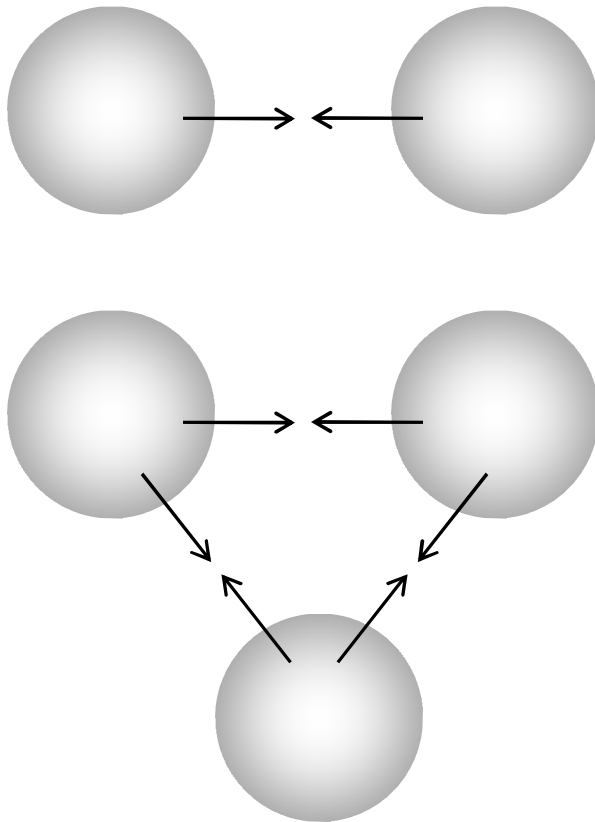


Quasielastic Neutron-Induced Deuteron Breakup

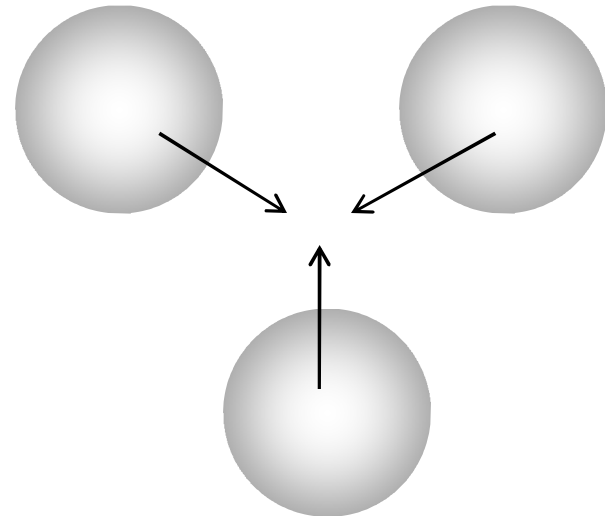
Katrina Koehler
Advisor Mark Yuly
Department of Physics,
Houghton College
9 April 2011

2NF vs 3NF

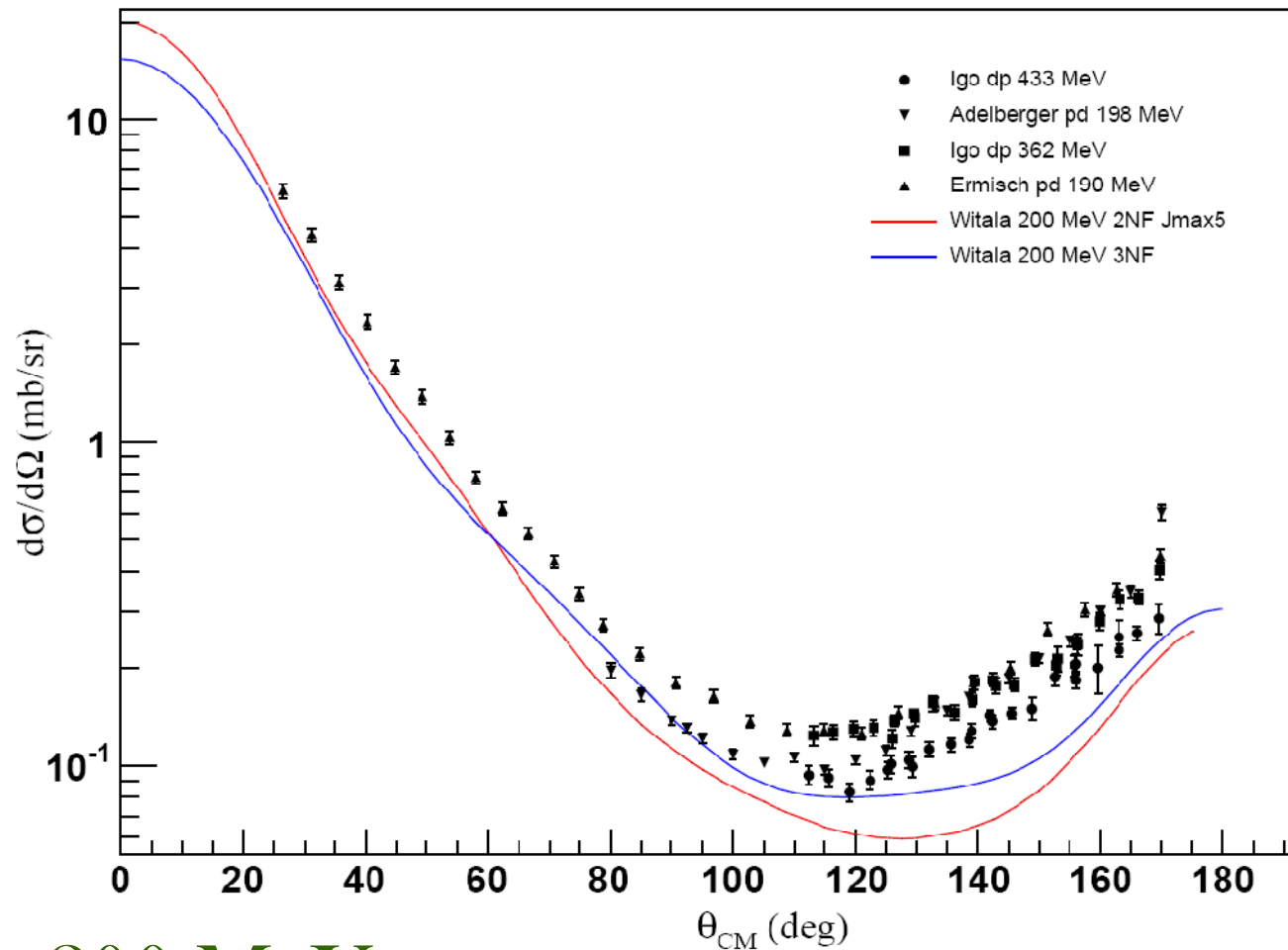
2NF



3NF

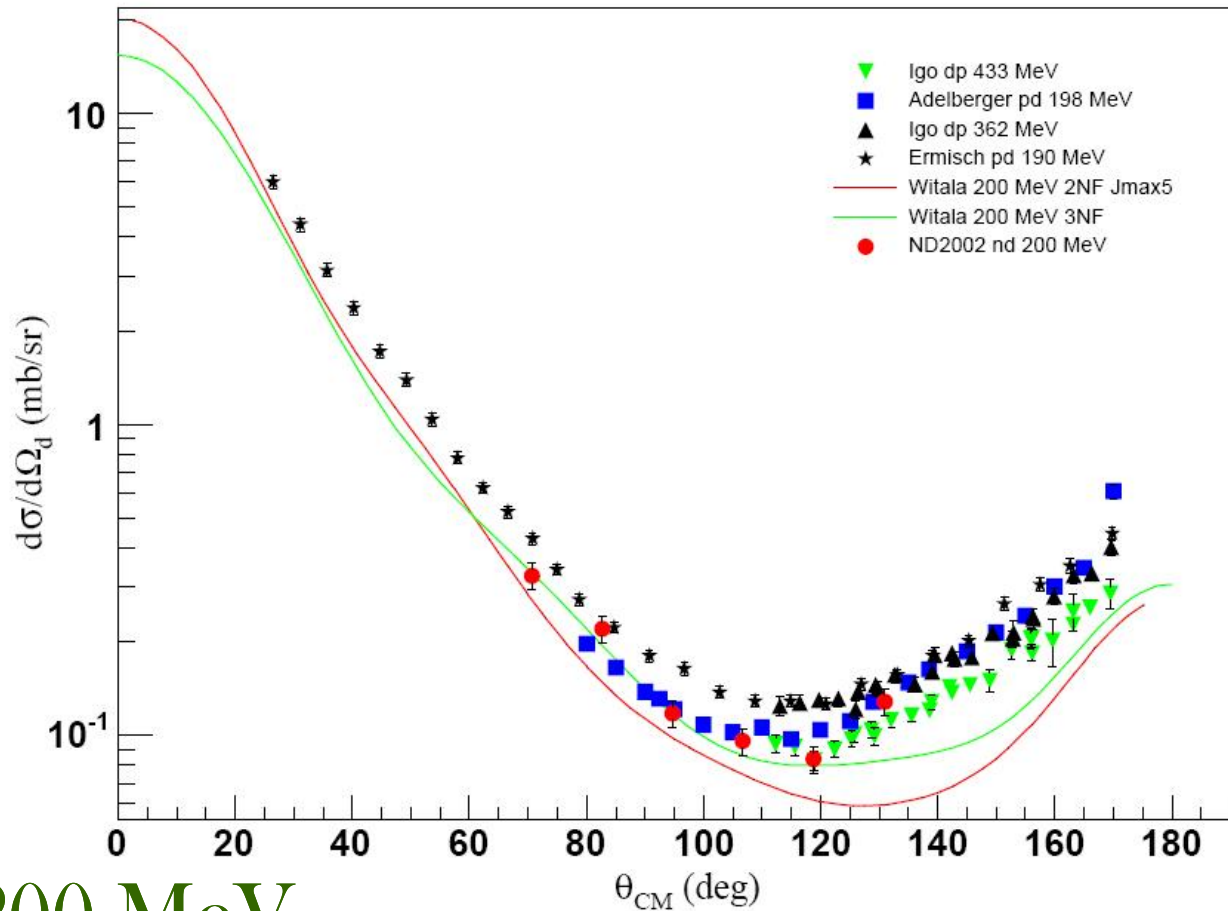


3NF Motivation

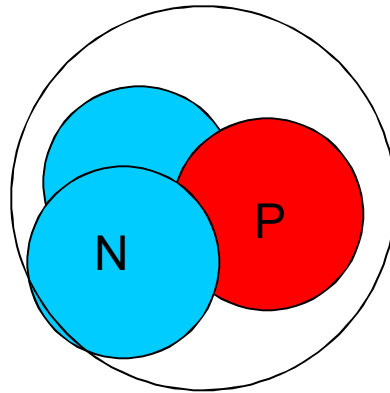


$E_{inc} = 200 \text{ MeV}$

Elastic Scattering

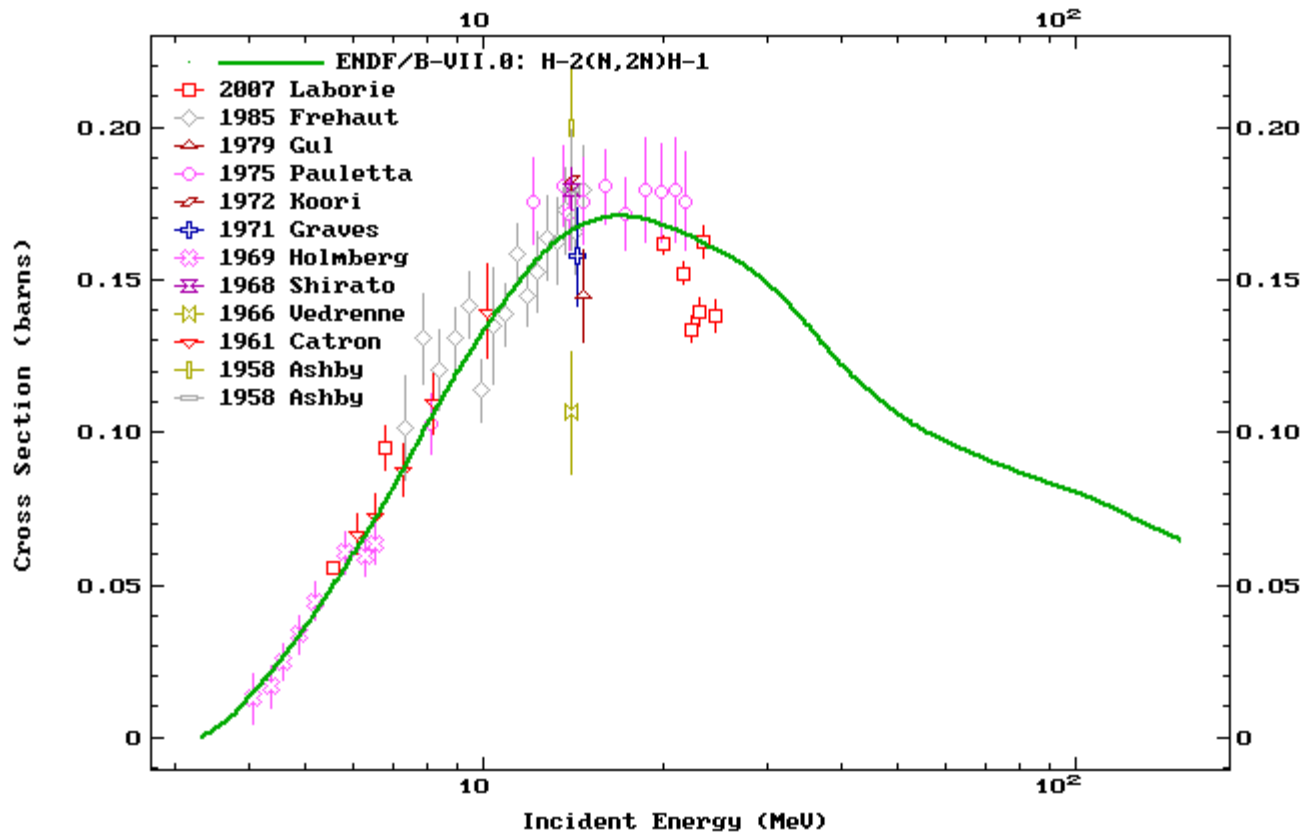


Quasielastic Breakup

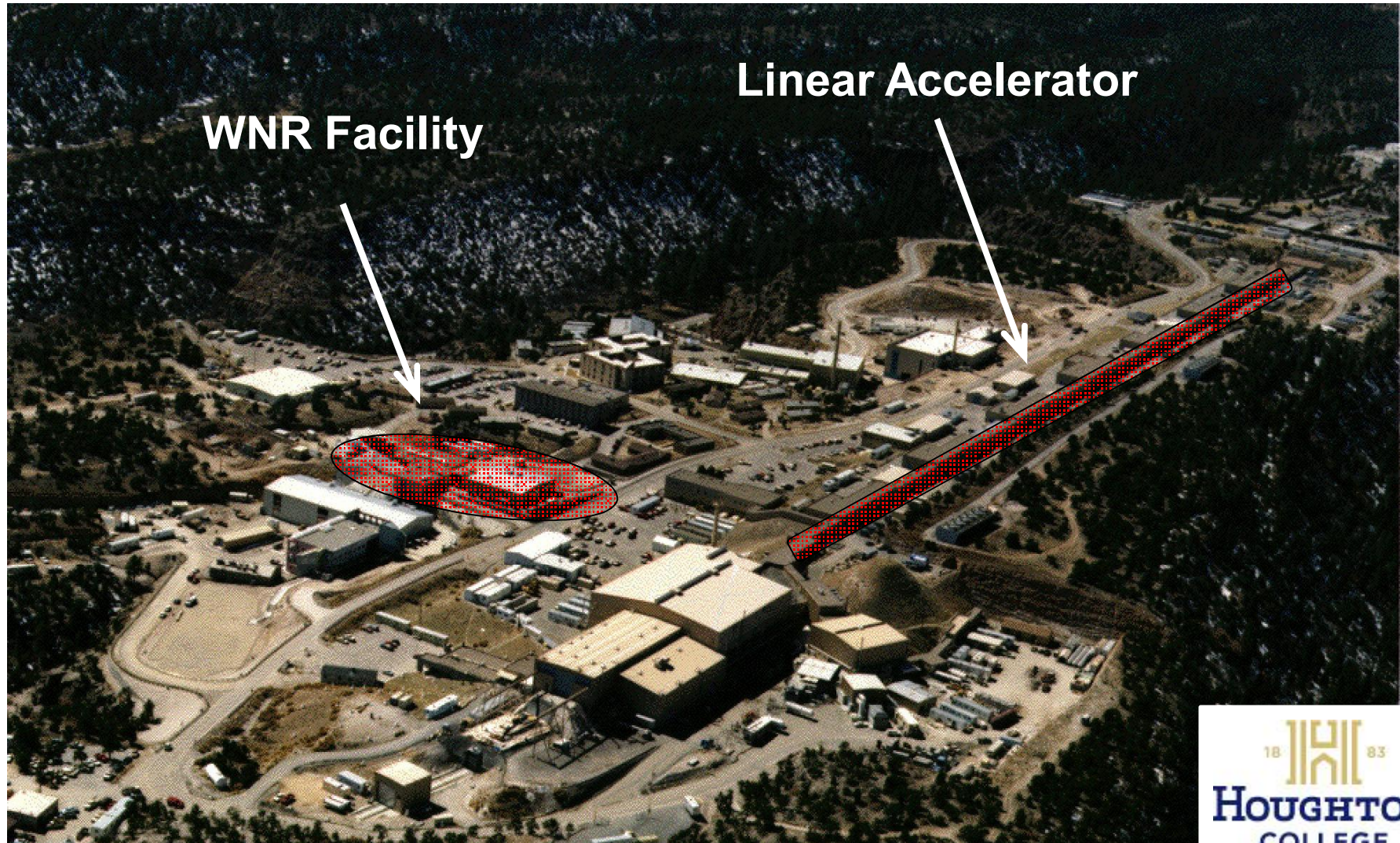


nd Breakup

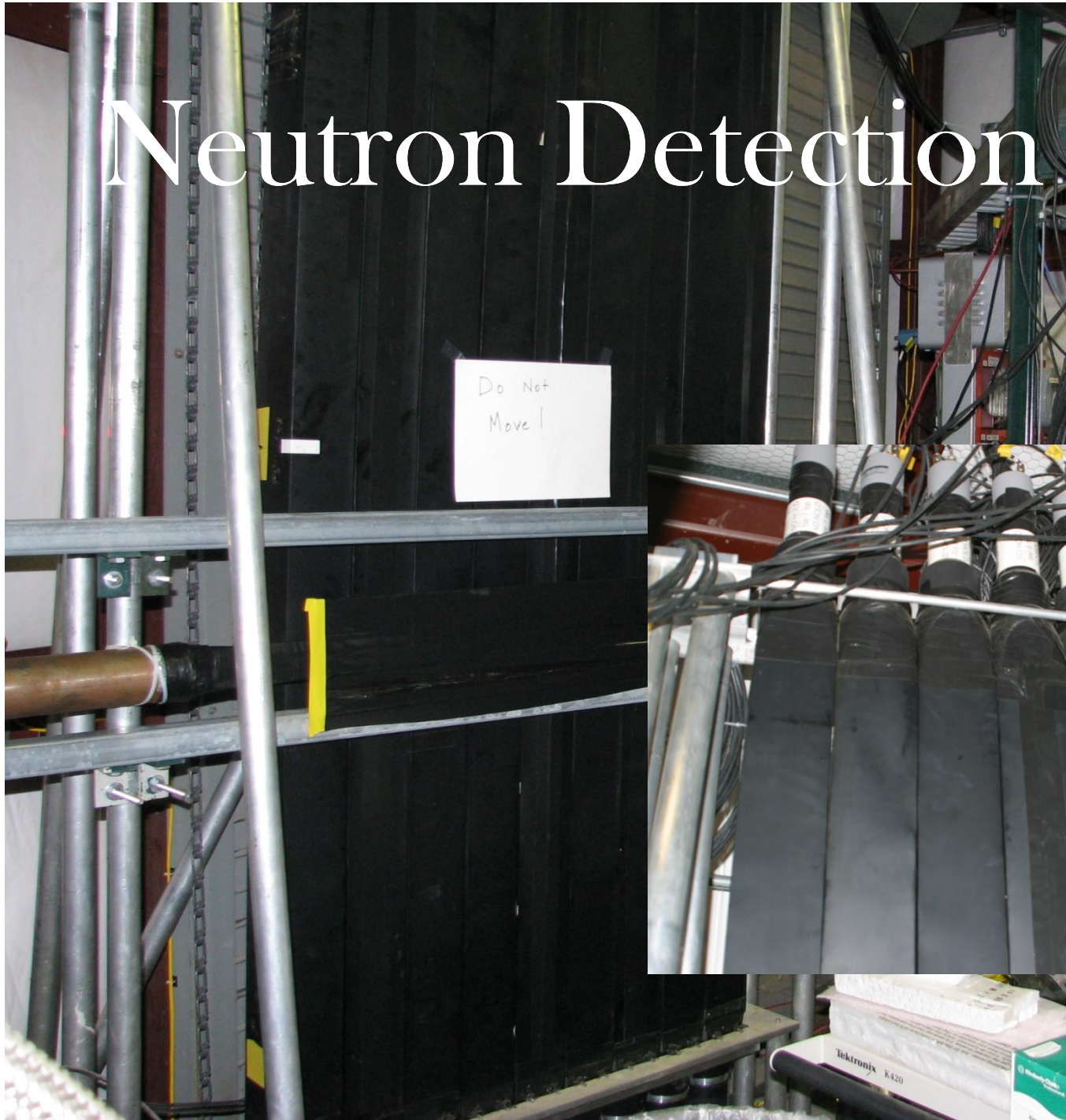
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EXFOR Request: 24457/1, 2011-Apr-07 11:53:59



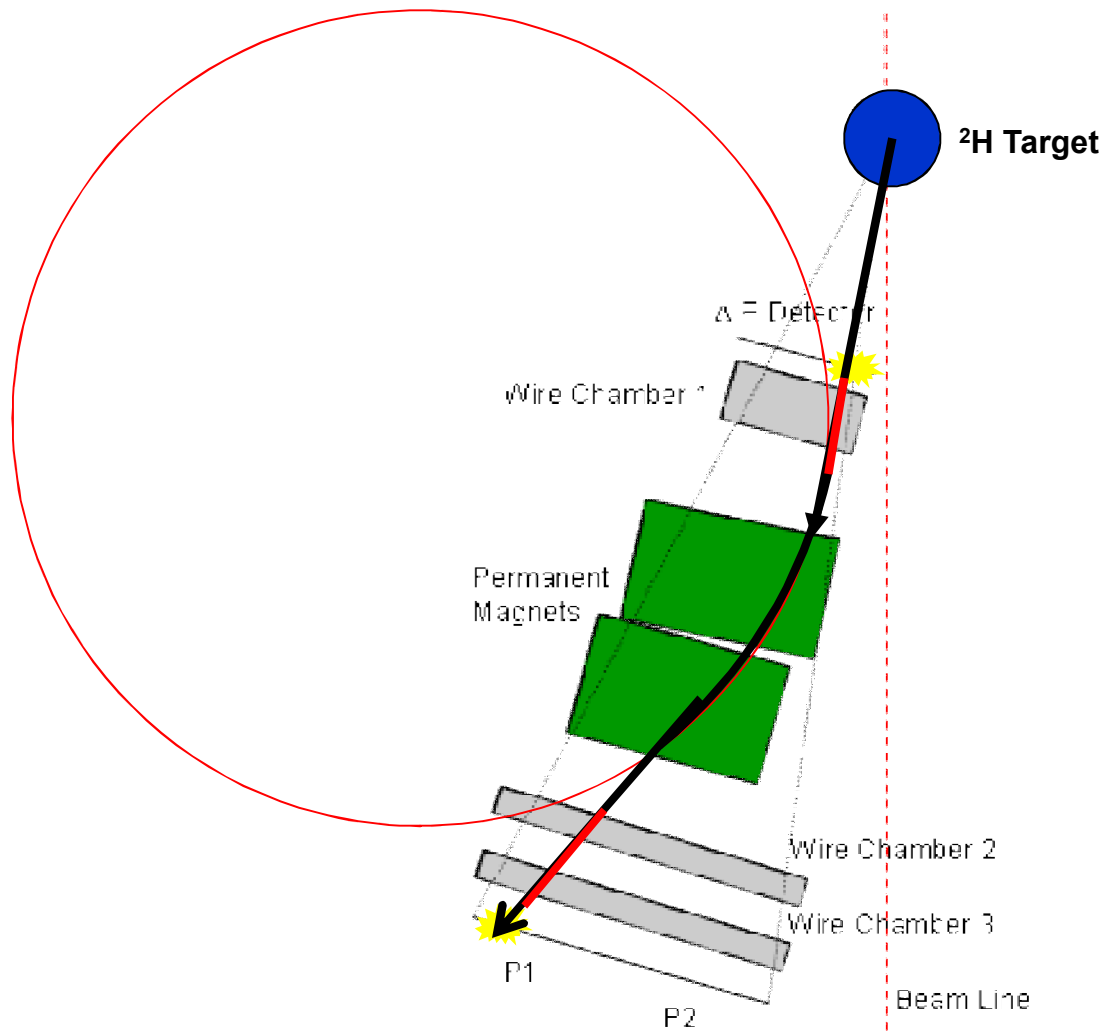
Los Alamos Neutron Science Center



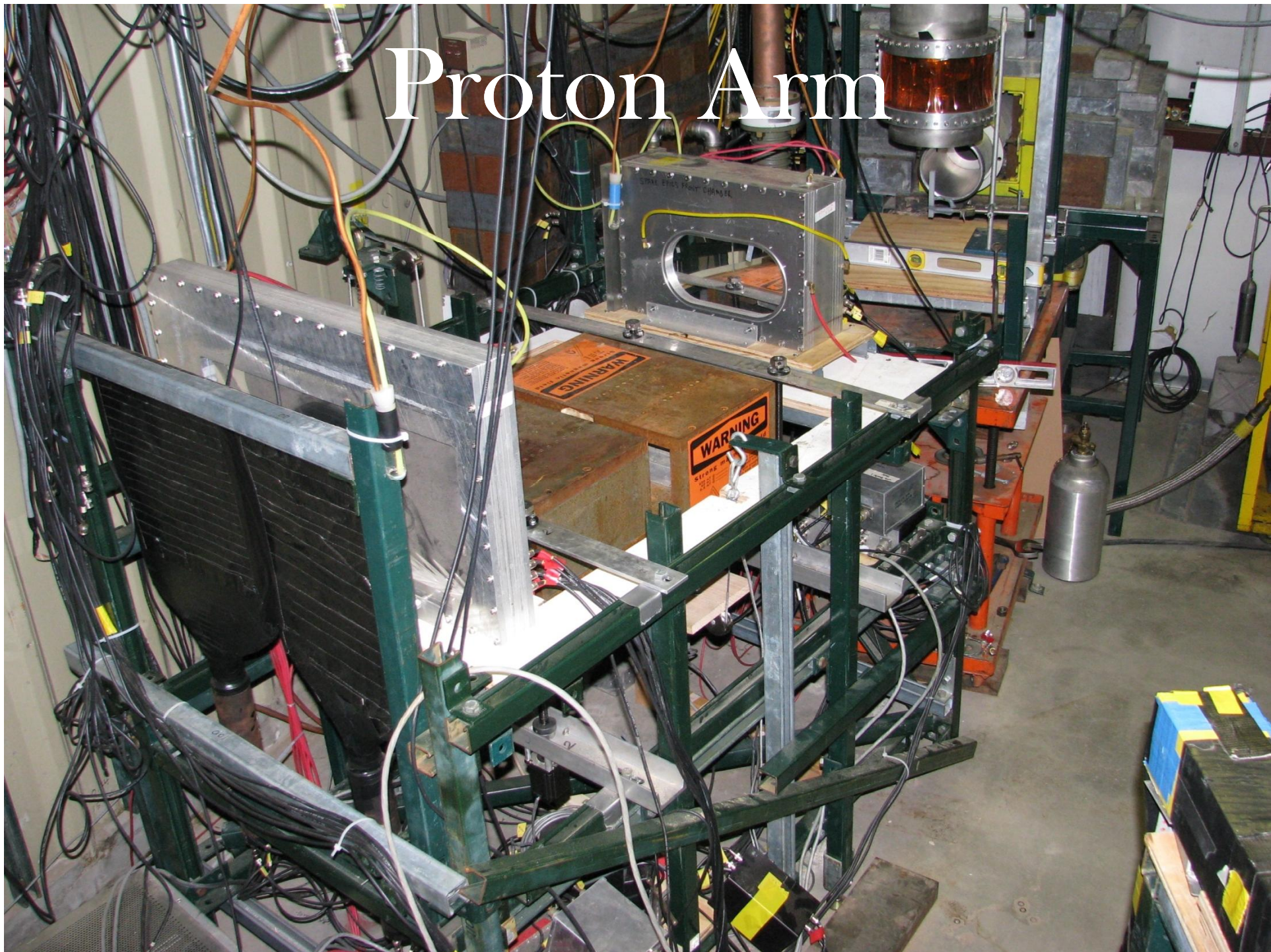
Neutron Detection



Proton Magnetic Spectrometer



Proton Arm



Cross Sections

$$N_d = \sigma(\theta) N_{inc} N_t \Omega$$

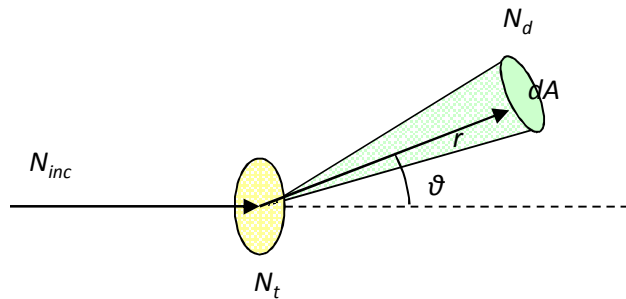
Events Detected

Cross Section

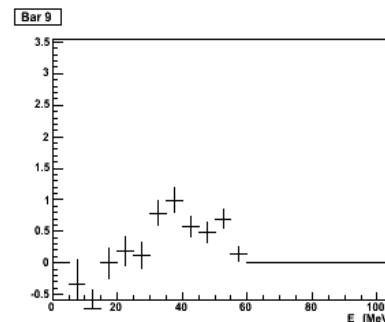
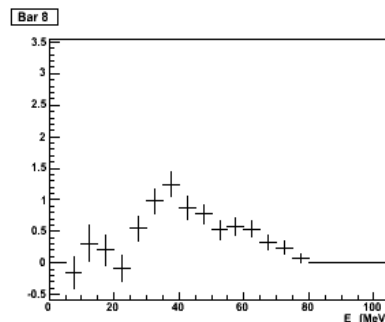
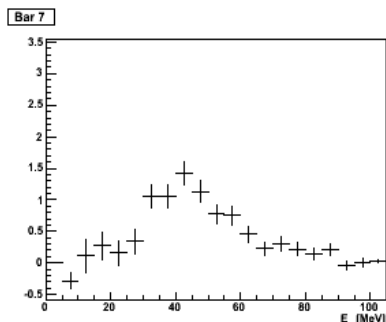
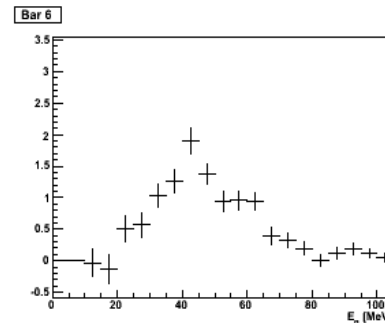
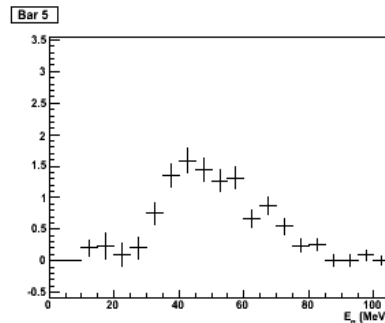
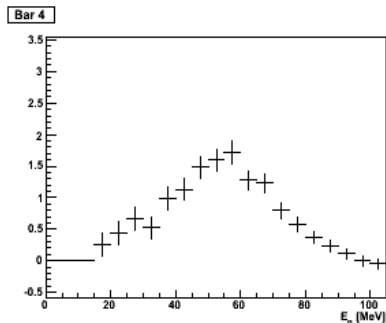
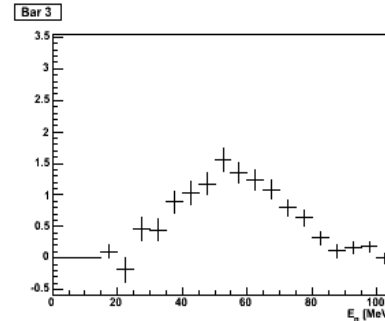
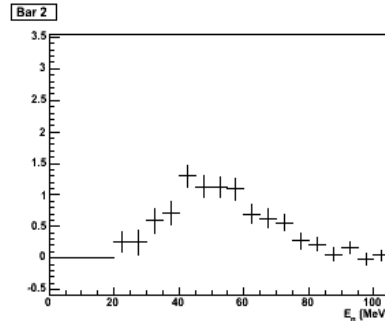
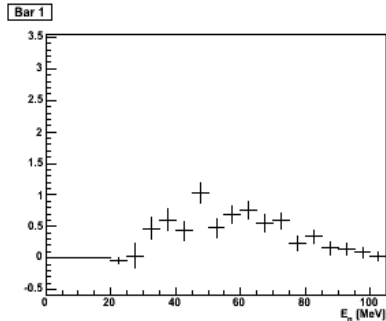
Number of
Incident Particles

Number of
Scattering Centers

Solid Angle



Preliminary Cross Sections



Triple differential cross section with respect to p , n , and E_n in units of mb/MeV/sr^2 for $E_{\text{in}} = 100 \pm 10 \text{ MeV}$.

S. Uemura. Bachelor's Thesis, Massachusetts Institute of Technology, (2010). (unpublished).

Acknowledgments

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 - MIT
 - University of Kentucky
 - Bogaziçi University
 - Los Alamos National Laboratory

Questions?

