

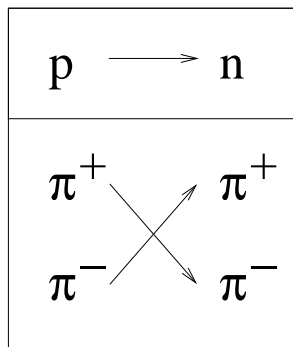
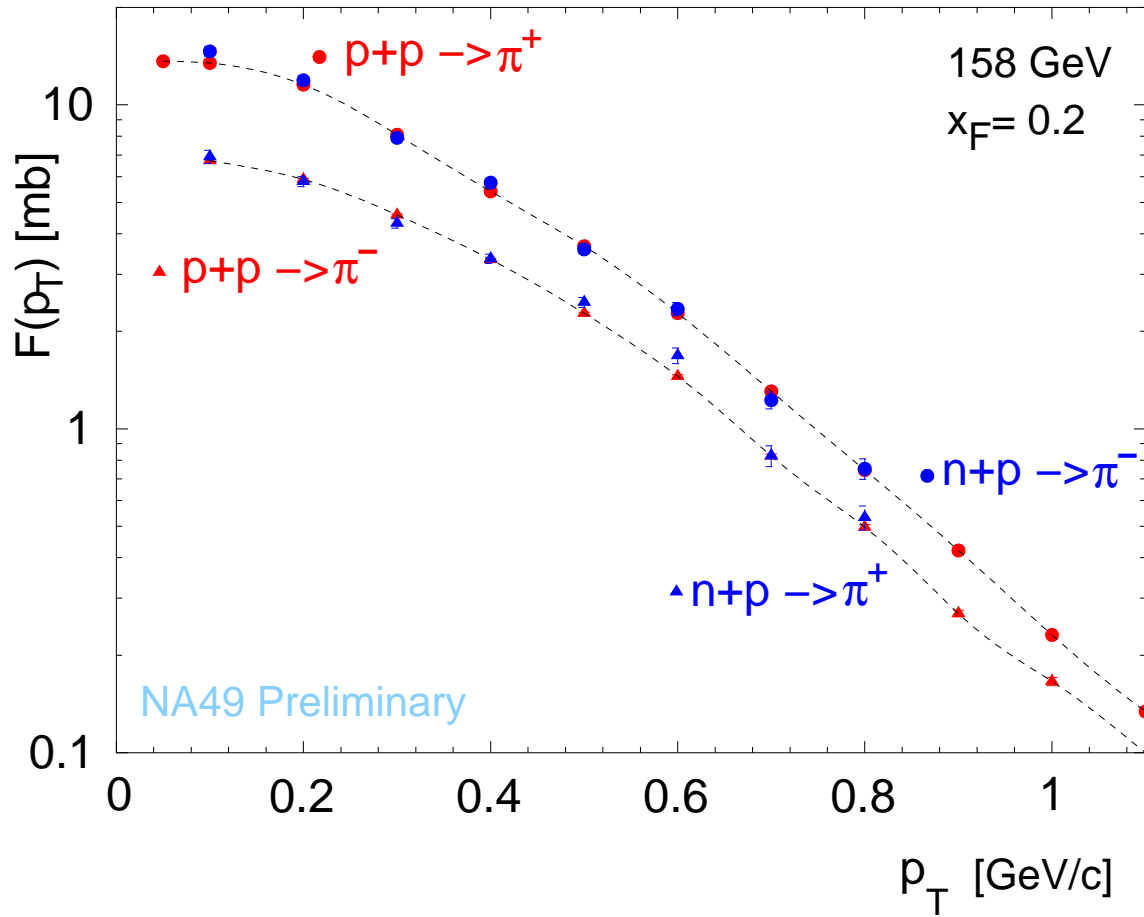
Comments on Particle Production in $p+p$, $p+A$, and $A+A$

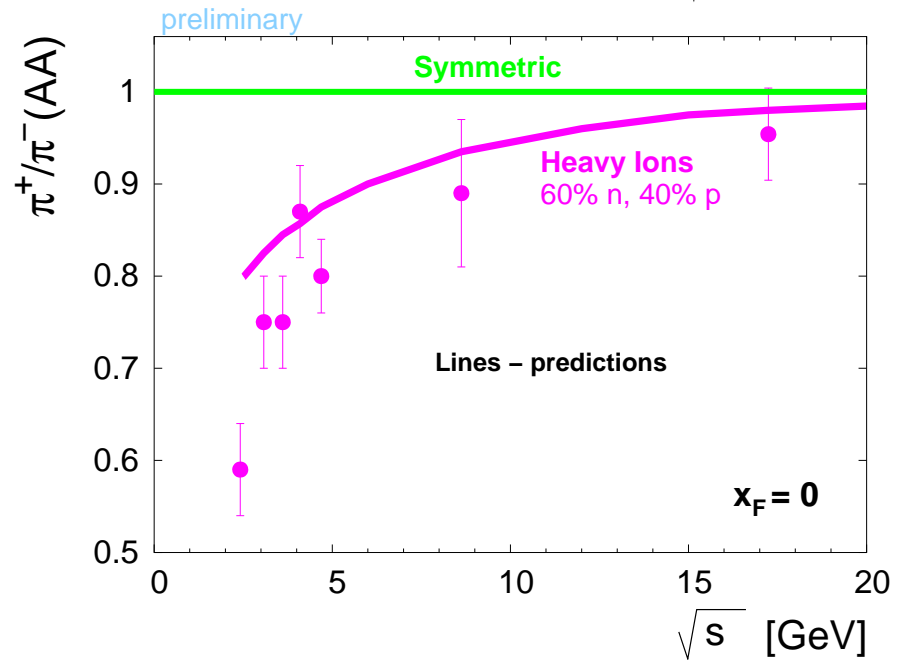
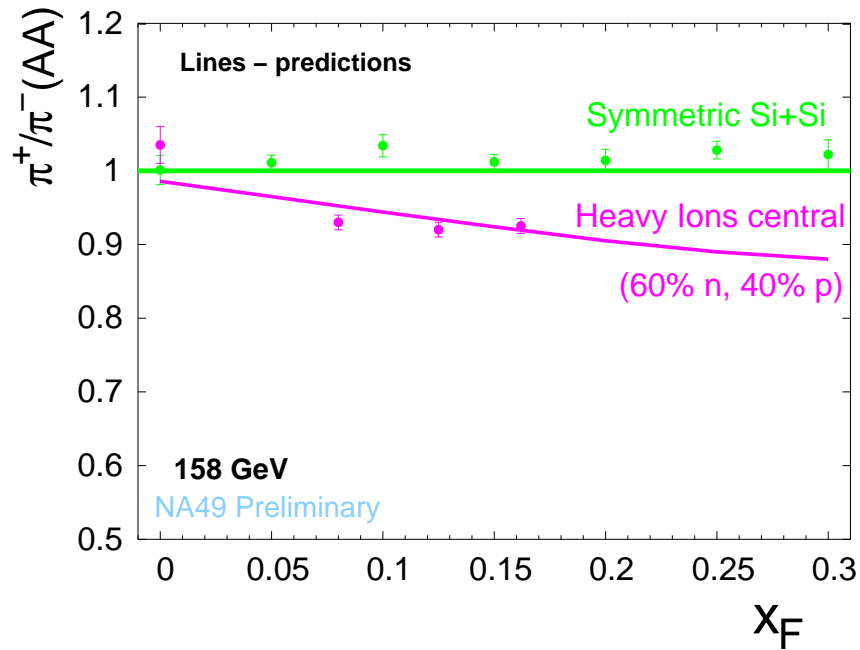
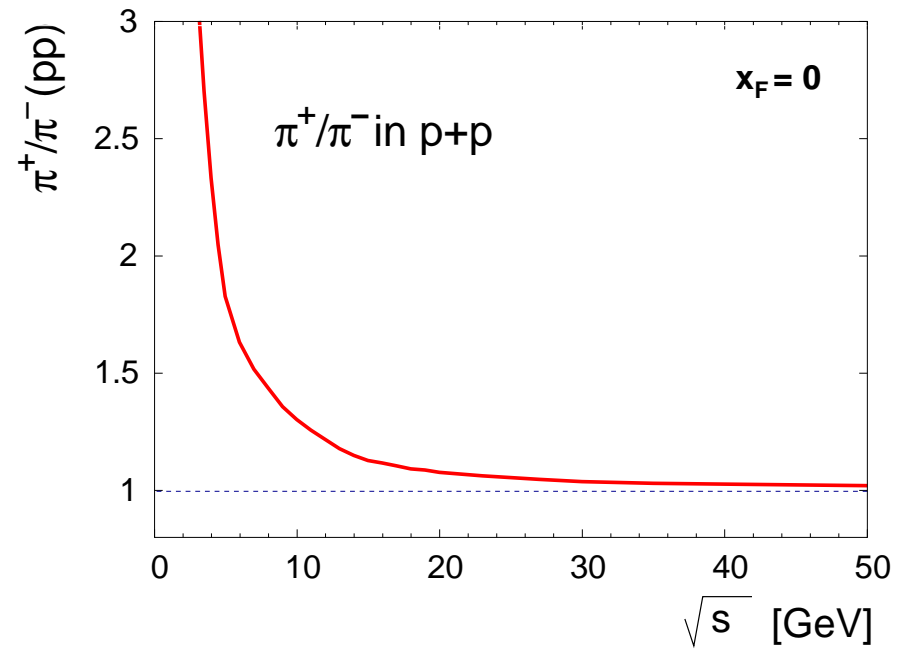
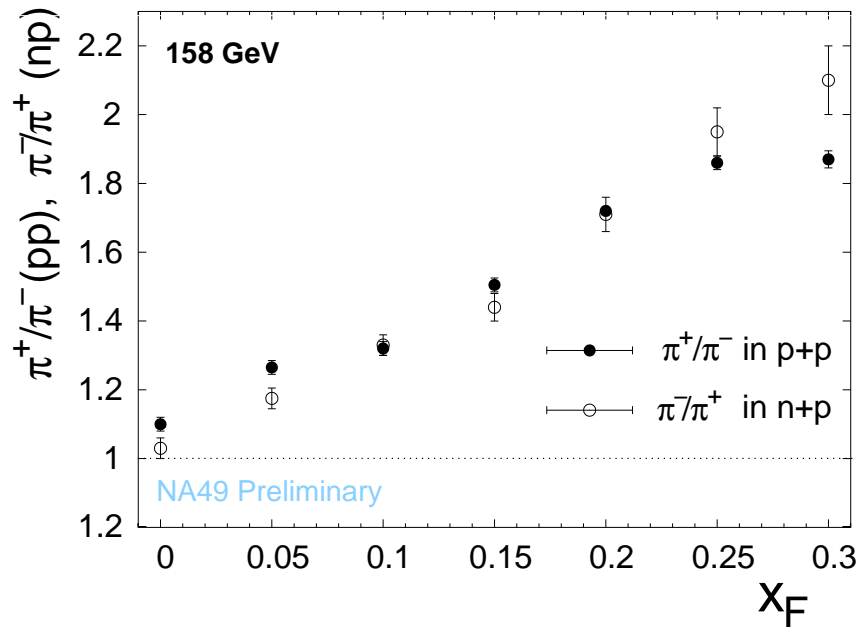
Andrzej Rybicki, NA49
Inst. of Nucl. Physics, Kraków, Poland
CERN, Geneva, Switzerland

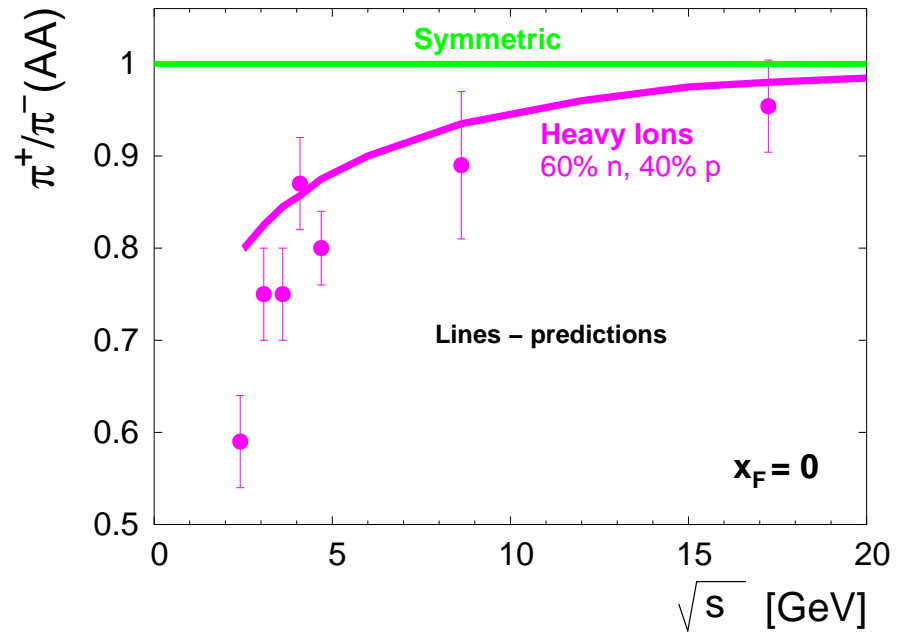
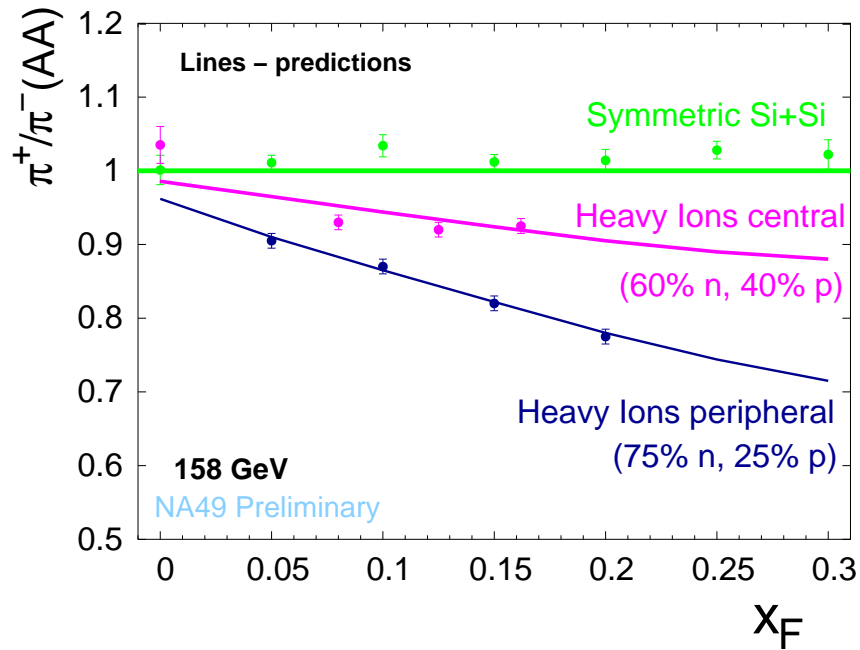
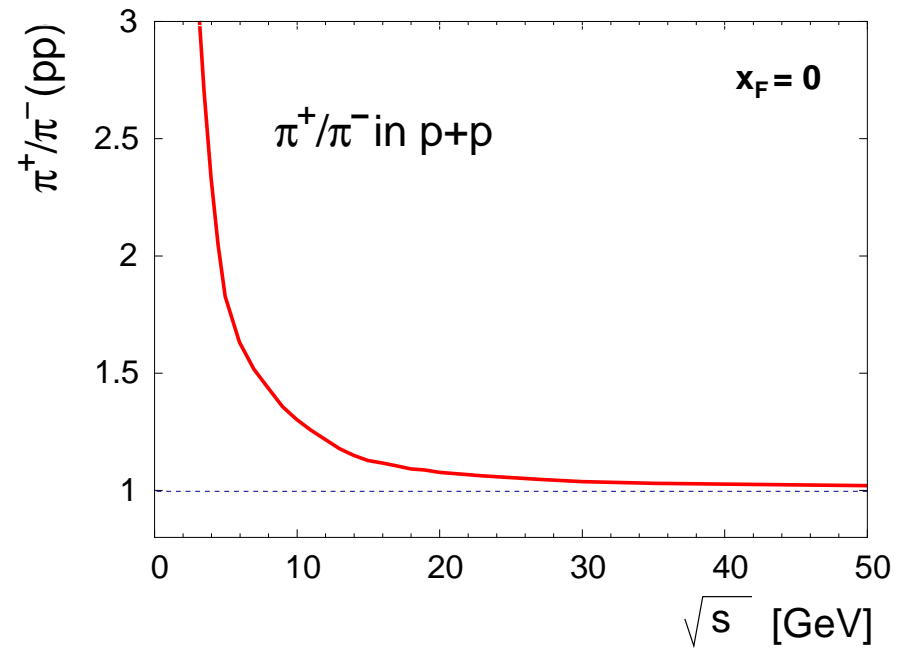
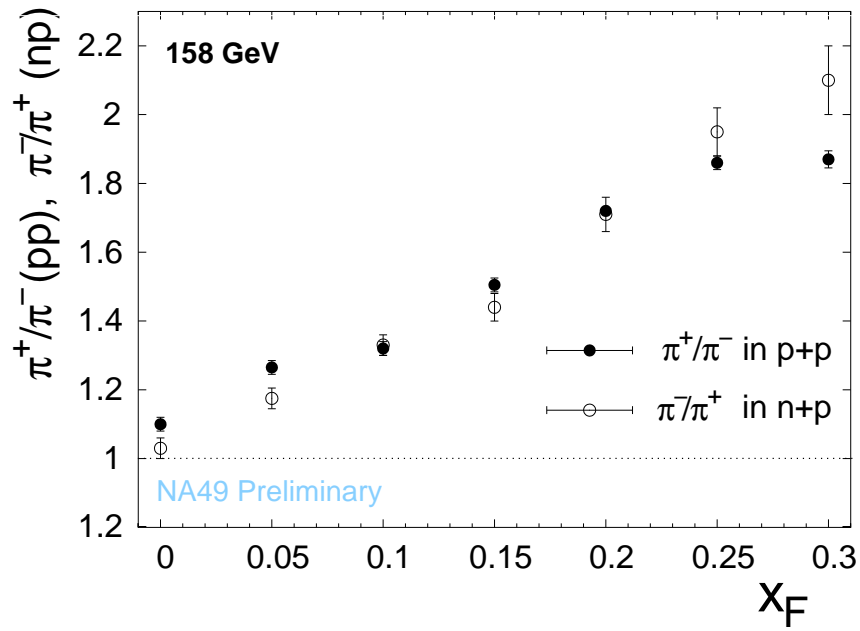
Outline:

- 1) pion and kaon production
- 2) baryons
- 3) summary

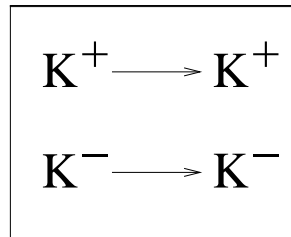
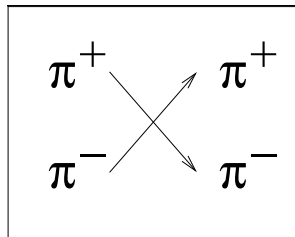
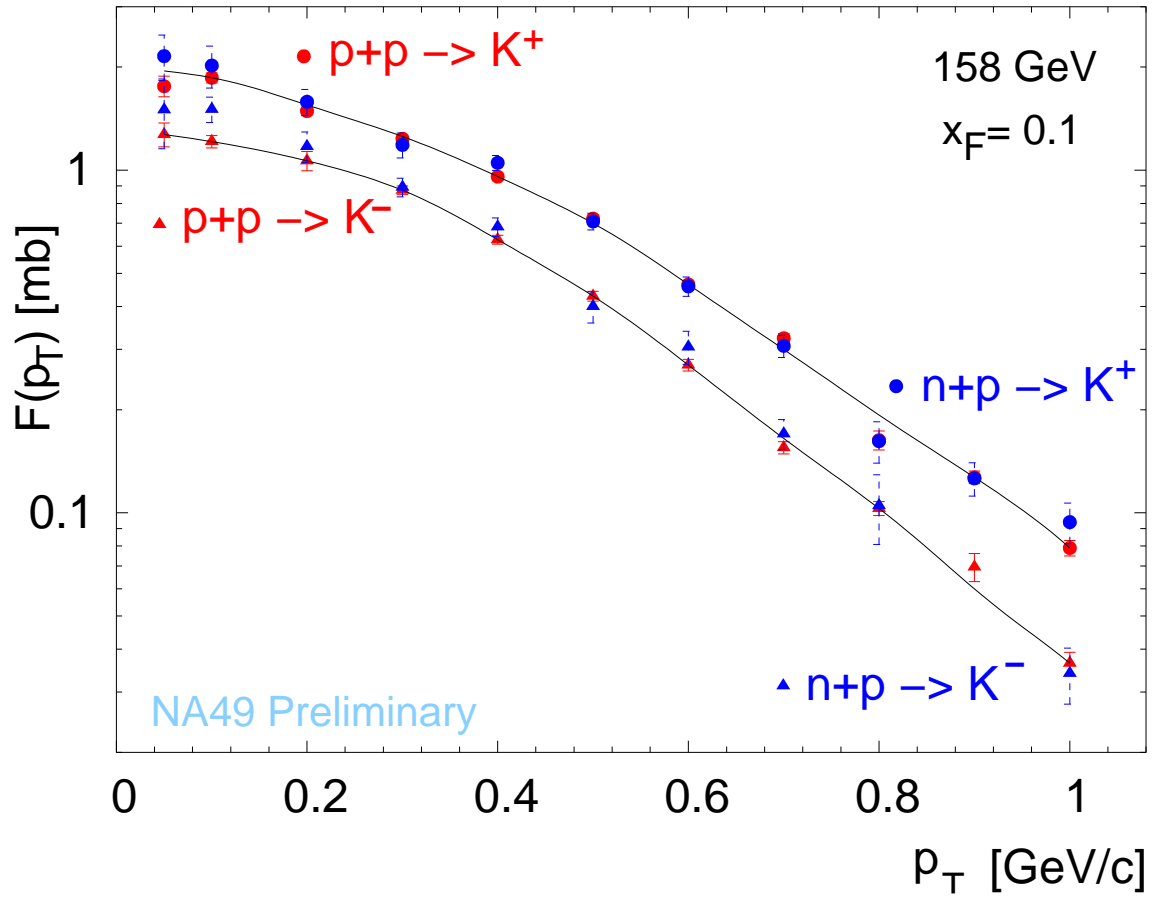
1) pion production



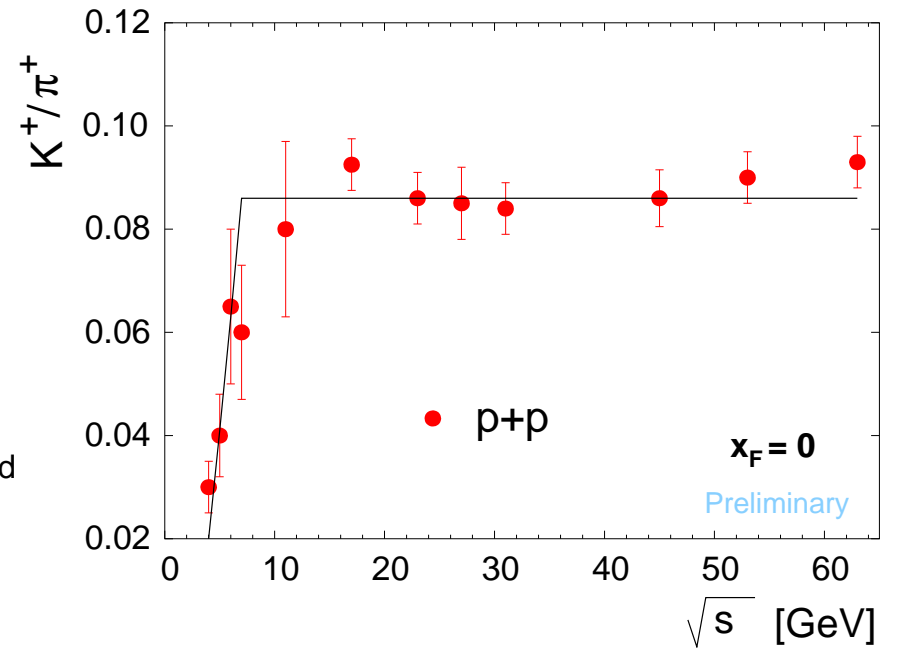
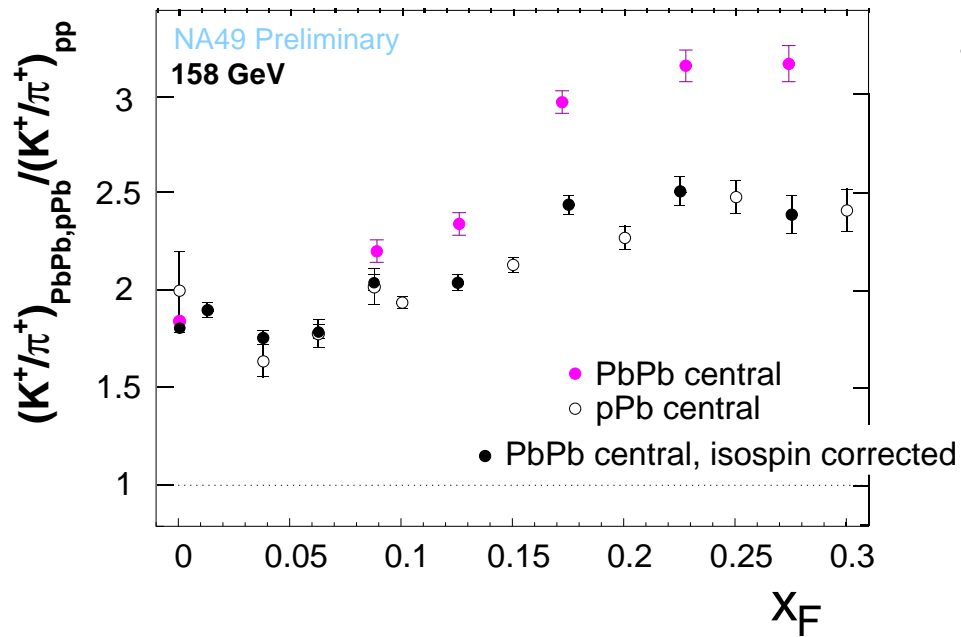
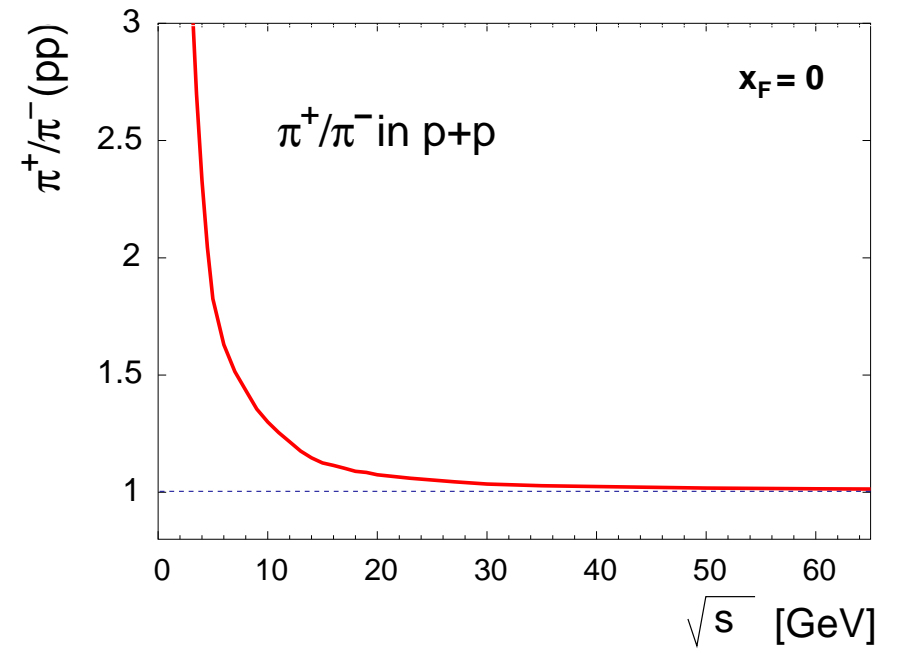
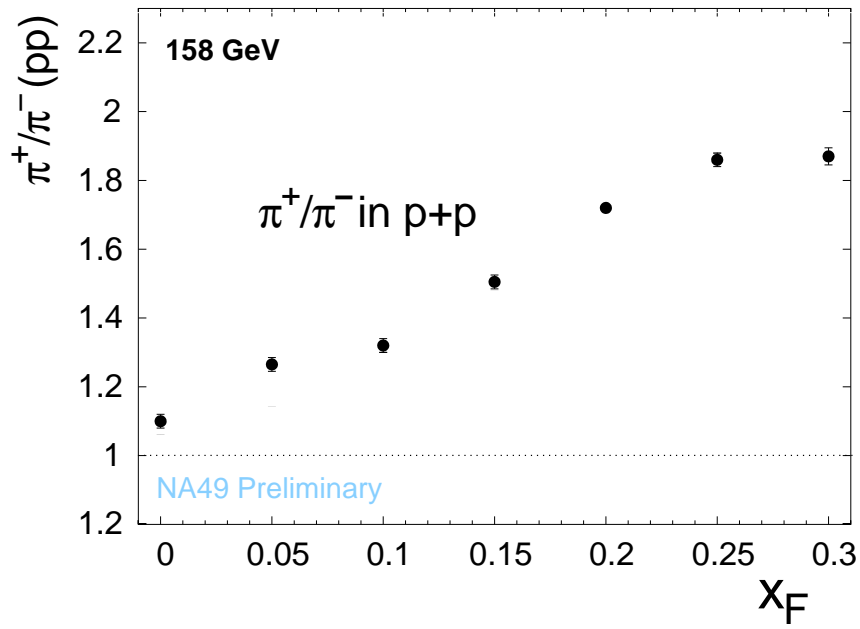


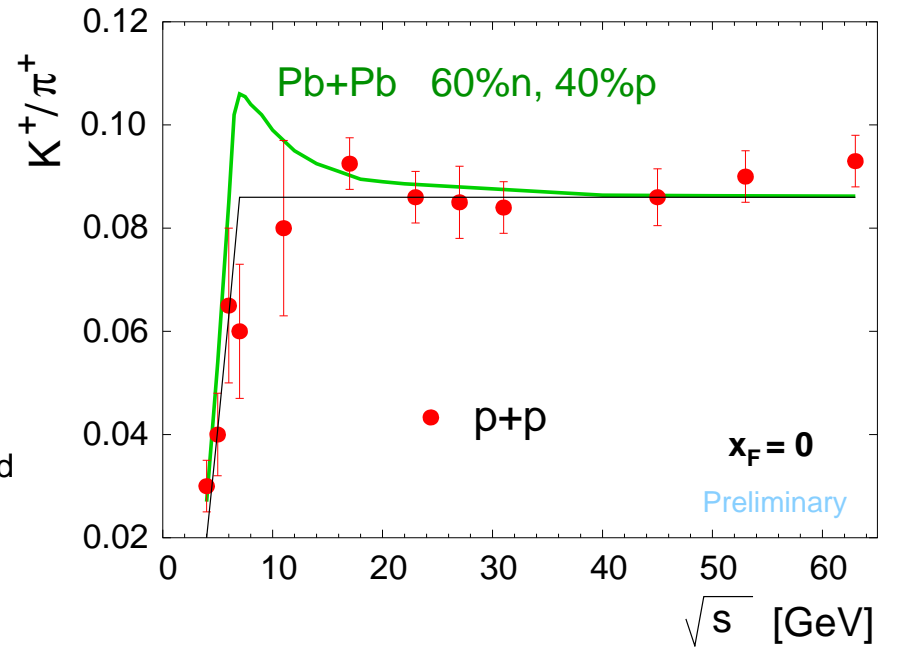
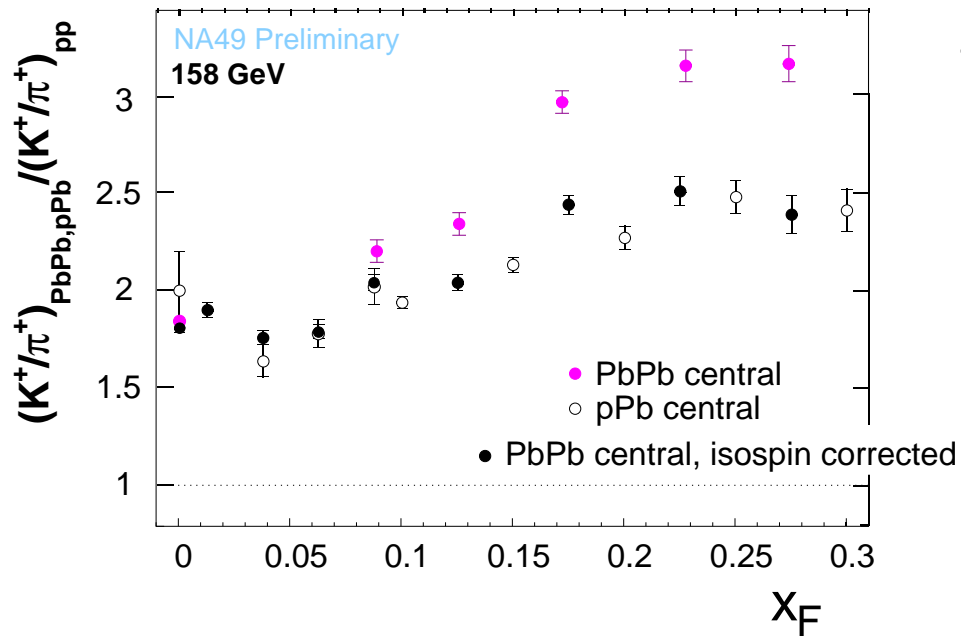
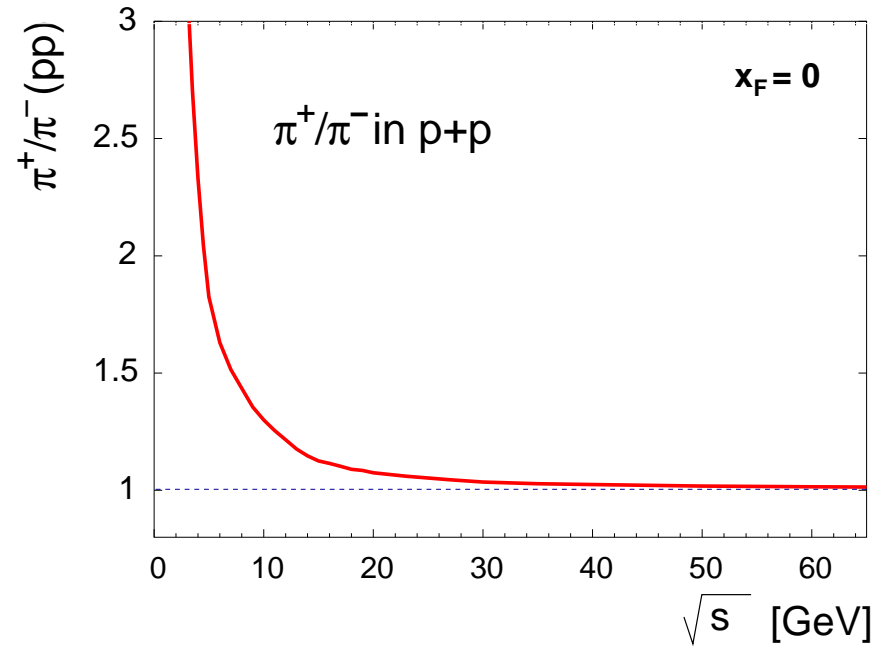
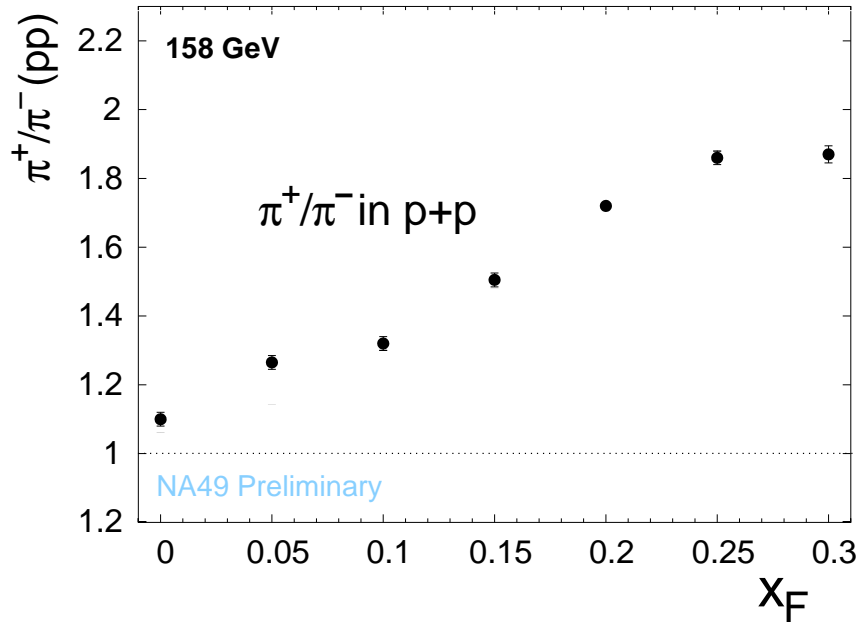


kaon production

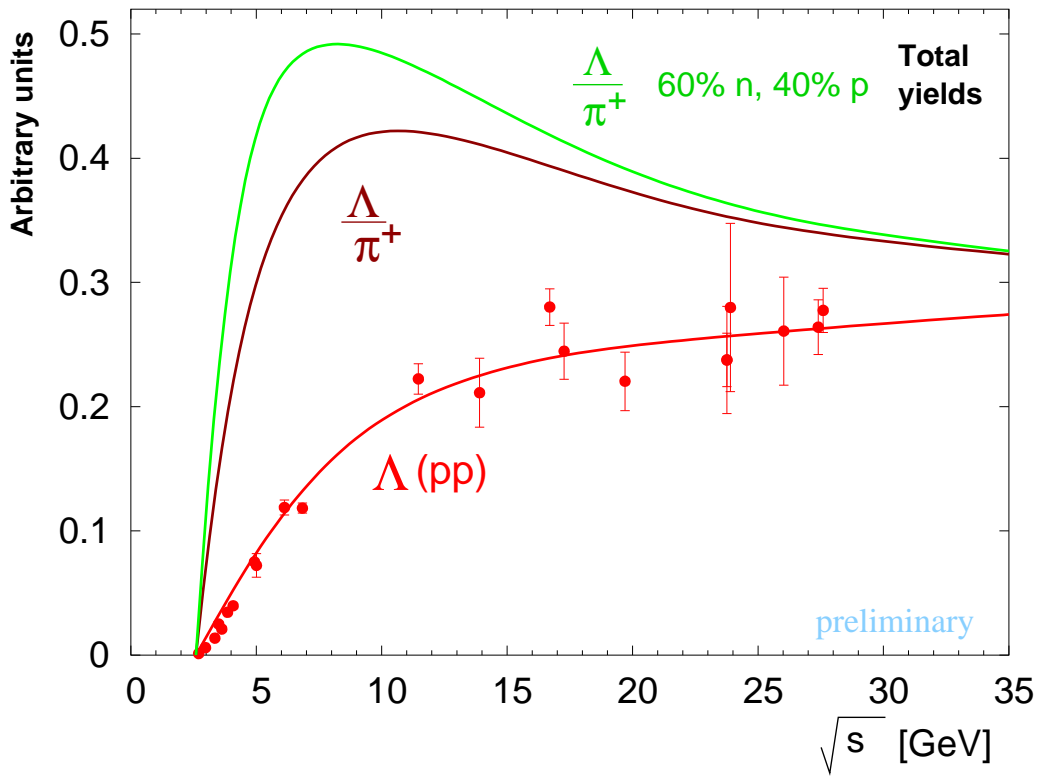
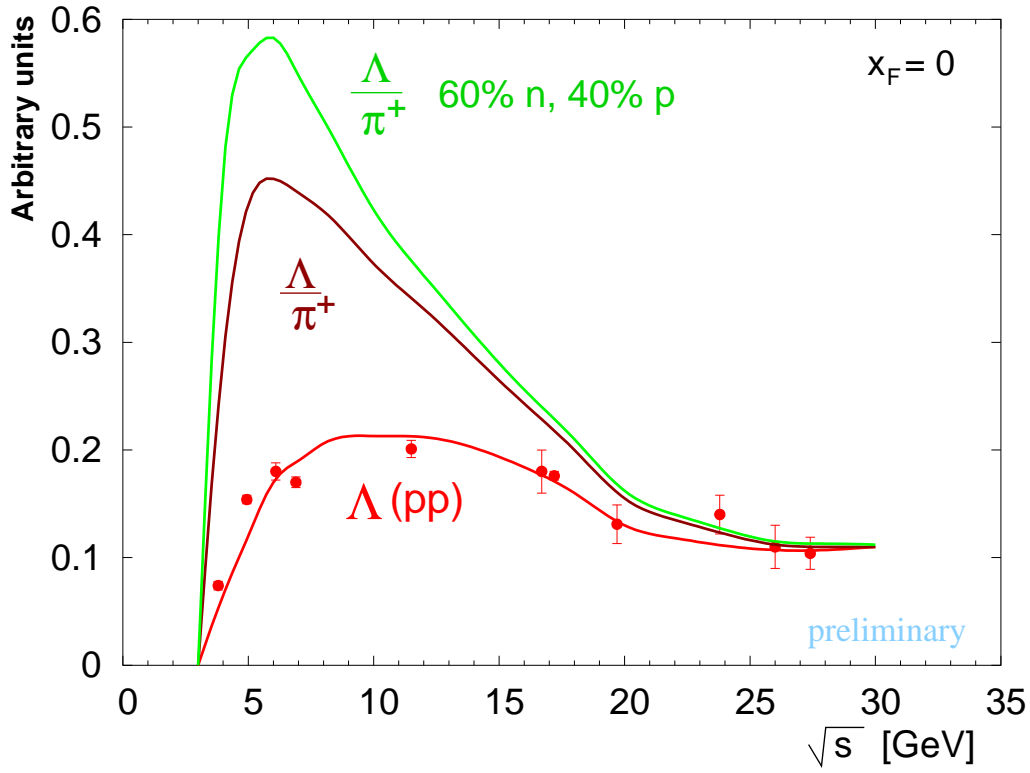


$$\left(\frac{K^+}{\pi^+}\right)^n = \left(\frac{K^+}{\pi^-}\right)^p = \left(\frac{K^+}{\pi^+}\right)^p \cdot \left(\frac{\pi^+}{\pi^-}\right)^p \quad !$$



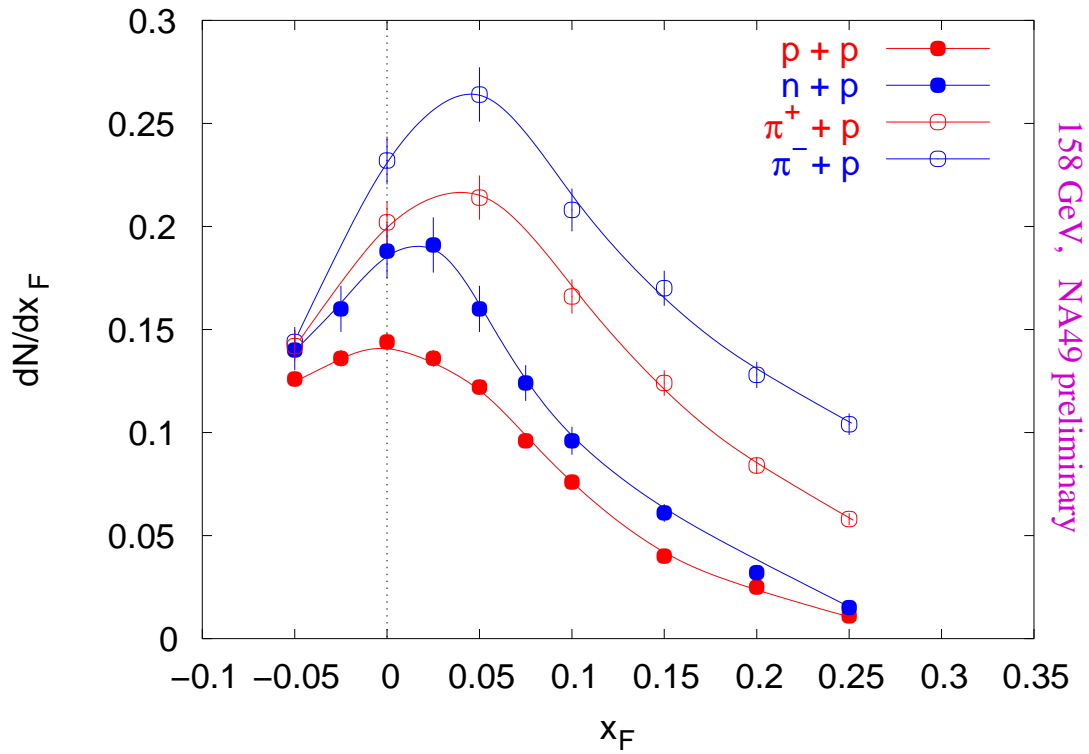


Λ production



2) baryons

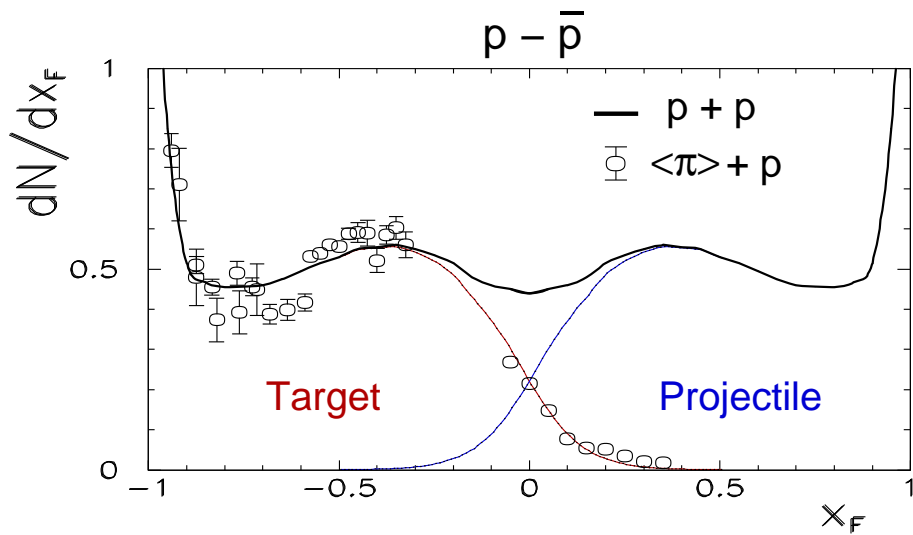
$$h + p \rightarrow \bar{p} + X$$



asymmetric pair production:

I_3	-1	-1/2	0	1/2	1
Projectiles		n		p	
	π^-				π^+
Produced particles	$\bar{p}n$		$p\bar{p}$ $n\bar{n}$		$p\bar{n}$

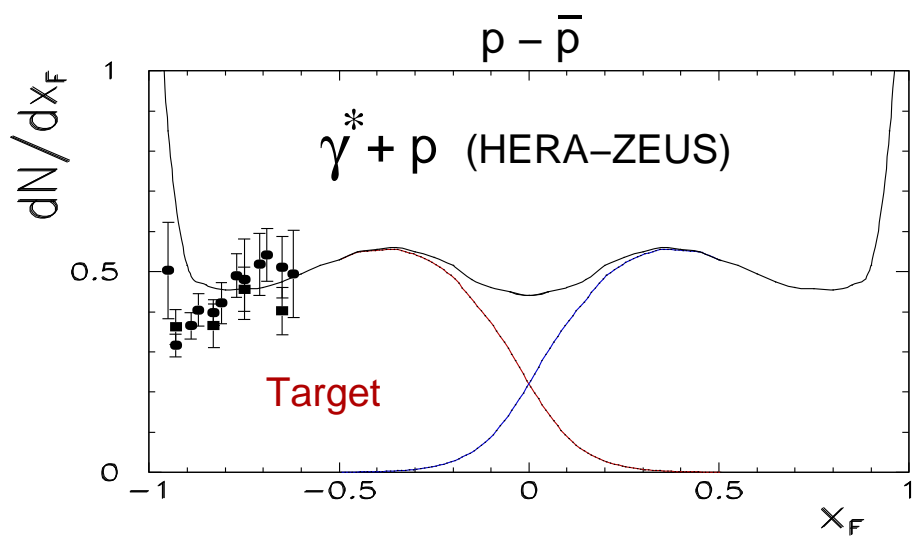
net baryons:



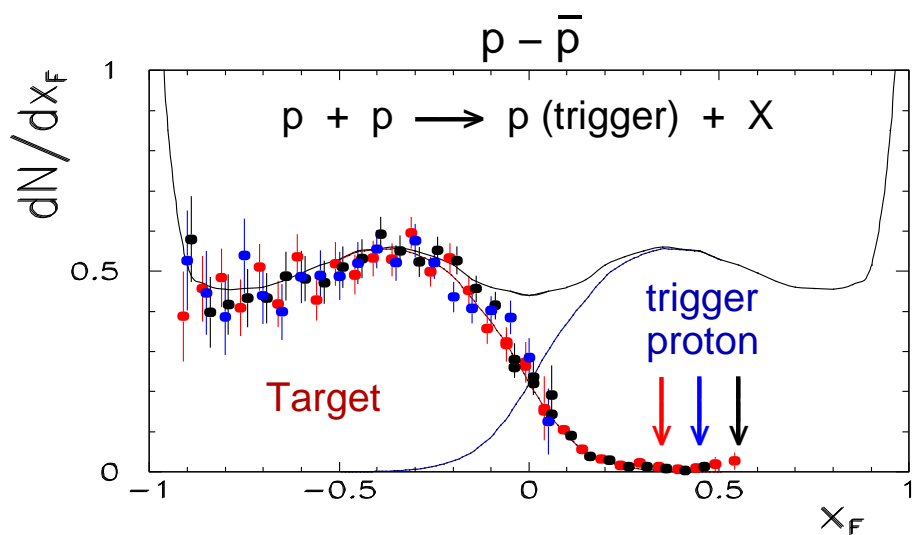
Note:

$$\langle \pi \rangle = \frac{\pi^+ + \pi^-}{2}$$

preliminary



preliminary



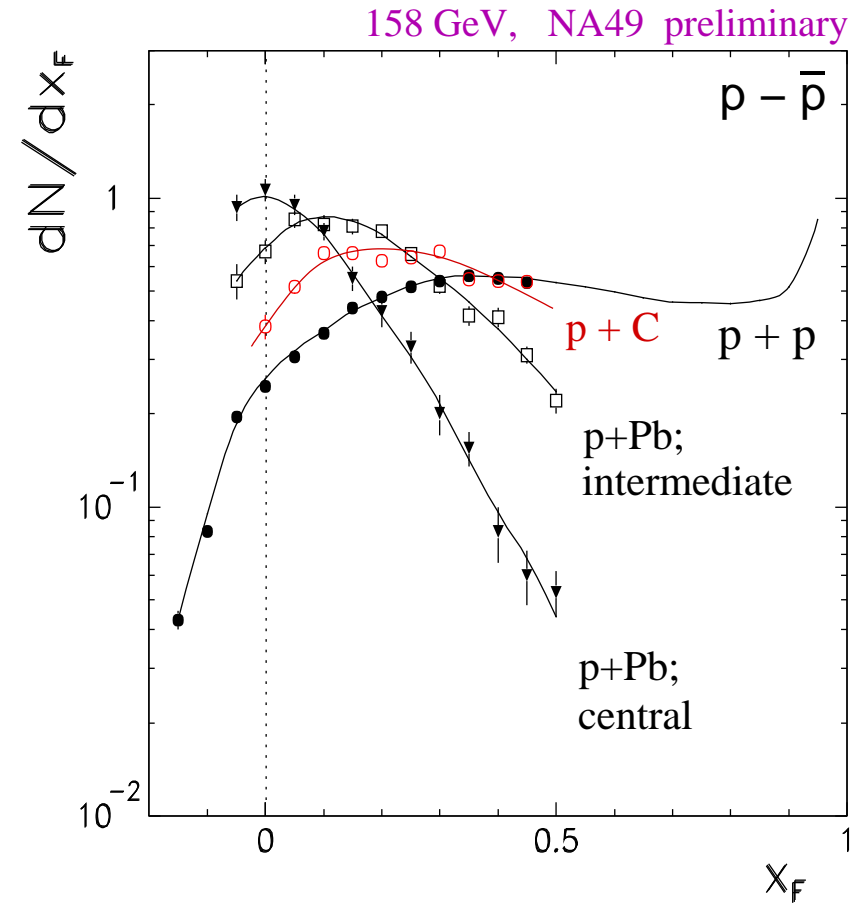
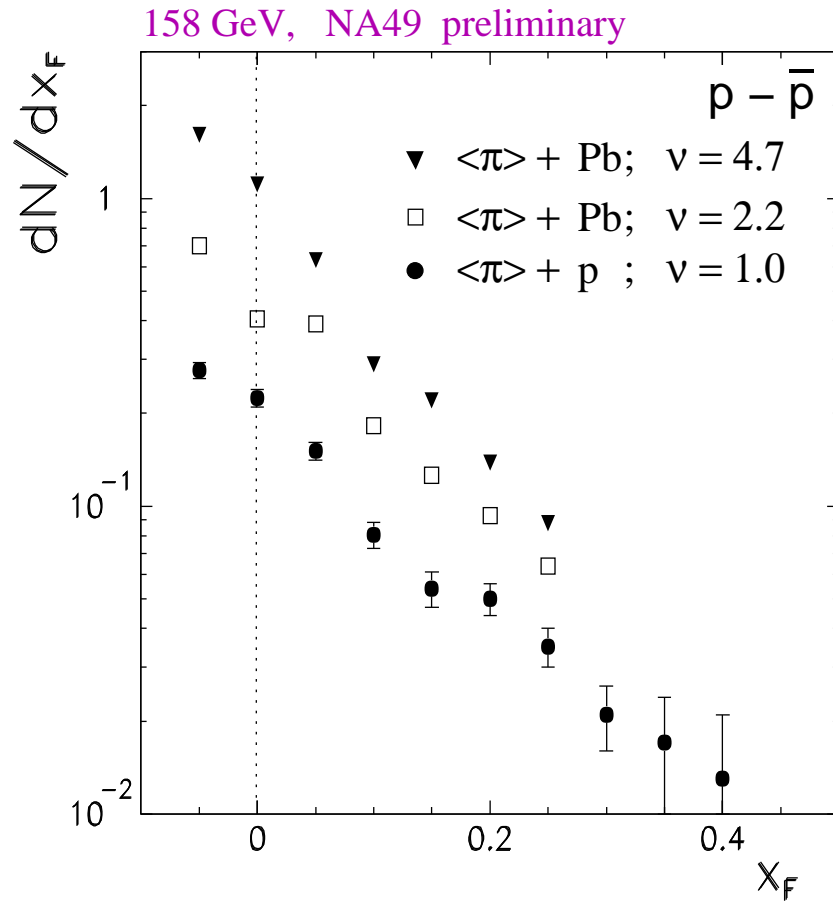
NA49 preliminary

factorisation

pPb = target + projectile

$\langle \pi \rangle$ Pb

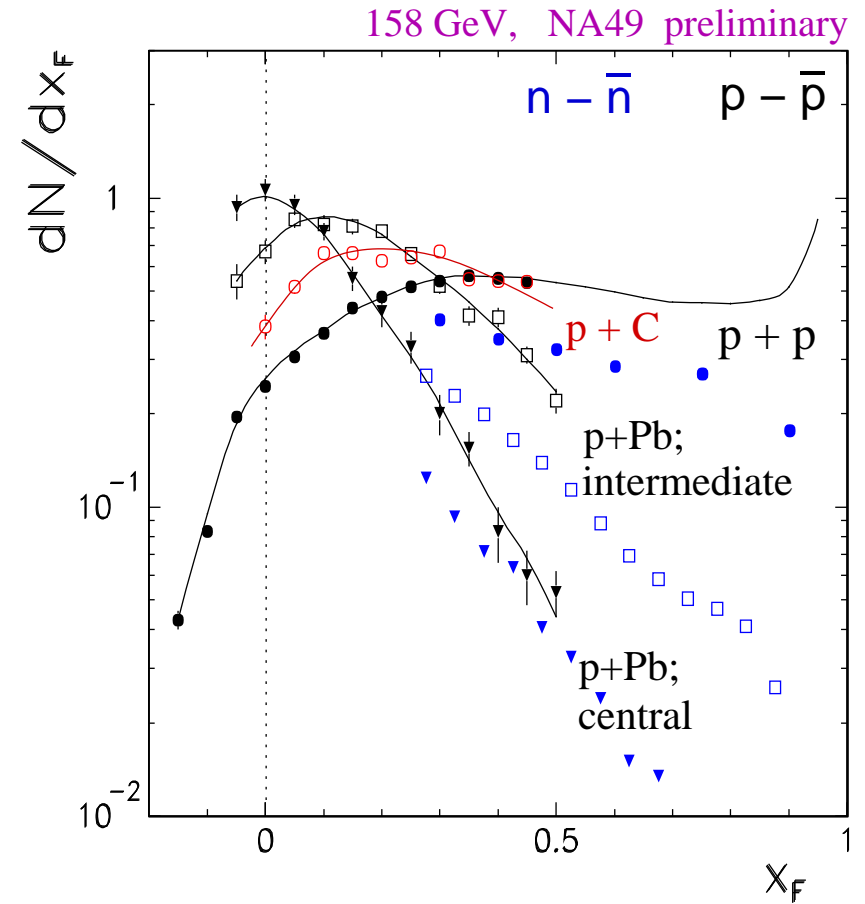
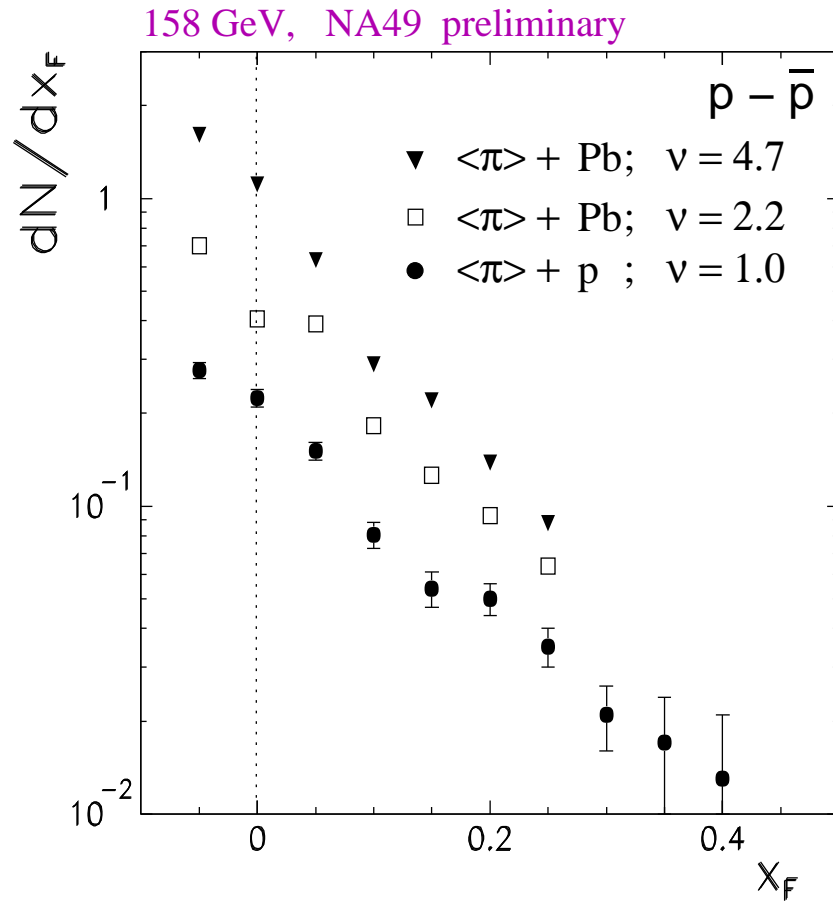
pPb - $\langle \pi \rangle$ Pb



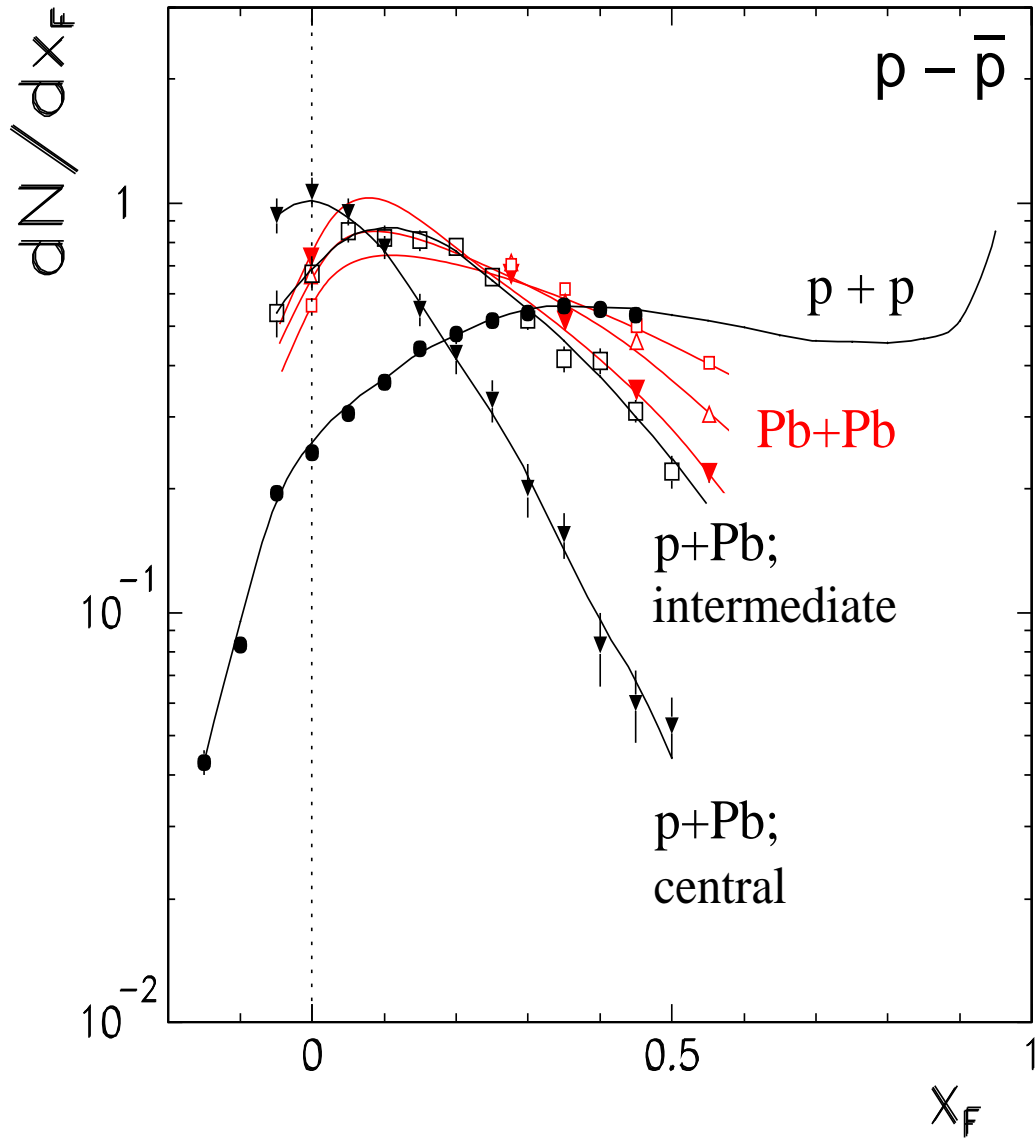
pPb = target + projectile

$\langle \pi \rangle \text{Pb}$

pPb - $\langle \pi \rangle \text{Pb}$



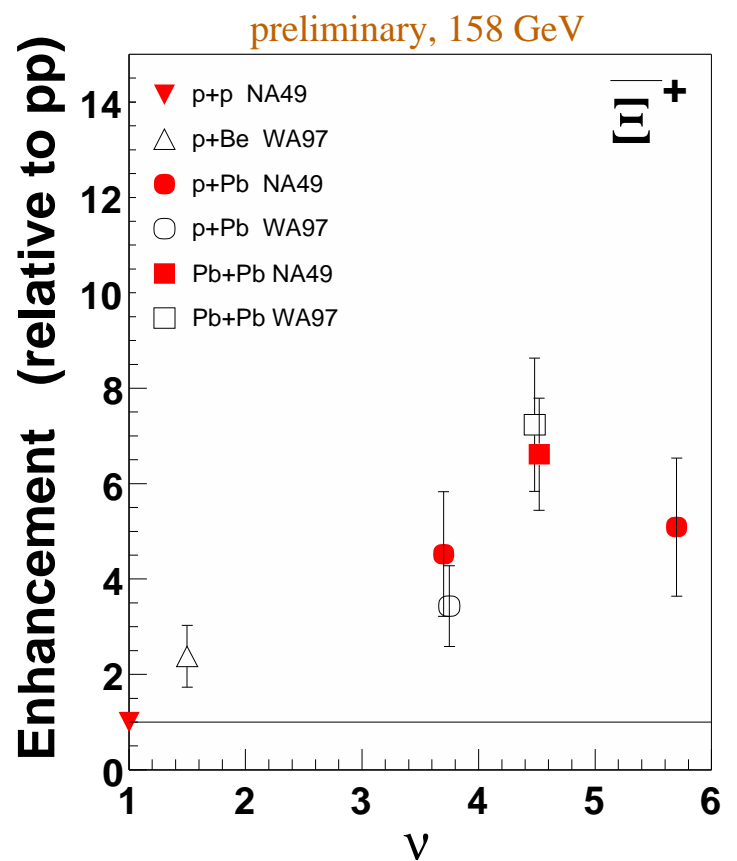
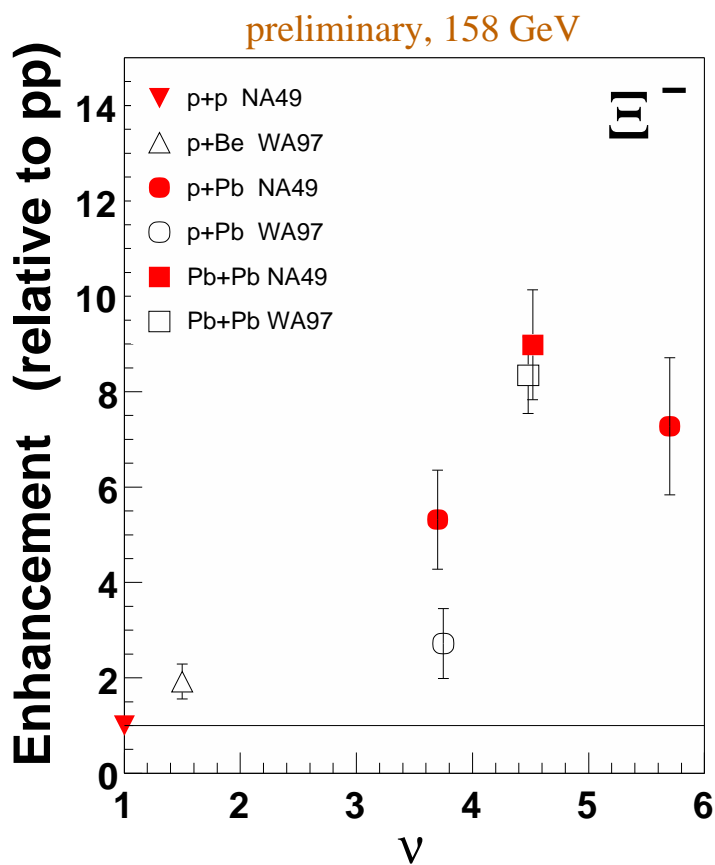
158 GeV, NA49 preliminary



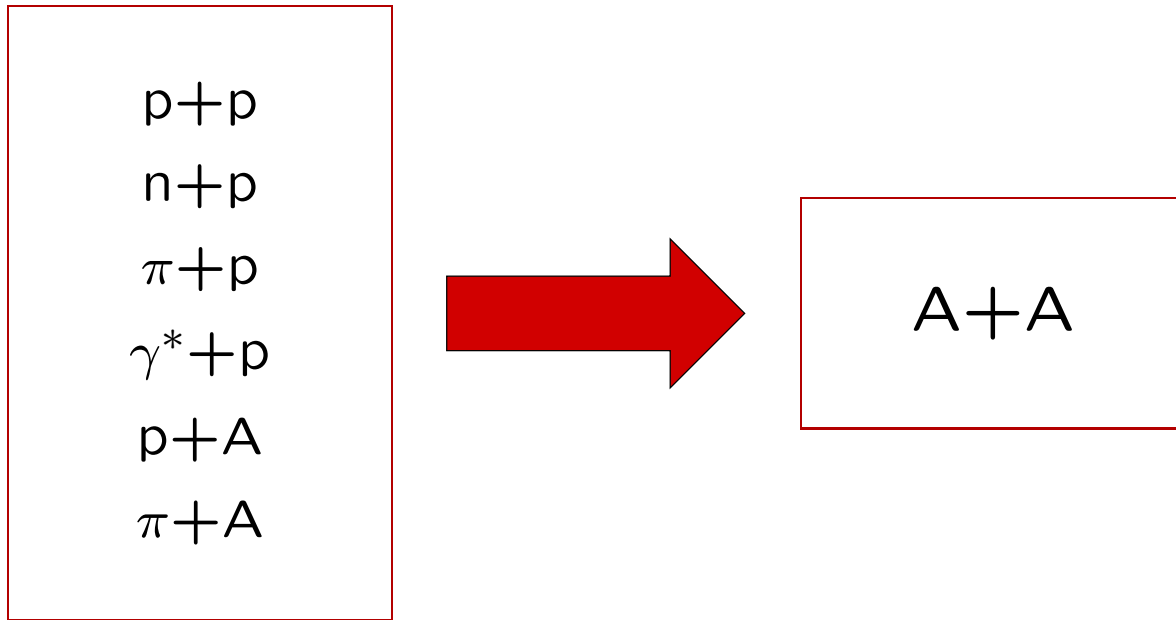
Common, smooth evolution

strange baryon production

- strange hyperon mid-rapidity yields in pp, pBe, pPb
→ deviations from WN scaling



3) summary



Go back to $p+p$ and $p+A$!