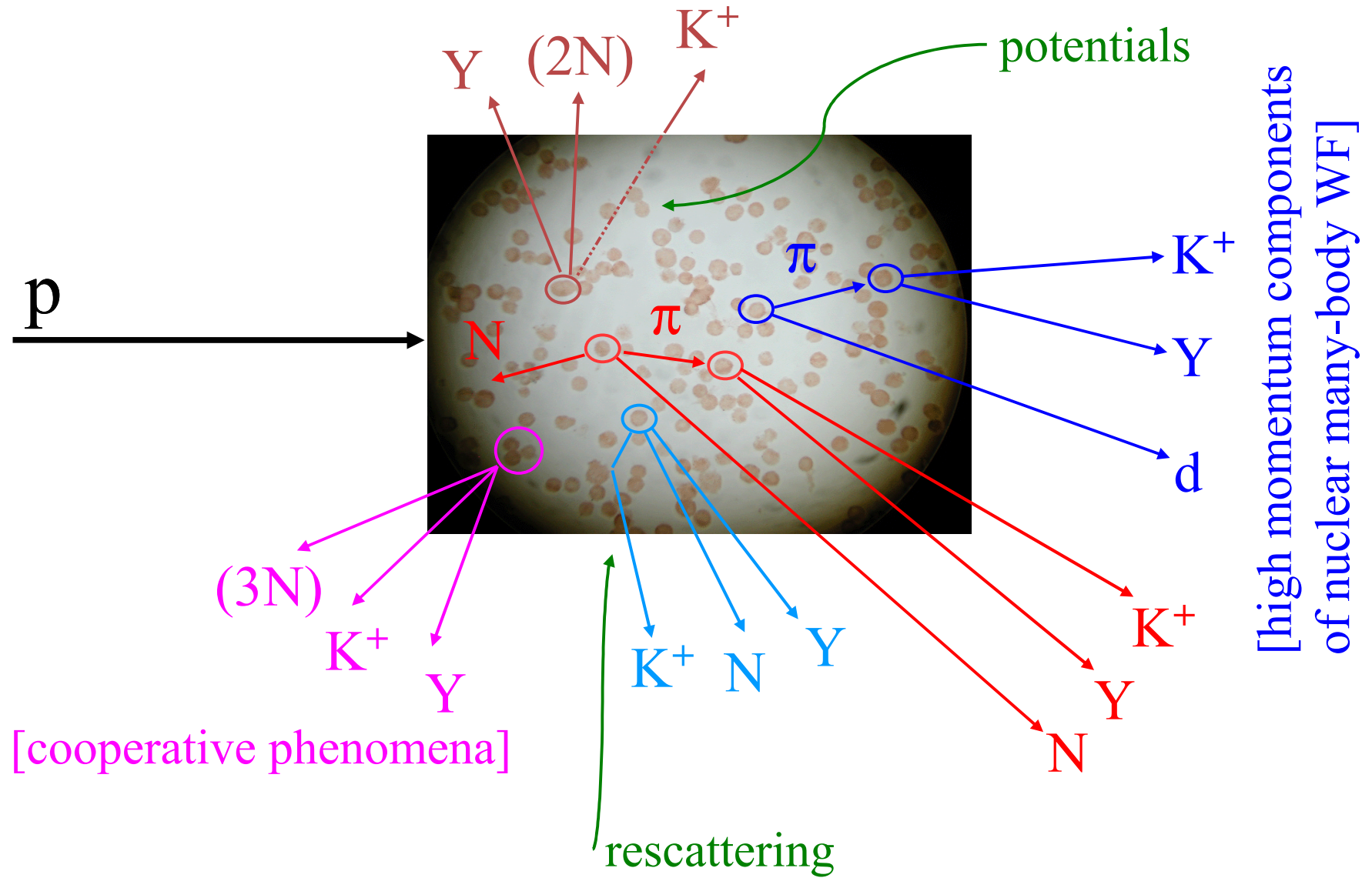
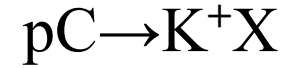


K^+ in Medium



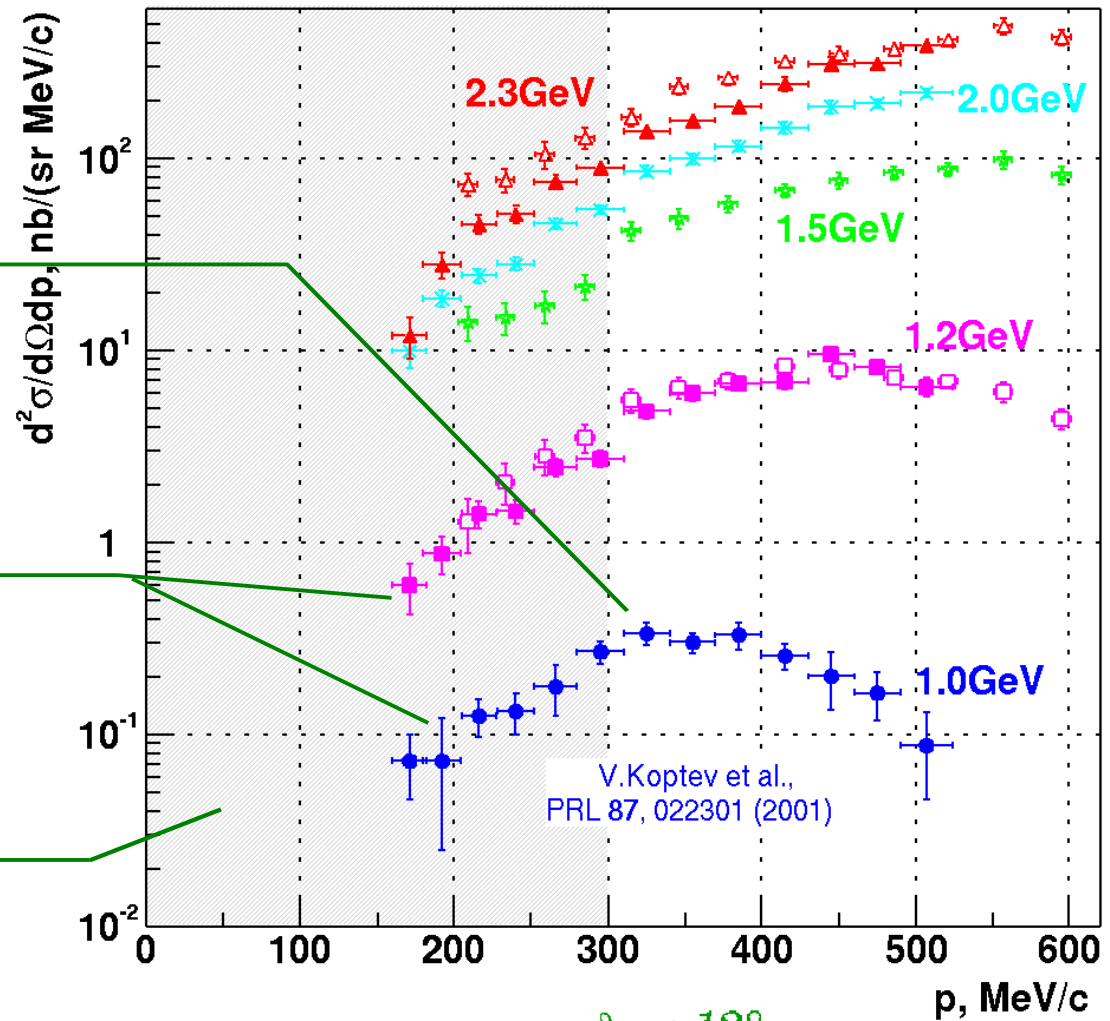
K^+ Cross Sections



Complete momentum spectrum

2-step dominance expected

Sensitive to potentials

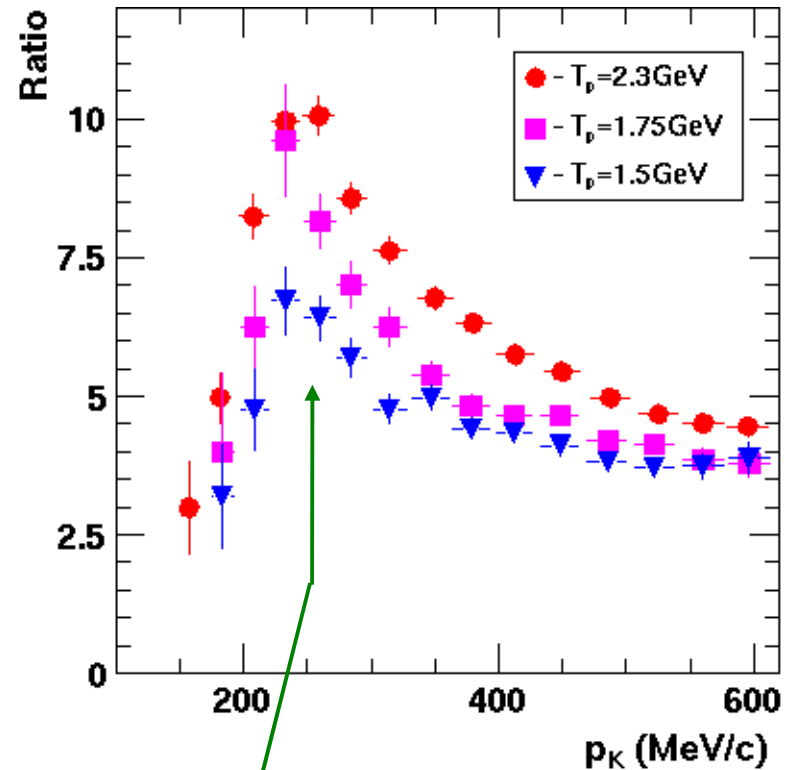


K^+ Production in Heavy/Light Nuclei:

beam momentum dependence

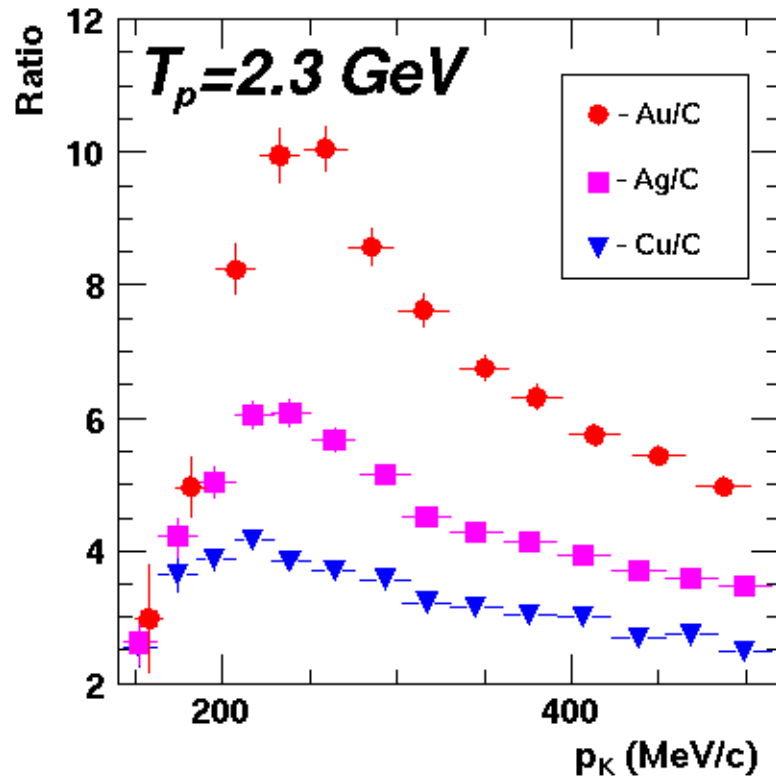
$$\frac{\left(p \rightarrow \text{Large Circle} \rightarrow K^+ \right)}{\left(p \rightarrow \text{Small Circle} \rightarrow K^+ \right)} = \frac{Au}{C}$$

Momentum spectrum for heavy target is shifted relative to that of light



FSI of kaons in target nucleus

K^+ Production in Heavy/Light Nuclei: *target mass dependence*

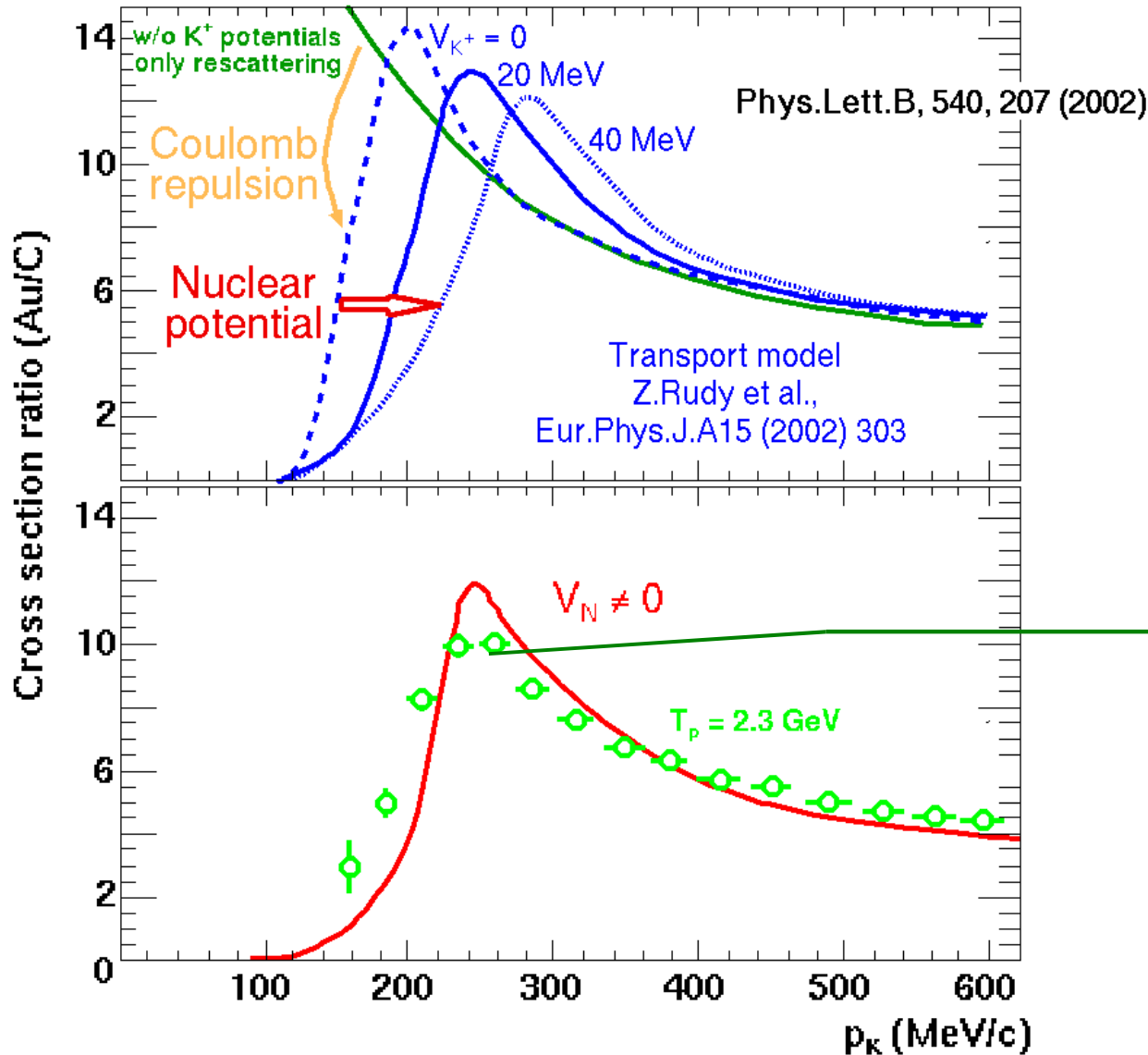


Ratios peak at:
 $p_K \sim 245 \text{ MeV/c}$ (Au/C)
 232 MeV/c (Ag/C)
 211 MeV/c (Cu/C)

Accelerating field?

K⁺ Production in Heavy/Light Nuclei:

K⁺ nuclear potential



Best agreement of
peak position for:

$$V_K(\rho = \rho_0) \approx 20 \text{ MeV}$$

K^+d Correlations at ANKE:

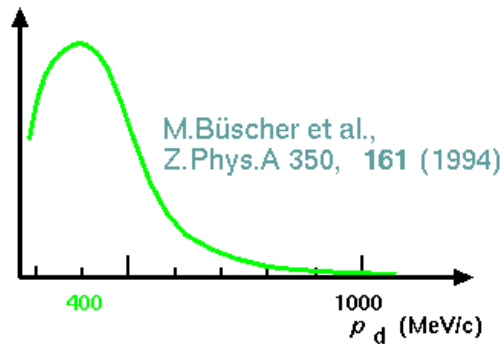
sources of deuterons

Goal: Mechanisms of the subthreshold K^+ production?

Tool: detection of the K^+d pairs

Observable: **deuteron momentum spectrum**

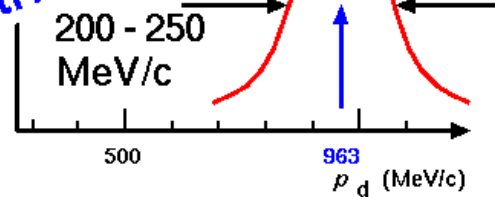
pick up (coalescence)



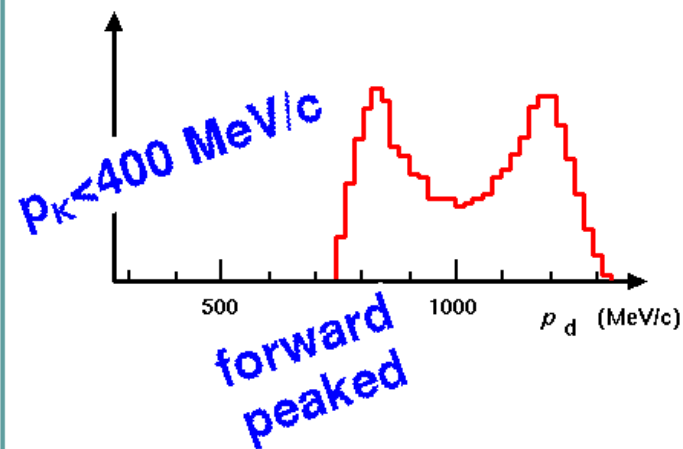
2 step, $p(1.2 \text{ GeV})p \rightarrow d\pi^+$

A.Sibirtsev, M.Büscher,
Z.Phys.A 347, 191 (1994)

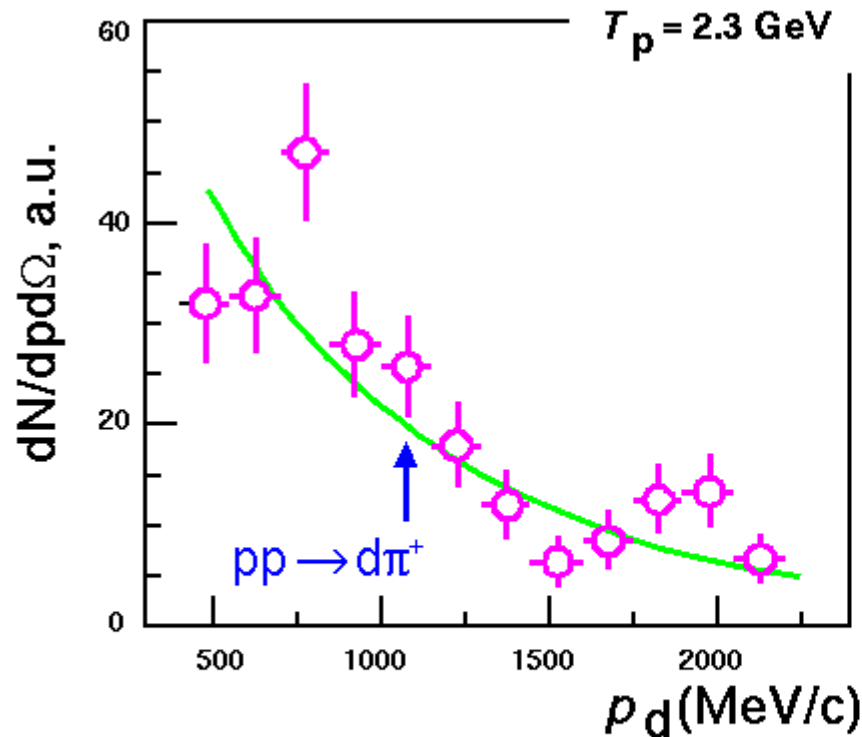
\uparrow
~flat angular
distribution



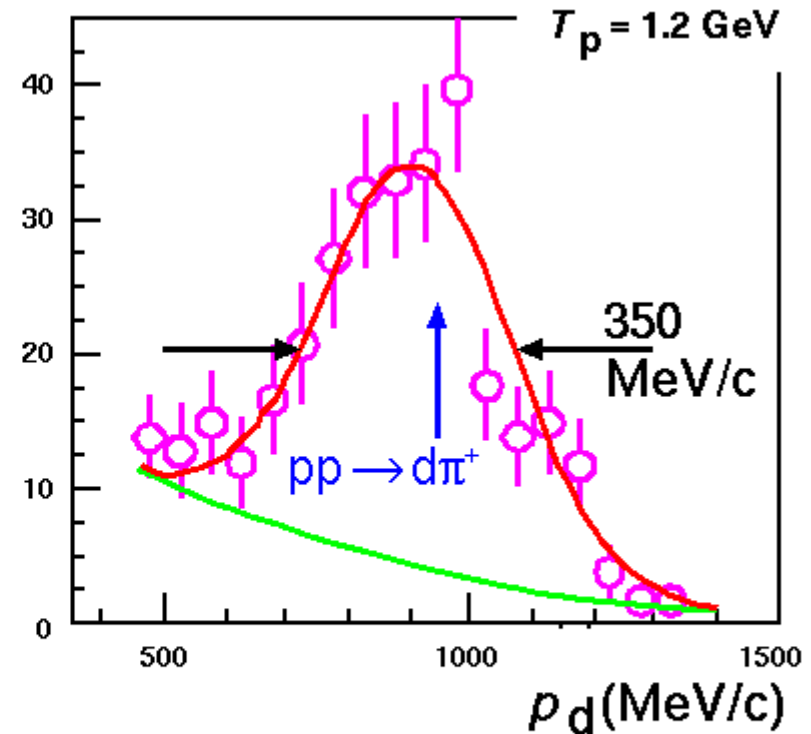
(2N)-cluster, $p d^* \rightarrow dK^+ \Lambda$



2-step Production

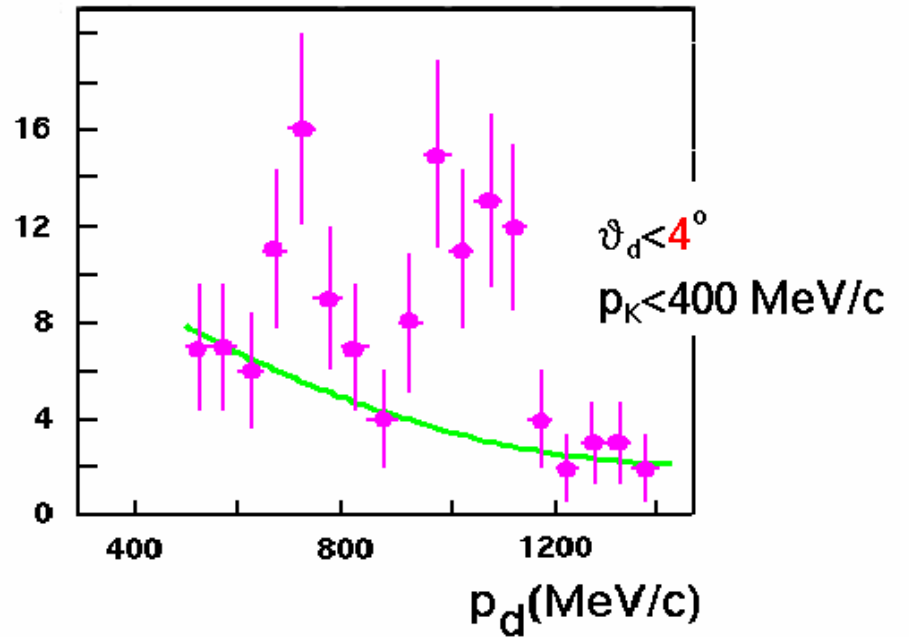
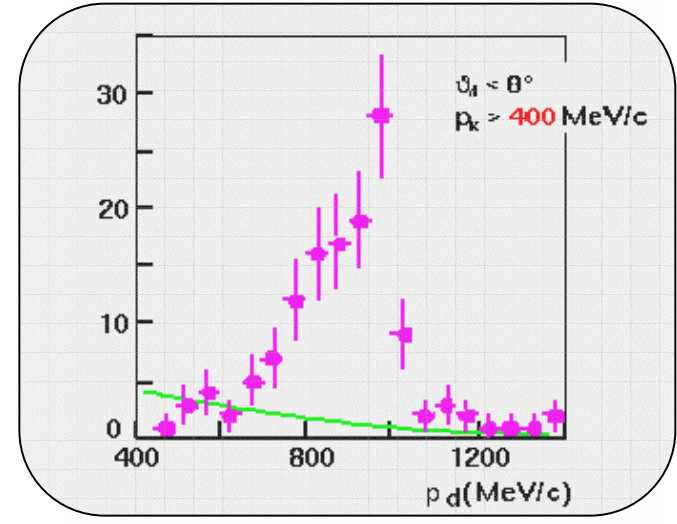
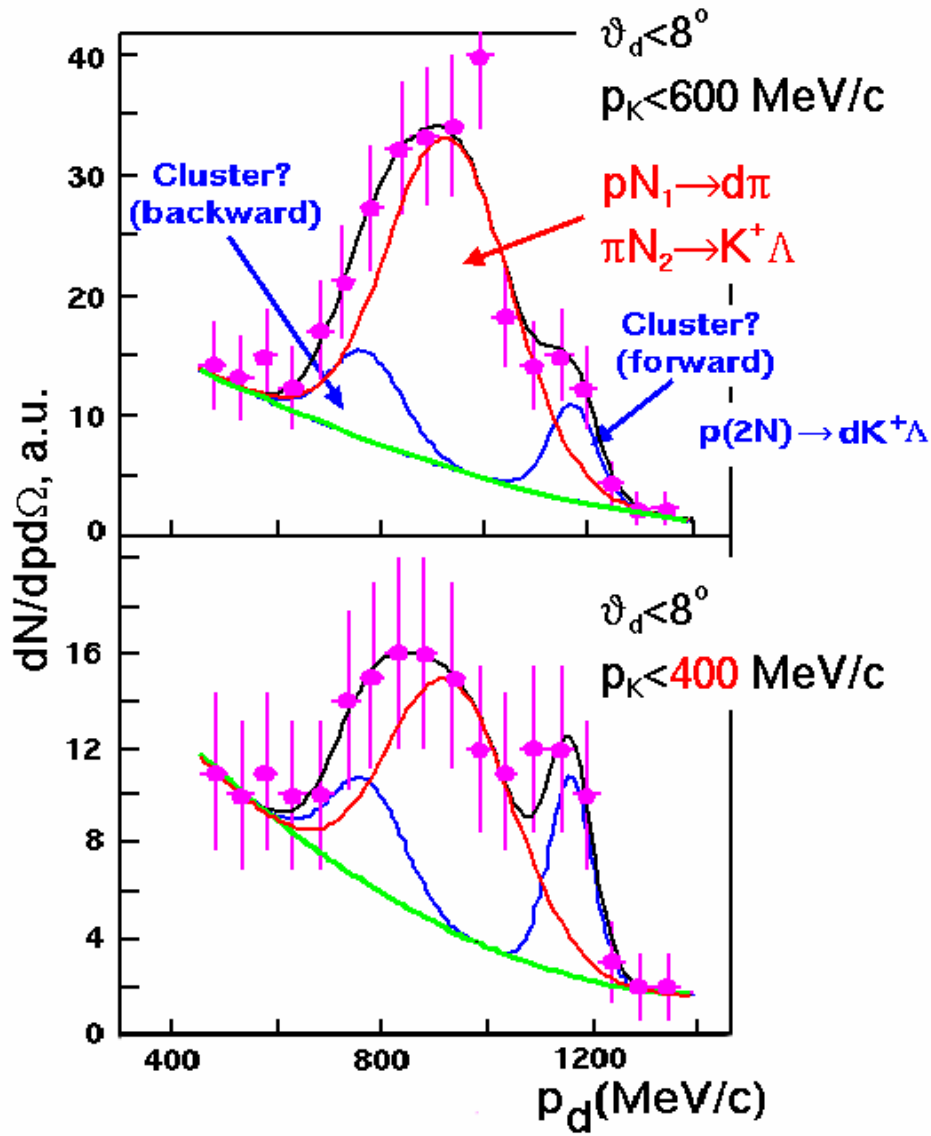


$$\frac{N(K^+d, \text{2-Step})}{N(K^+p)} < 0.4\%$$



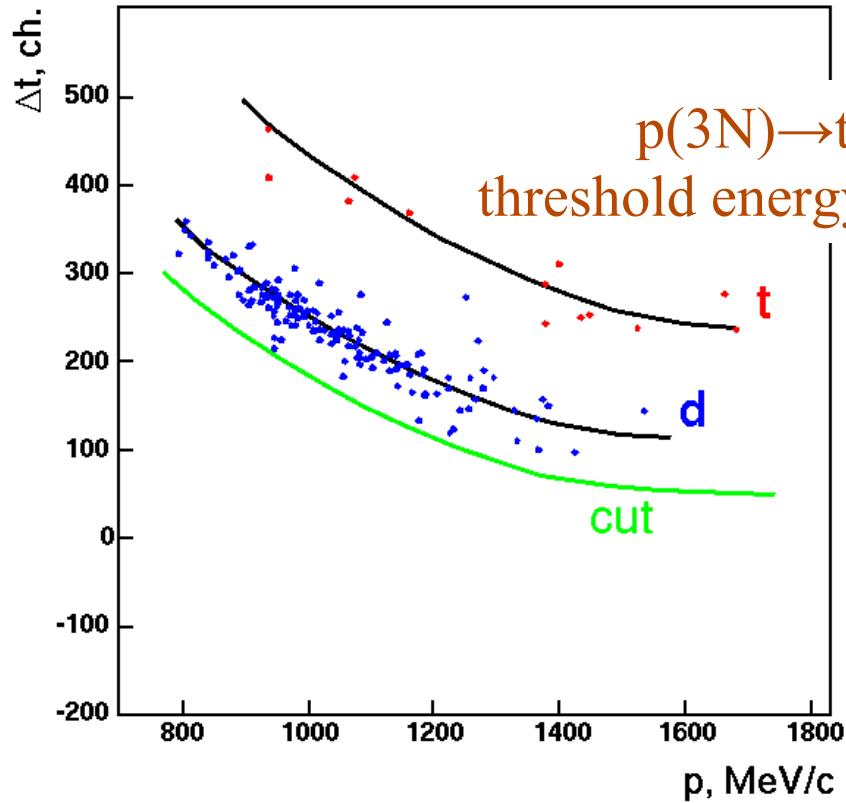
$$\frac{N(K^+d, \text{2-Step})}{N(K^+p)} \sim 30\%$$

Cluster Mechanism



Outlook

$p(1.2 \text{ GeV})C \rightarrow d/t K^+ X$



- Search for a (nN) ($n > 2$)
- $(K^+ p)$ correlations
- Measurements at $T = 1.0 \text{ GeV}$