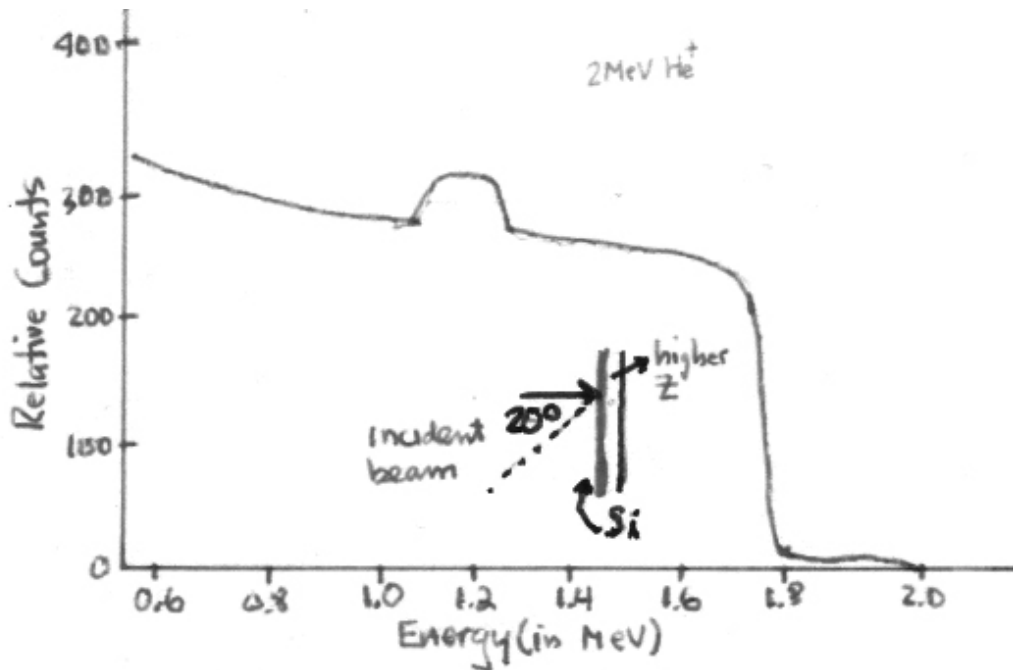


EE 213. Winter 2016
Homework#2
Due: February 25, 2016
Maximum score = 100

EE213. Homework #2

1. (50pts) Consider the RBS (Rutherford Backscattering) spectrum shown below taken with 2 MeV He⁺ ions incident normal to the sample. The sample is a thin Si film deposited onto a higher Z substrate. Which peak is the Si and which is the substrate. What is the substrate and how thick is the Si film? Assume the detector is at a 20 degree angle with respect to the incident beam. The vertical scale is in relative counts. Explain clearly your calculations.



2. (50 pts.) Consider the electron backscattered detector shown below.
- A. (25pts.) If the detector electronics allows one to detect signal differences of 1%, can this detector detect a 0.1 atomic number difference at $Z=30$? What other information (if any) is needed to make this determination?
- B. (25pts.) If we want this detector to be able to filter out all electrons below 1KeV in energy, how thick would the Al metal coating on the detector surface have to be?

