Discussion Problems
from recitation on November 12th, 2020

Problem 1: Binding energy of iron

The iron nuclide $^{56}_{26}$Fe lies near the top of the binding energy curve and is one of the most stable nuclides. What is the binding energy per nuclean (in MeV) for the nuclide $^{56}_{26}$Fe (atomic mass of 55.9349 amu)?

Problem 2: Carbon dating

You find a pottery shard containing 1g of carbon. Its activity is 0.0231 Bq (decays per second). How old is it? Same background: $^{14}$C is radioactive and produced in the upper atmosphere and we find in living things a ratio of $\frac{^{14}C}{^{12}C}$ of $1.2 \times 10^{-12}$. The half-life of $^{14}$C is 5730 years.
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