Boston Area QuarkNet

2022 Summer Workshop: Fusion

August 10-11, 2022

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 Name

Curve of Binding Energy Worksheet

1. On the class list of elements, write your initials next to an element from each of the three Z ranges below.
Z = 1 – 32

Z = 33 – 64

Z = 65 – 96
2. Choose a stable isotope of each of your elements.
Determine the corresponding N (number of neutrons) and A (number of nucleons) and atomic mass (u units) of each of your isotopes.
Write your values below.

 Z = N = A = Mass = u

 Z = N = A = Mass = u

 Z = N = A = Mass = u
3. Proton mass = *m*p = 1.00727647 u Neutron mass = *m*n = 1.00866490 u

Electron mass = *m*e = 0.00054858 u 1 u = 931.49432 Mev/*c*2

Calculate the binding energy per nucleon for your elements:

 Binding Energy/Nucleon = E/A = ((Z*m*p + N*m*n) – (Mass-Z*m*e))/A

 Z = A = E/A =

 Z = A = E/A =

 Z = A = E/A =