

Names: _____

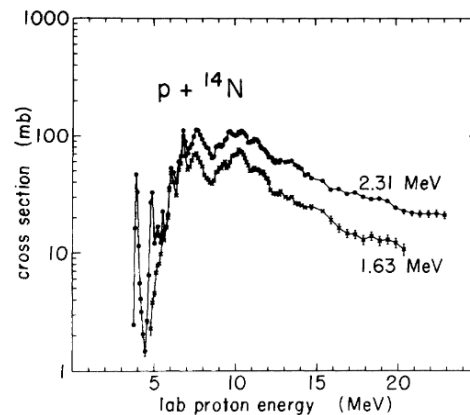
PHYS 7501, FS 2021

Group Activity 12

Due: In class, October 12th

1. Suppose we want to measure $^{14}\text{N}(\alpha, n)$ ($Q = -4.734\text{MeV}$).
What is the minimum α energy we would need to initiate this reaction on a ^{14}N target?
What is the minimum ^{14}N energy we would need to initiate this reaction on a ^4He target?

2. Estimate the proton-capture cross section for ^{14}N at a for a proton lab energy of 6MeV.
Compare your result to the results of P. Dyer et al. PRC 1981.



3. Consider the cross section for $^{74}\text{Ge}(p, \gamma)$ (from S.J. Quinn et al. PRC(R) 2013) shown below.
How do we explain the sudden reduction for higher energies that starts at 3.5MeV?

