

Nuclear Scattering Data Search

- Tasked to search for nucleon scattering data which could be used to verify FSI models in the event generators.
- Steve Dytman has built up a library of such data that he uses to verify his FSI model that is included in GENIE
- Data is mostly from the Brookhaven Nuclear Reaction Data library:

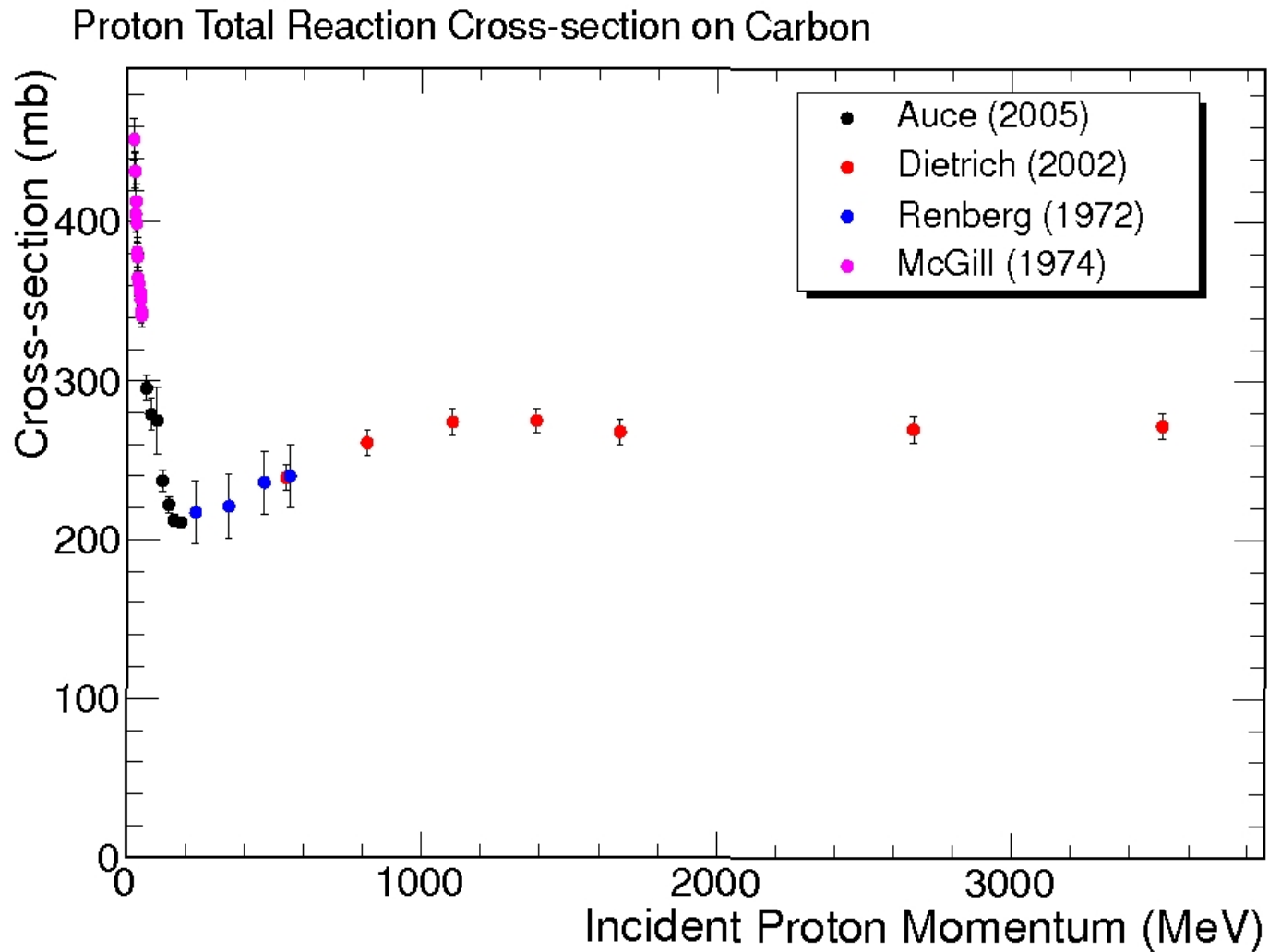
<http://www.nndc.bnl.gov/exfor/exfor00.htm>

Inelastic Cross section

Total - Elastic Cross section

Author	Targets	Reaction	Proton Energy Range (MeV)
Auce et al	C,Pb	$p+A \rightarrow p+A'$	(65.5 - 180)
Dietrich et al	C,Cu,Pb	$p+A \rightarrow p+A'$	(540 - 3500)
Renberg et al	C,Fe,Pb	$p+A \rightarrow p+A'$	(231 - 552)
Voss et al	C,Cu,Pb	$n+A \rightarrow n+A'$	(55 - 140)
Schimmeling et al	C,Fe,Pb	$n+A \rightarrow n+A'$	(379 - 1731)

Example

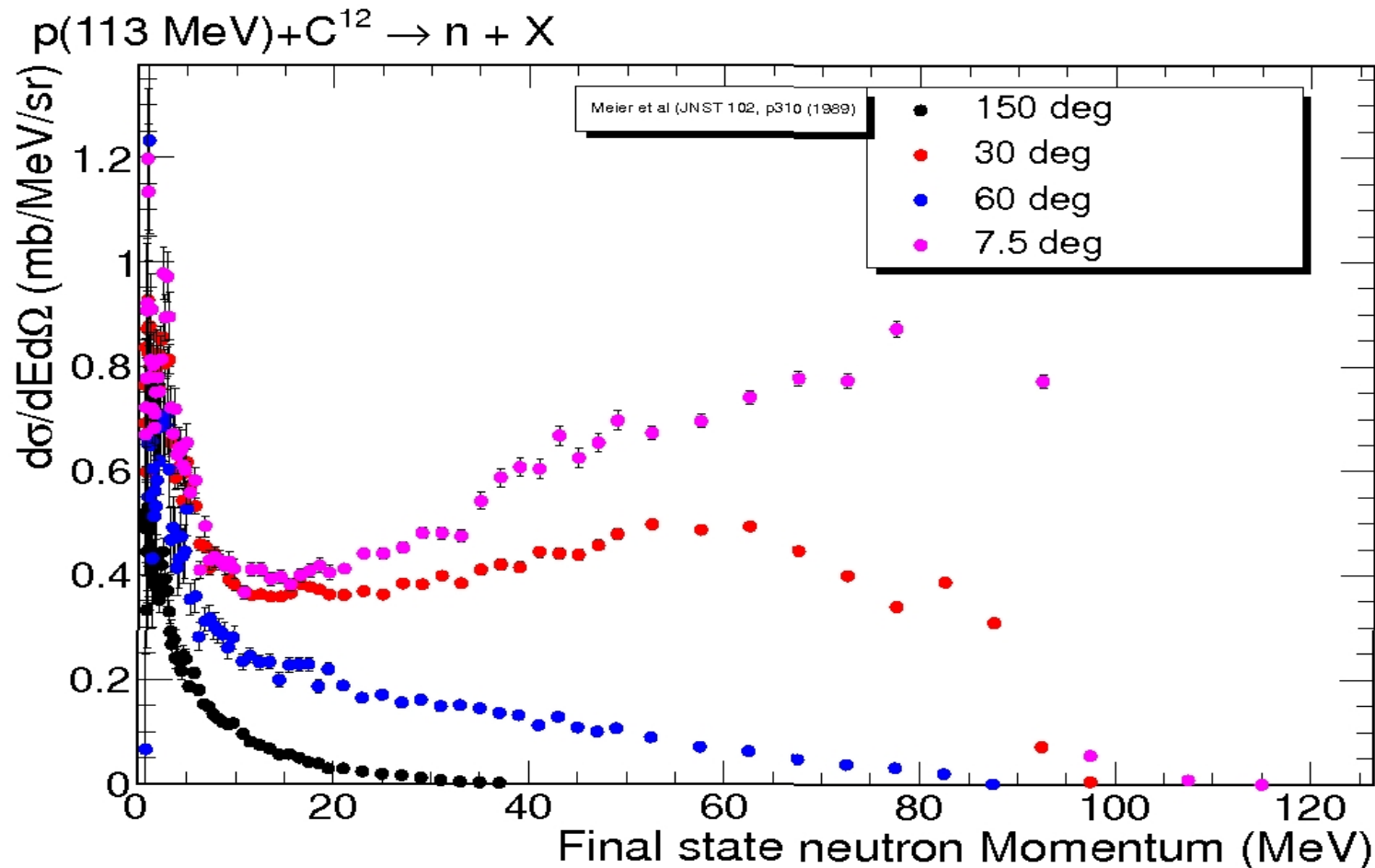


Differential Cross-sections

- We have data on neutron/proton production differential cross-sections as a function of nucleon angle, energy and incident energy

Author	Targets	Reaction	Incident energy (MeV)	Outgoing nucleon angle (deg)
Amian et al	B,Be,C,O,Pb	$p+A \rightarrow n+A'$	597	30,60,120,150
			800	
Meier et al	C,O,Al,Fe,Pb	$p+A \rightarrow n+A'$	113	7.5,30,60,150
			256	
Hauptata et al	C,Ca	$p+A \rightarrow n+A'$	197	13,24,37,48
McGill et al	Ca	$p+A \rightarrow p+A'$	800	5,11,15,20,30
Cochran et al	C,Cu	$p+A \rightarrow p+\pi+A'$		15,20,30,45,60,75,
				90,105,120,135,150

Example



Interesting point : note the increased cross section at low neutron momenta. Sprays of low energy neutrons from the FSI cascade could be very important for analyses dependent on vertex activity cuts....