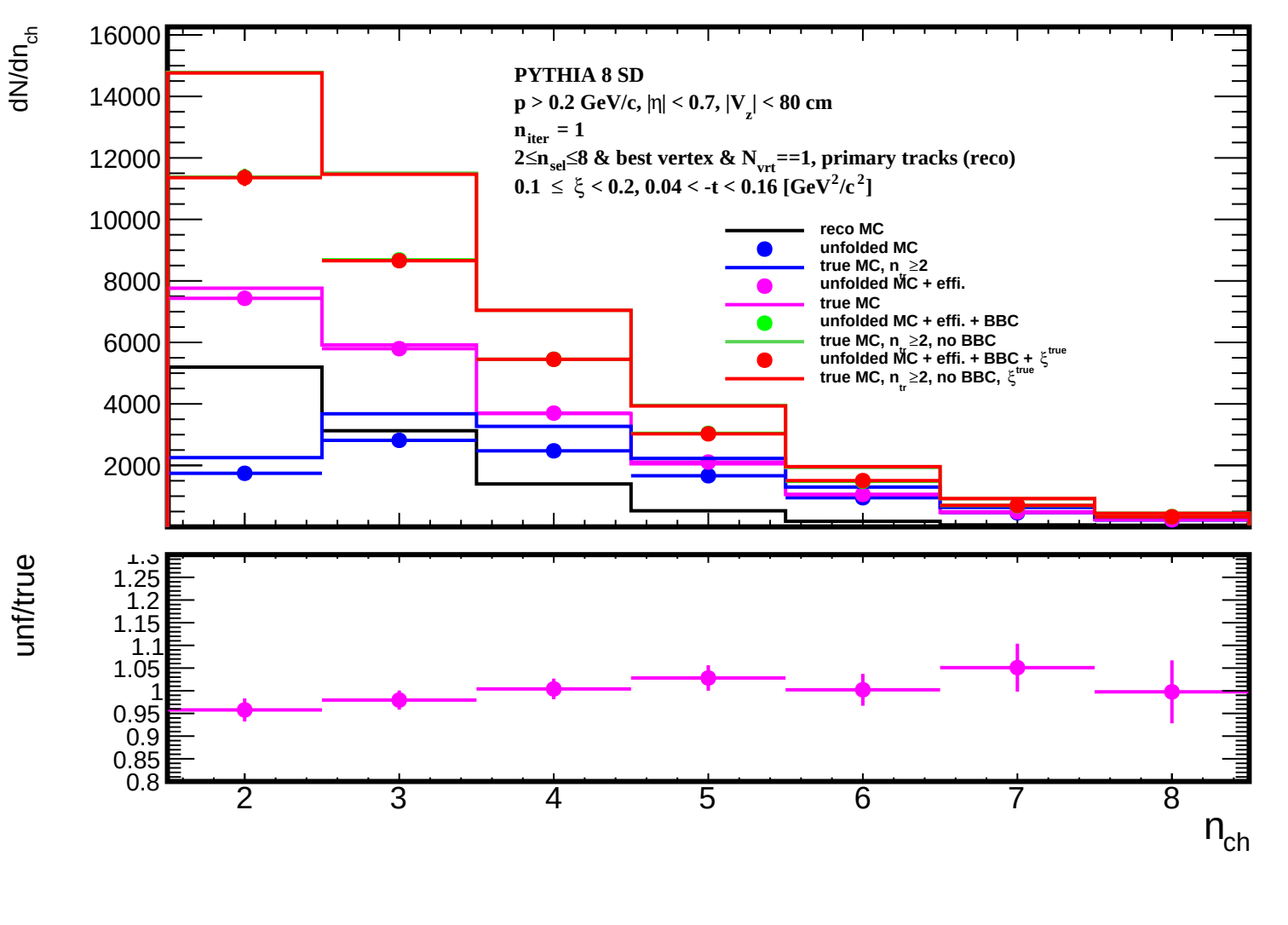

1/N dN/dn_ch
0.4
0.2
0
n_ch

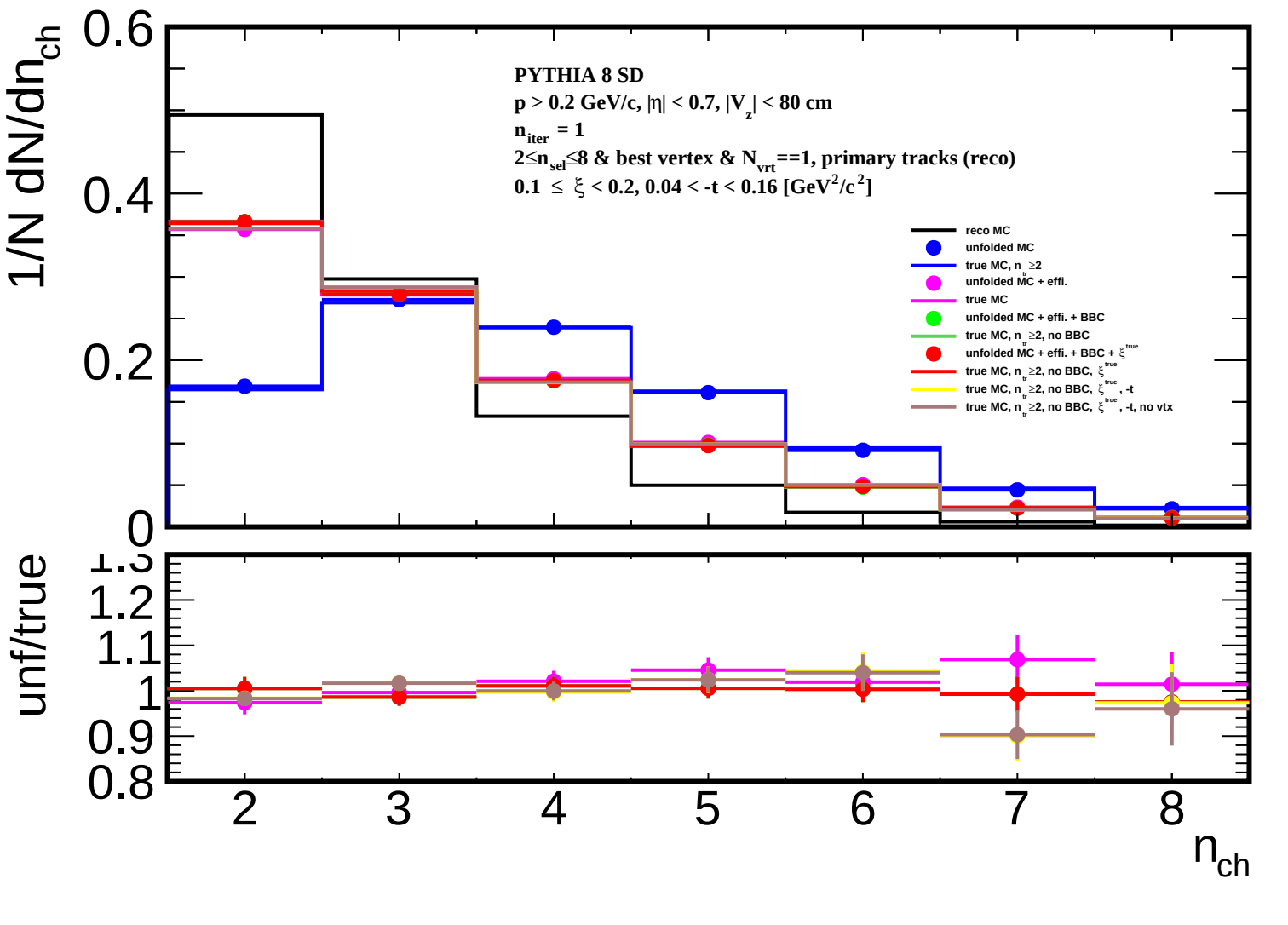

0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η| < 0.7, p_T > 0.2 GeV/c
nominal
pile-up up
dead material up
emb. up
fake up
TOF up
accidentals up
hadronization up
background up
nHits tight
d0 tight
matrix stat. down
∈m EPOS
bkg. track EPOS
non-closure down
east-west down
pile-up down
dead material down
emb. down
fake down
TOF down
accidentals down
hadronization down
background down
nHits loose
d0 loose
matrix stat. up
∈m EPOS
bkg. track EPOS
non-closure up
east-west up
1/N dN/dn_ch
ratio
n_ch

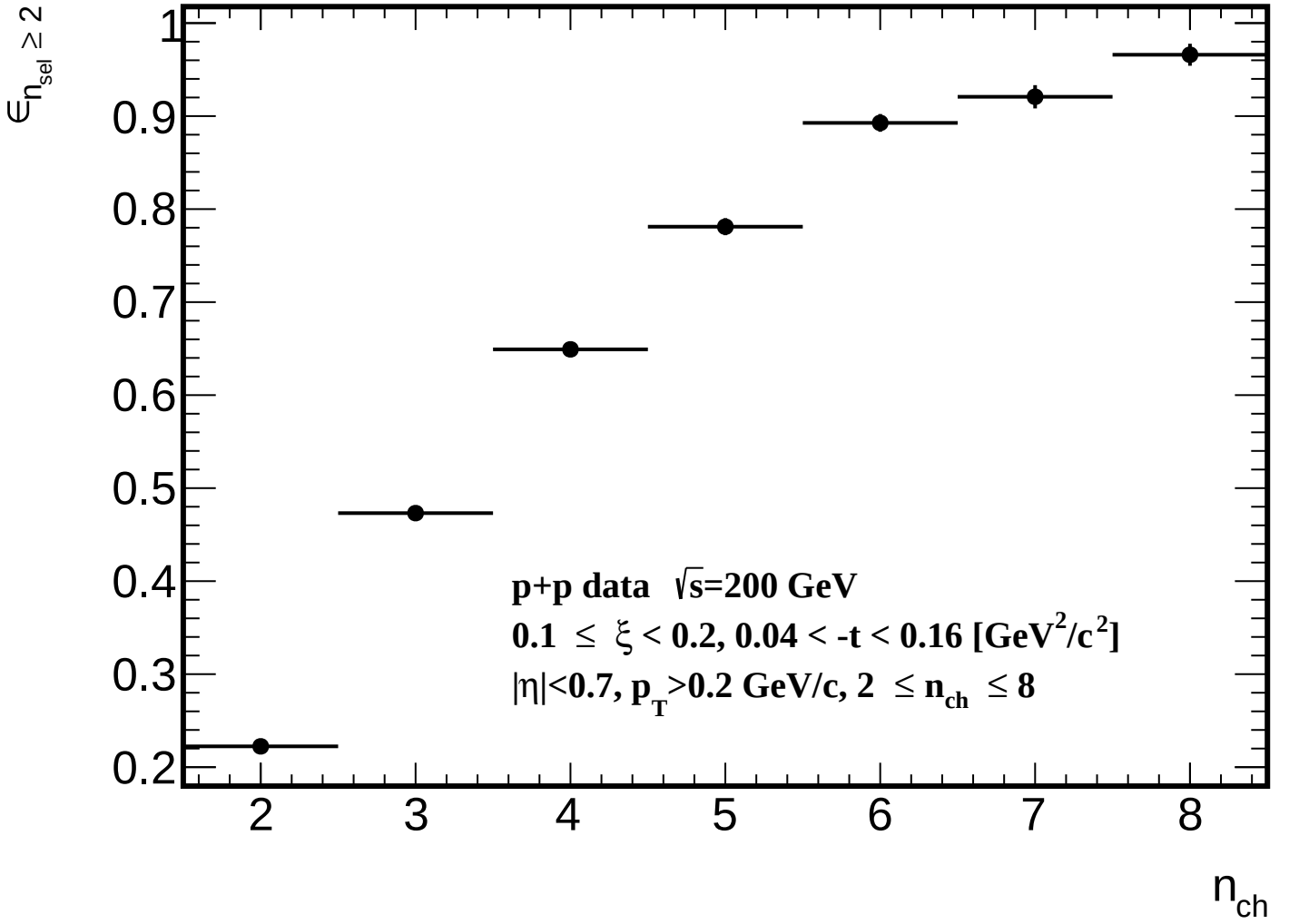

p+p data √s=200 GeV
STAR
0.05 ≤ ξ < 0.1, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_ch ≤ 8
data SD (stat.+syst.)
PYTHIA 8 4C SD (SaS)
PYTHIA 8 A2-CTEQ6L1 SD (MBR)
PYTHIA 8 A2-CTEQ6L1 SD (MBR-tuned)
HERWIG SD
EPOS SD+SD'
EPOS SD'
1/N dN/dn_ch
data/MC
n_ch

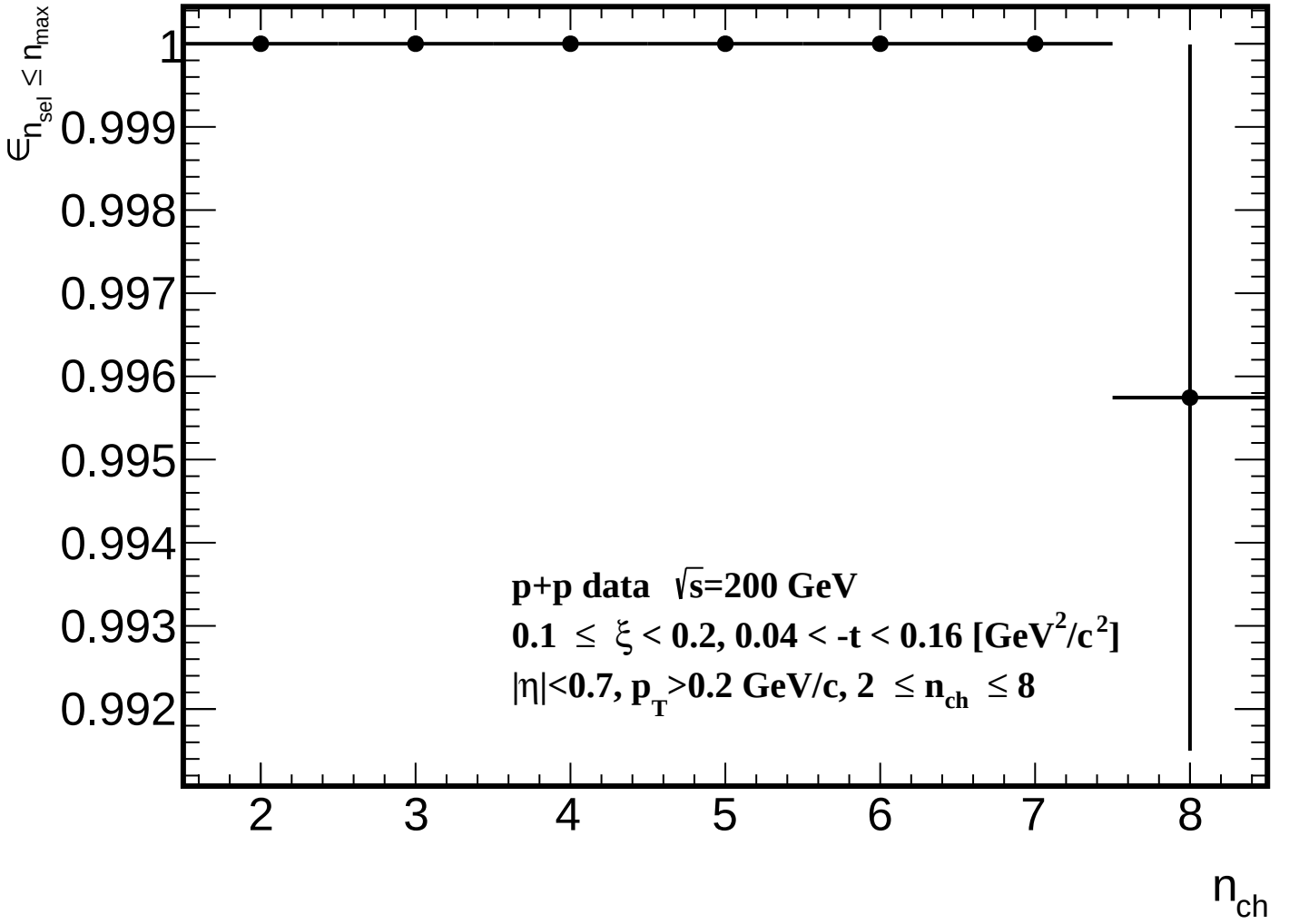

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

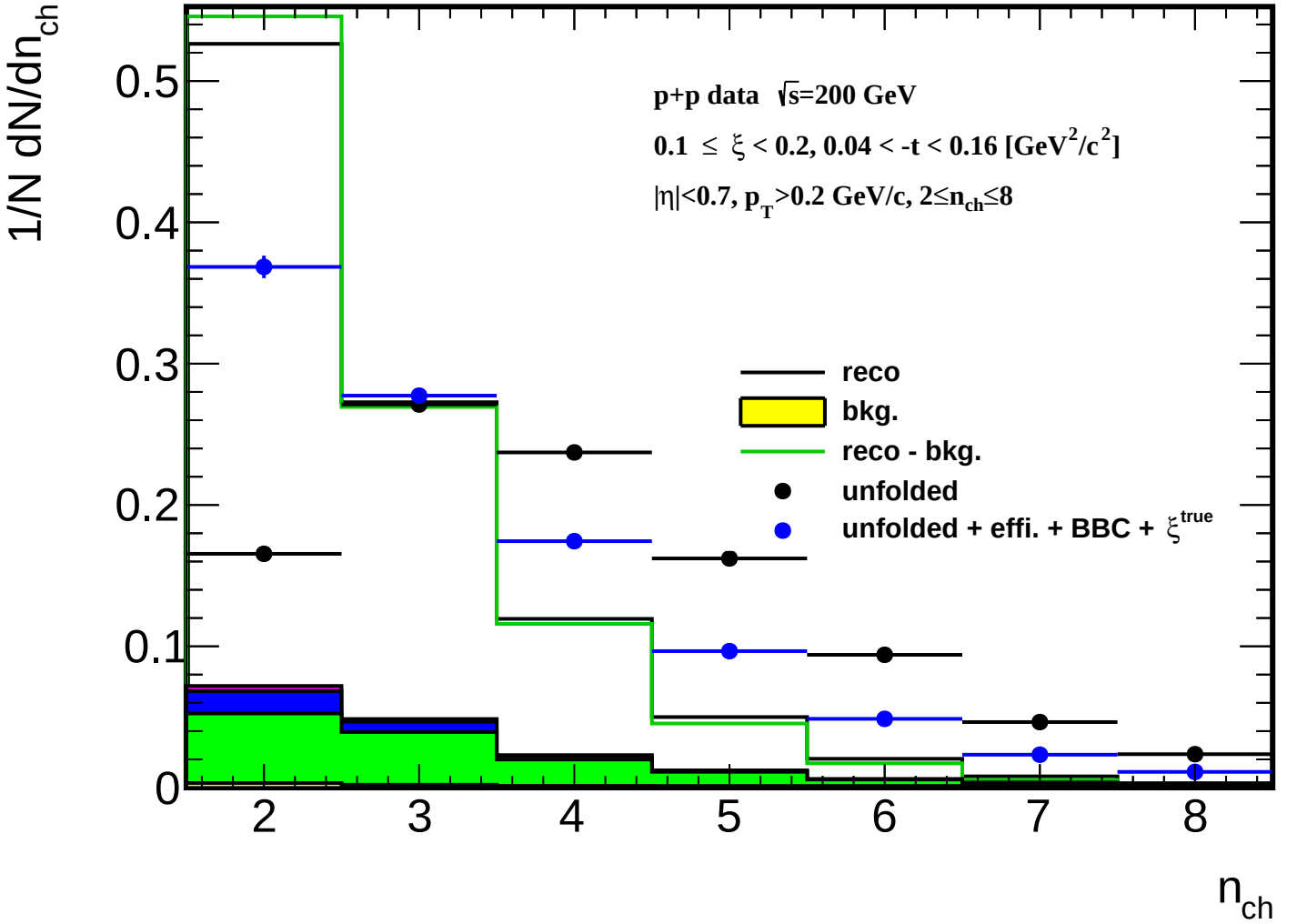

$\epsilon_{n_{sel} \leq n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
0.992
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

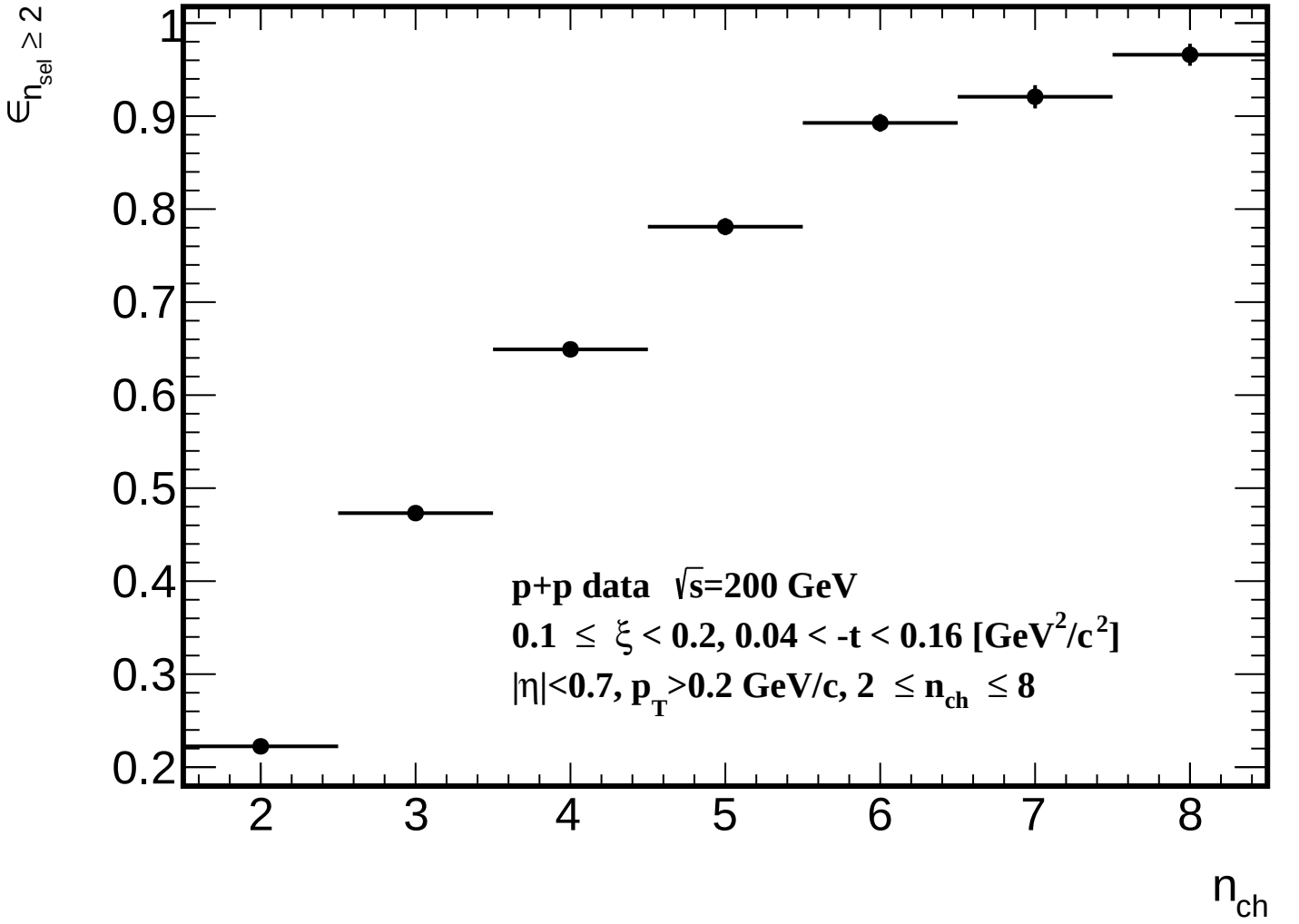

dN/dn_ch
PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
unf/true
n_ch

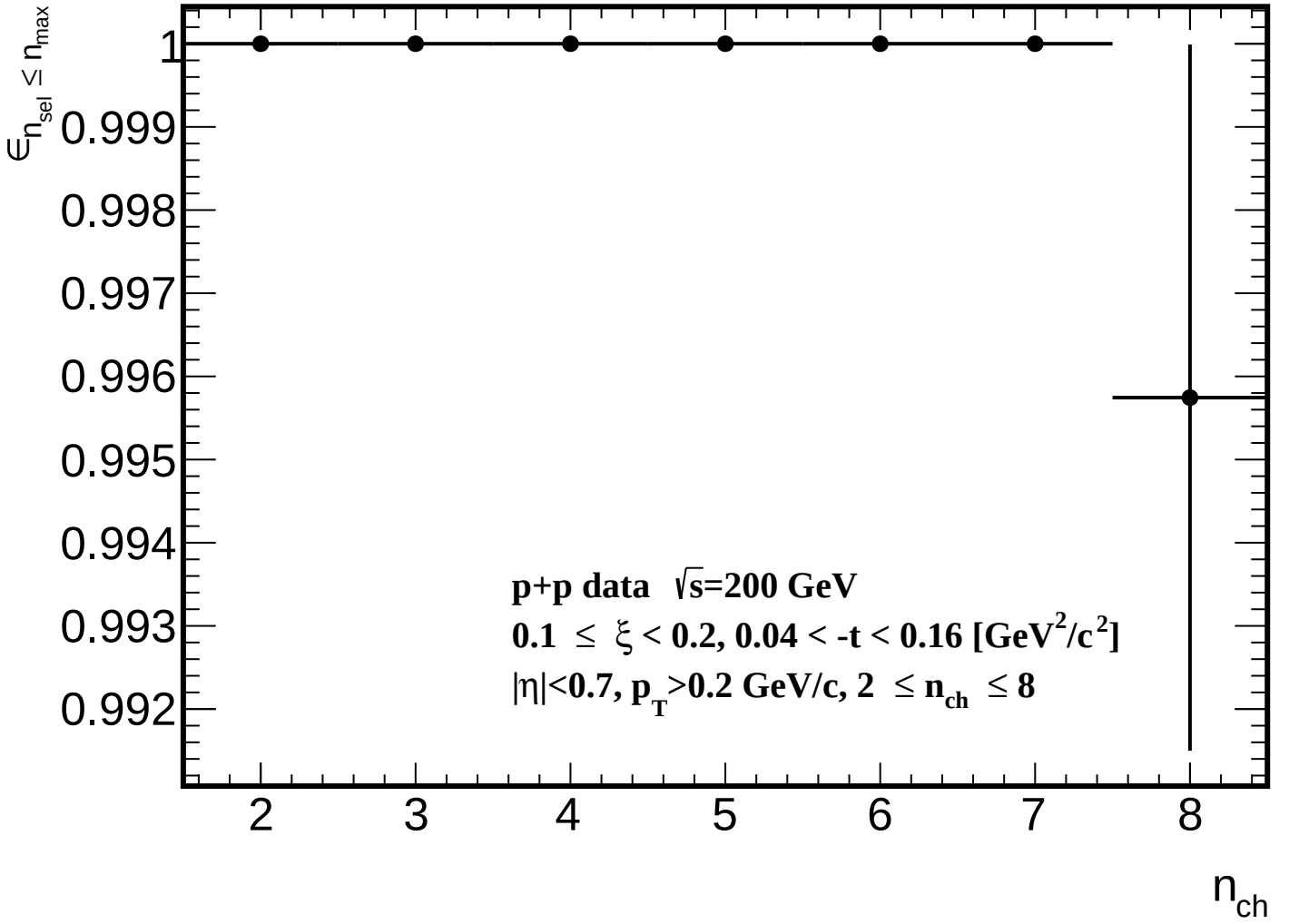

PYTHIA 8 SD
p > 0.2 GeV/c, |η| < 0.7, |V_z| < 80 cm
n_iter = 1
2≤n_sel≤8 & best vertex & N_vrt==1, primary tracks (reco)
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
reco MC
unfolded MC
true MC, n_tr ≥2
unfolded MC + effi.
true MC
unfolded MC + effi. + BBC
true MC, n_tr ≥2, no BBC
unfolded MC + effi. + BBC + ξ^true
true MC, n_tr ≥2, no BBC, ξ^true
true MC, n_tr ≥2, no BBC, ξ^true, -t
true MC, n_tr ≥2, no BBC, ξ^true, -t, no vtx
1/N dN/dn_ch
unf/true
n_ch

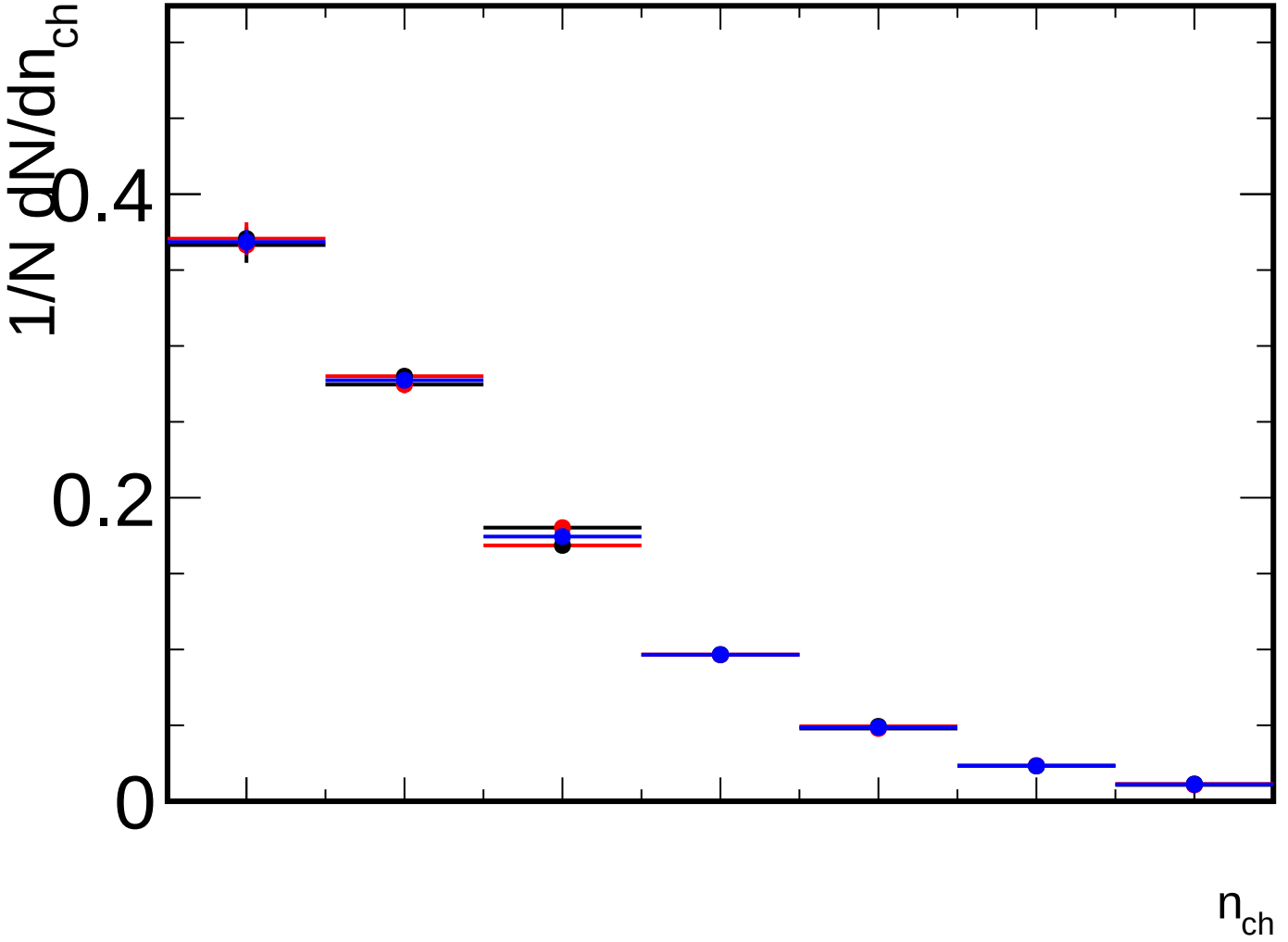

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

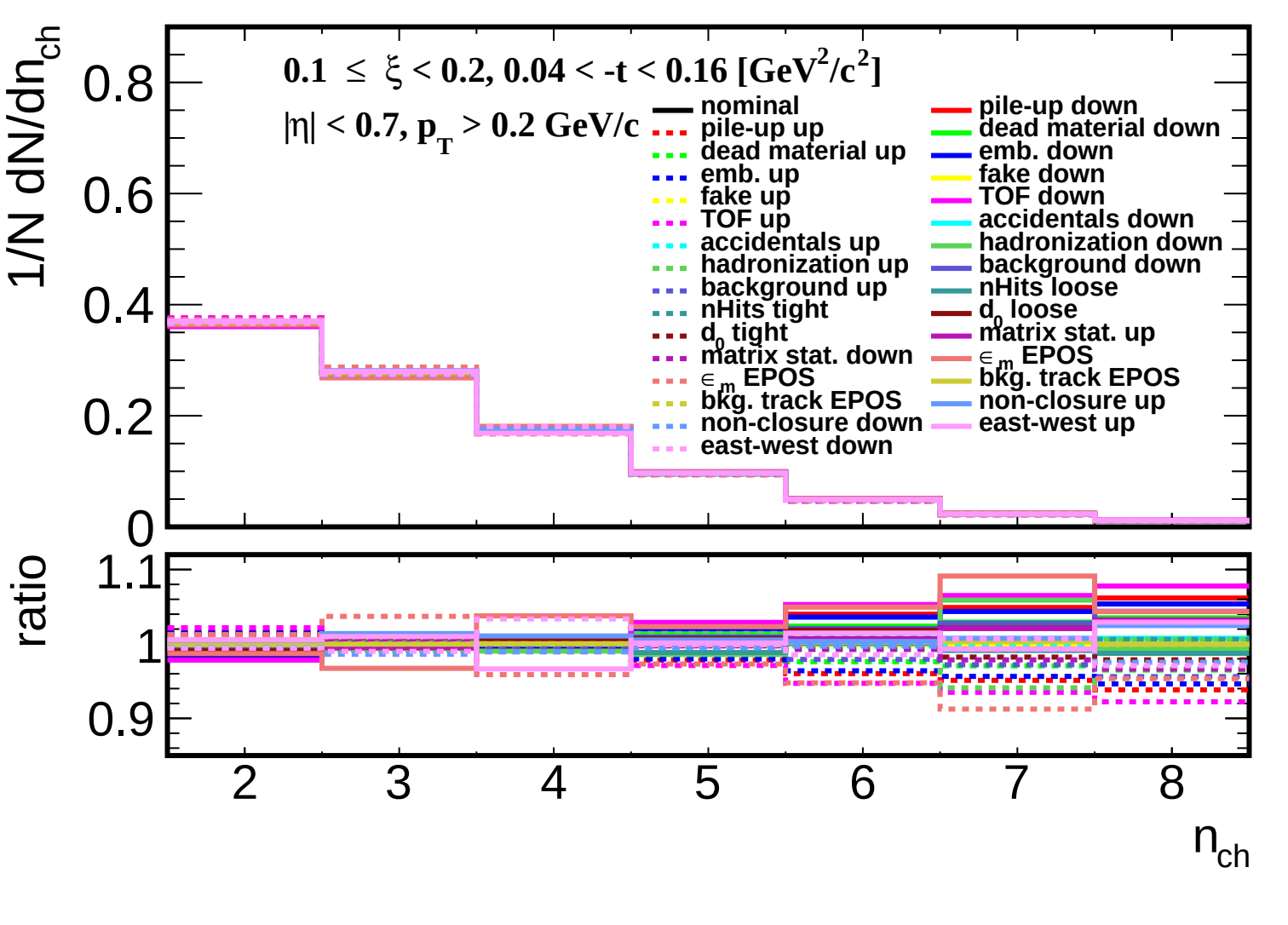

$\epsilon_{n_{sel} \leq n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
0.992
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

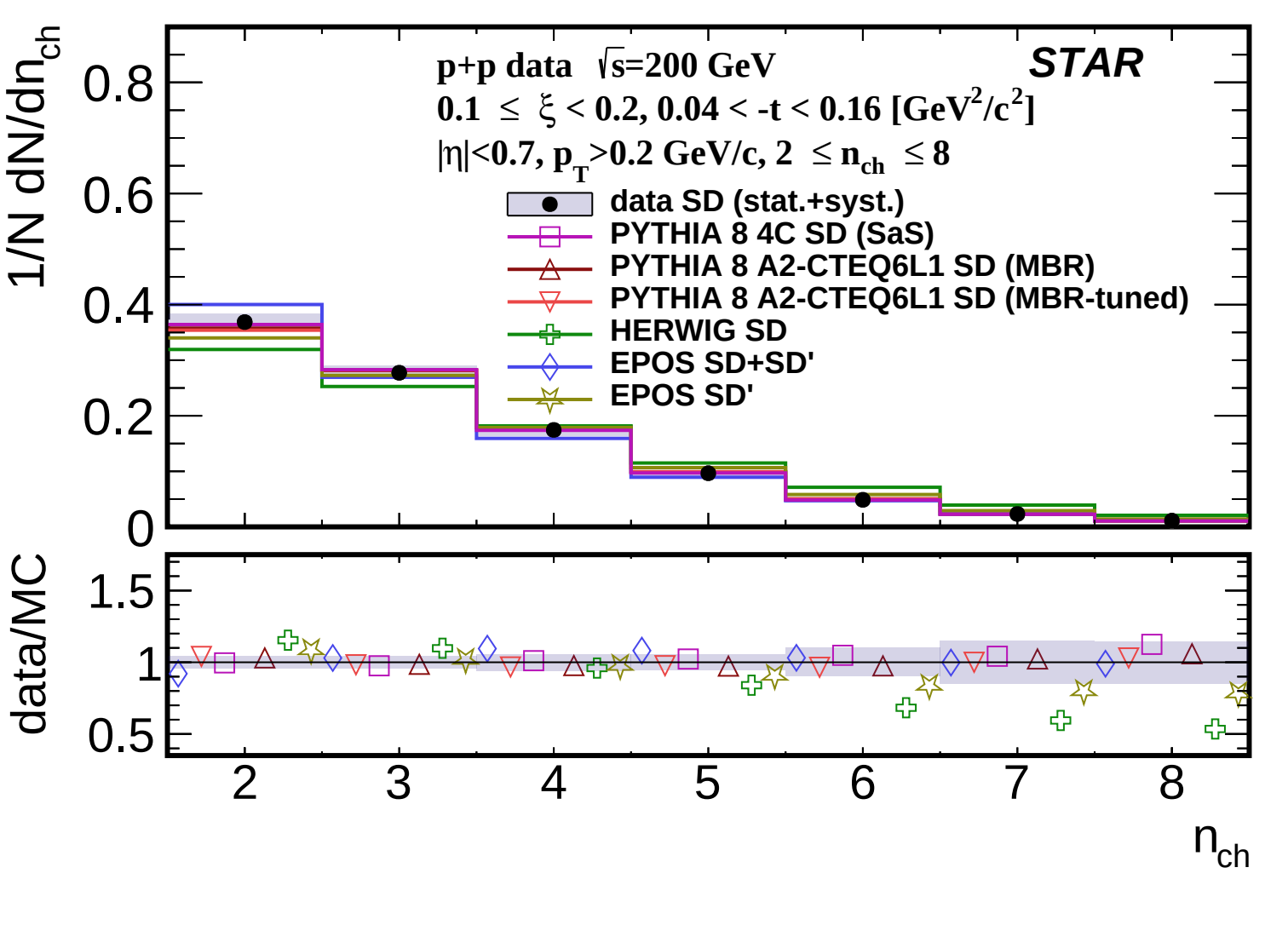

1/N dN/dn_ch
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
n_ch
p+p data √s=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2≤n_ch≤8
reco
bkg.
reco - bkg.
unfolded
unfolded + effi. + BBC + ξ^true

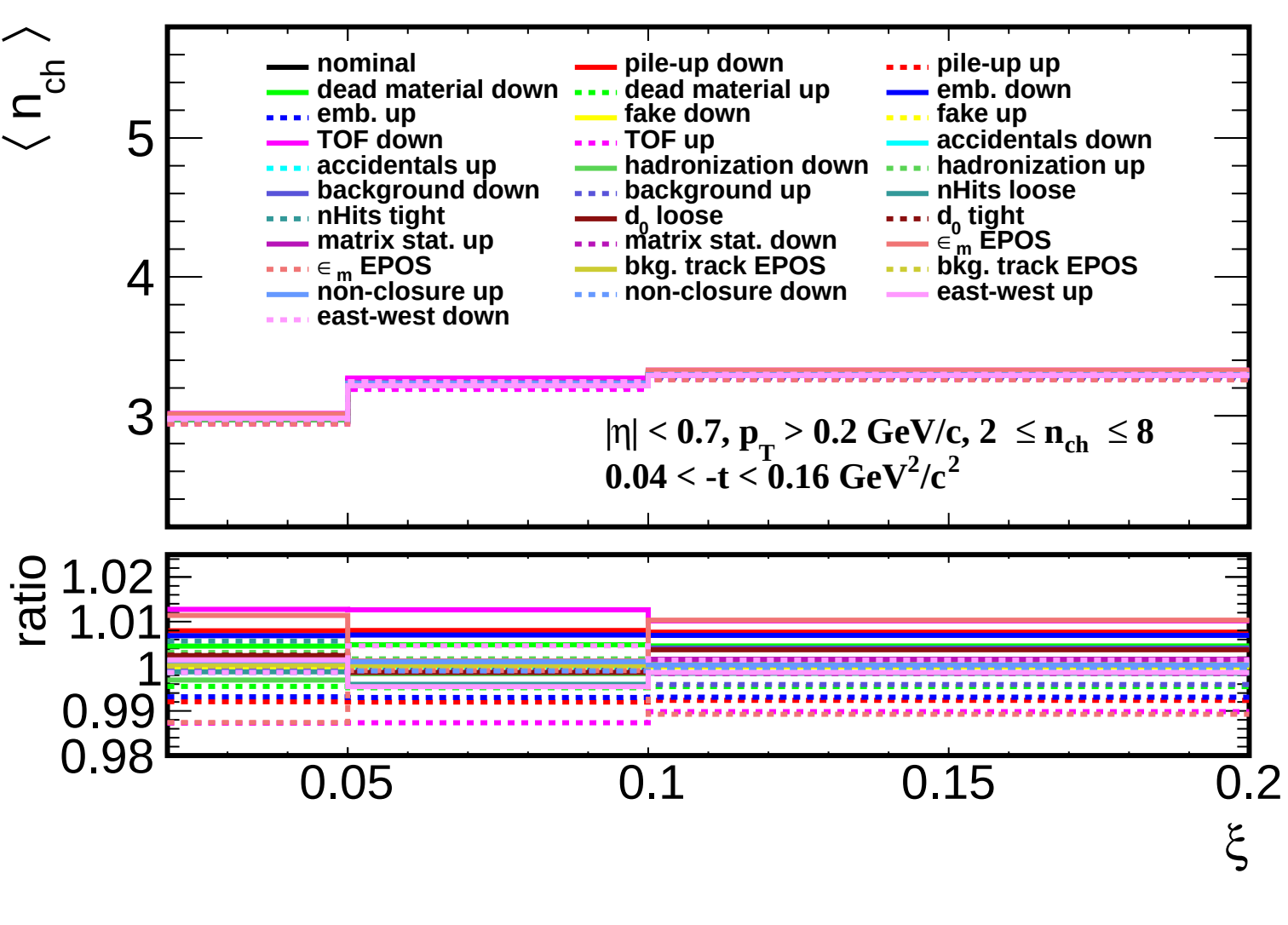

$\epsilon_{n_{sel} \geq 2}$
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8

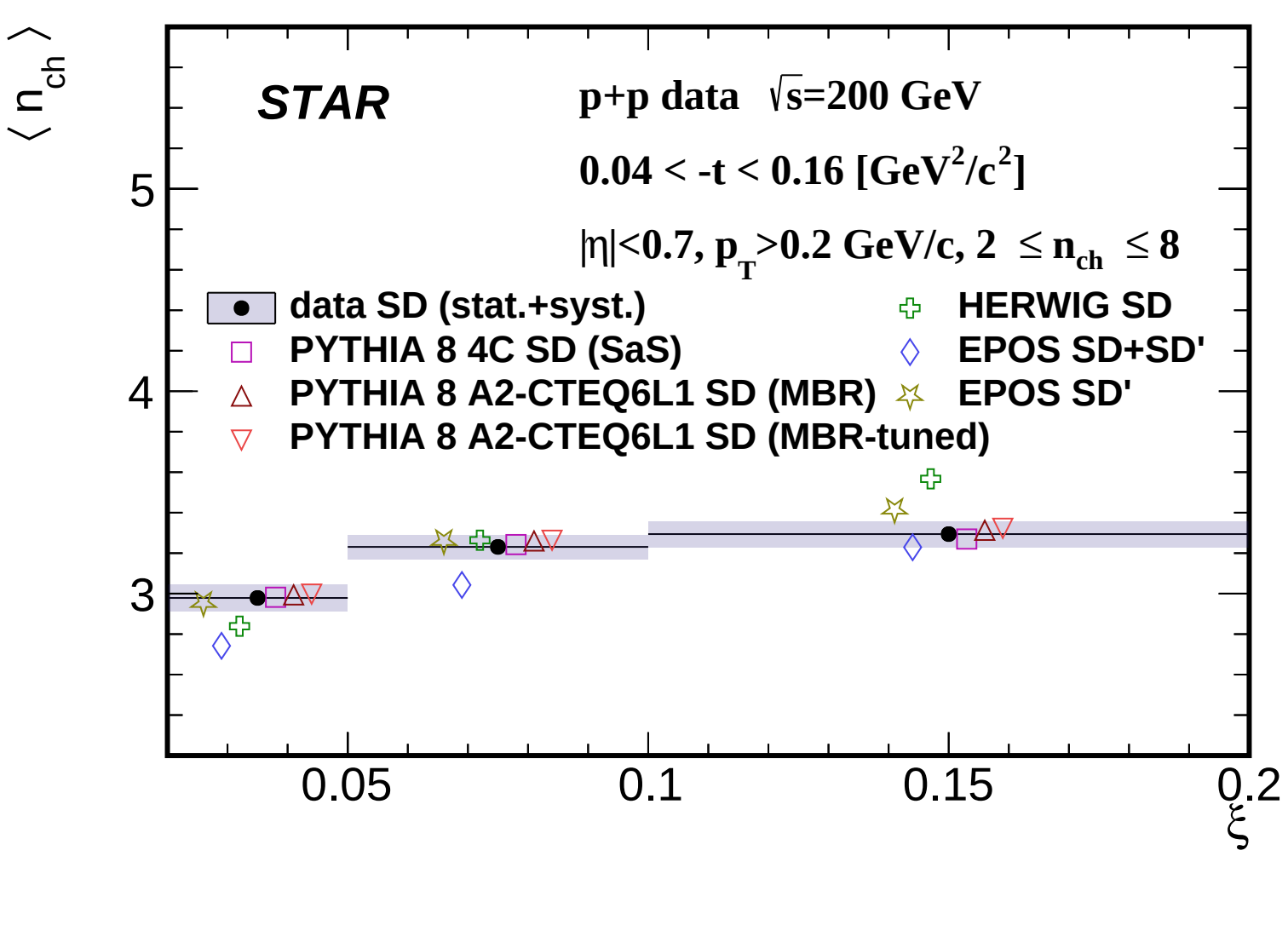

$\epsilon_{n_{sel} \leq n_{max}}$
1
0.999
0.998
0.997
0.996
0.995
0.994
0.993
0.992
2
3
4
5
6
7
8
n_{ch}
p+p data $\sqrt{s}$=200 GeV
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV^2/c^2]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_{ch} ≤ 8


1/N dN/dn_ch
0.4
0.2
0
n_ch


0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η| < 0.7, p_T > 0.2 GeV/c
nominal
pile-up up
dead material up
emb. up
fake up
TOF up
accidentals up
hadronization up
background up
nHits tight
d0 tight
matrix stat. down
∈m EPOS
bkg. track EPOS
non-closure down
east-west down
pile-up down
dead material down
emb. down
fake down
TOF down
accidentals down
hadronization down
background down
nHits loose
d0 loose
matrix stat. up
∈m EPOS
bkg. track EPOS
non-closure up
east-west up
1/N dN/dn_ch
ratio
n_ch


p+p data √s=200 GeV
STAR
0.1 ≤ ξ < 0.2, 0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_ch ≤ 8
data SD (stat.+syst.)
PYTHIA 8 4C SD (SaS)
PYTHIA 8 A2-CTEQ6L1 SD (MBR)
PYTHIA 8 A2-CTEQ6L1 SD (MBR-tuned)
HERWIG SD
EPOS SD+SD'
EPOS SD'
1/N dN/dn_ch
data/MC
n_ch


⟨ n_ch ⟩
nominal
dead material down
emb. up
TOF down
accidentals up
background down
nHits tight
matrix stat. up
∈_m EPOS
non-closure up
east-west down
pile-up down
dead material up
fake down
TOF up
hadronization down
background up
d_0 loose
matrix stat. down
bkg. track EPOS
non-closure down
pile-up up
emb. down
fake up
accidentals down
hadronization up
nHits loose
d_0 tight
∈_m EPOS
bkg. track EPOS
east-west up
|η| < 0.7, p_T > 0.2 GeV/c, 2 ≤ n_ch ≤ 8
0.04 < -t < 0.16 GeV^2/c^2
ratio
ξ


STAR
p+p data √s=200 GeV
0.04 < -t < 0.16 [GeV²/c²]
|η|<0.7, p_T>0.2 GeV/c, 2 ≤ n_ch ≤ 8
data SD (stat.+syst.)
PYTHIA 8 4C SD (SaS)
PYTHIA 8 A2-CTEQ6L1 SD (MBR)
PYTHIA 8 A2-CTEQ6L1 SD (MBR-tuned)
HERWIG SD
EPOS SD+SD'
EPOS SD'
⟨ n_ch ⟩
ξ
3
4
5
0.05
0.1
0.15
0.2