

Use the SEMF and the coefficients given in the caption of Figure 2.3 (with $\Delta=2$ MeV) to calculate the total binding energies of ^{56}Ni , ^{56}Co , ^{56}Fe , and ^{56}Mn . Which terms are different in the four cases? Why are they different? (You should use Excel (or similar) to do this problem).

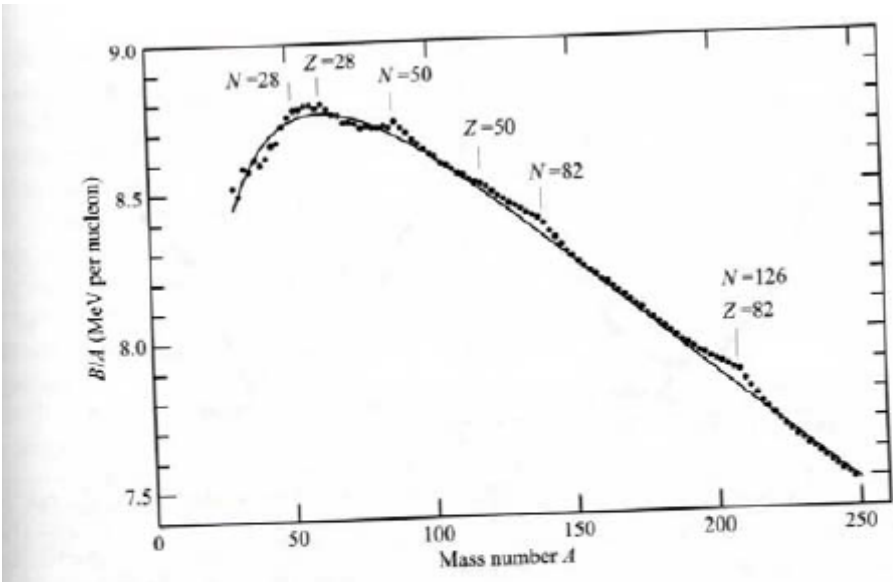


Figure 2.3 Experimental values of binding energy per nucleon B/A plotted as a function of mass number A . The smooth curve represents the semi-empirical mass formula with $a_v = 15.56$ MeV, $a_s = 17.23$ MeV, $a_a = 23.28$ MeV and $a_c = 0.7$ MeV. Each point represents an odd-even nucleus or an average of neighbouring nuclei (for A even) so that there is no effect due to the pairing term. Significant differences between experimental values and the SEMF occur near indicated values of N and Z .