Amplitude der direkten CP Verletzung im Vergleich zur K^0/K^0bar Mischung

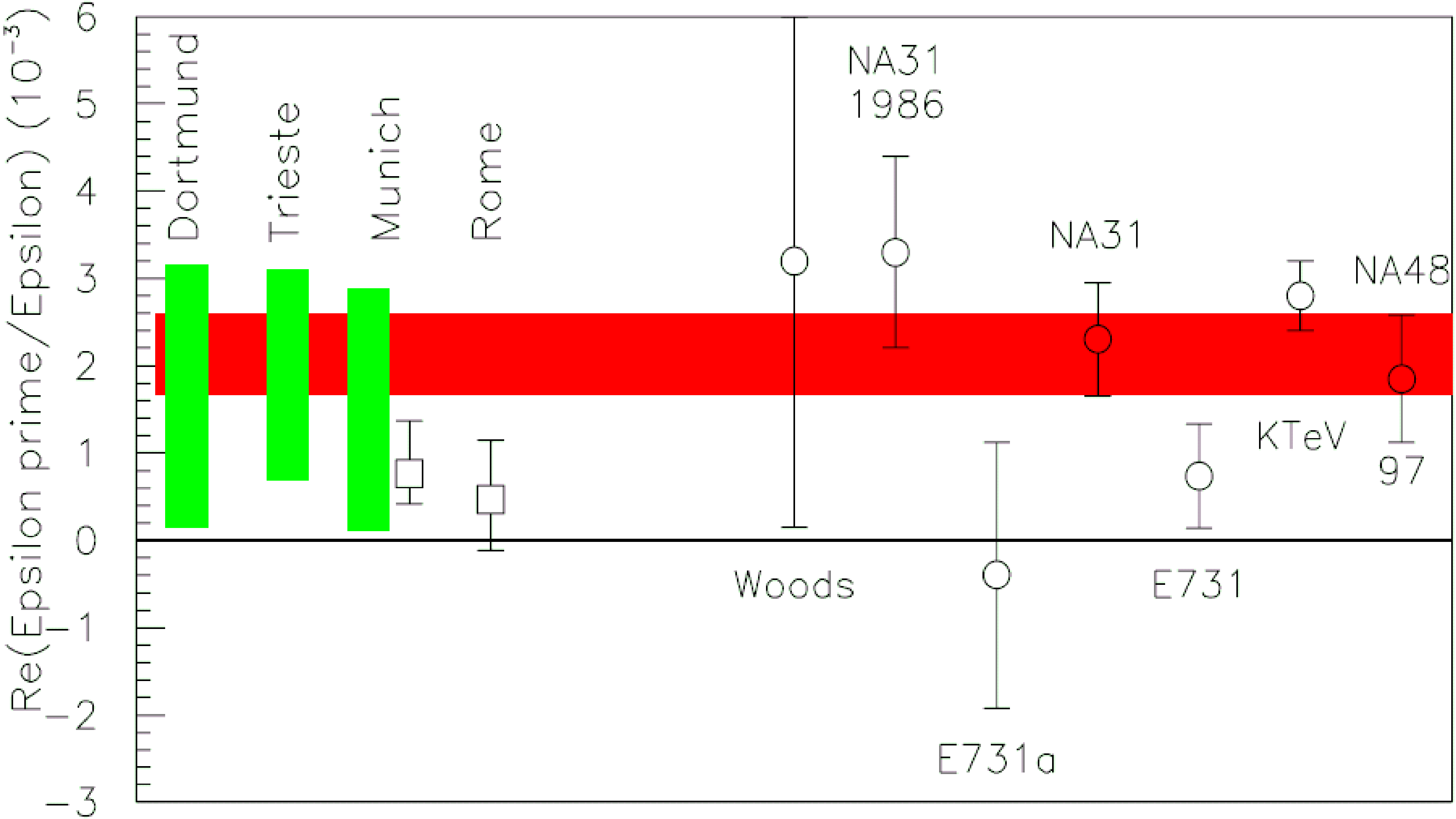
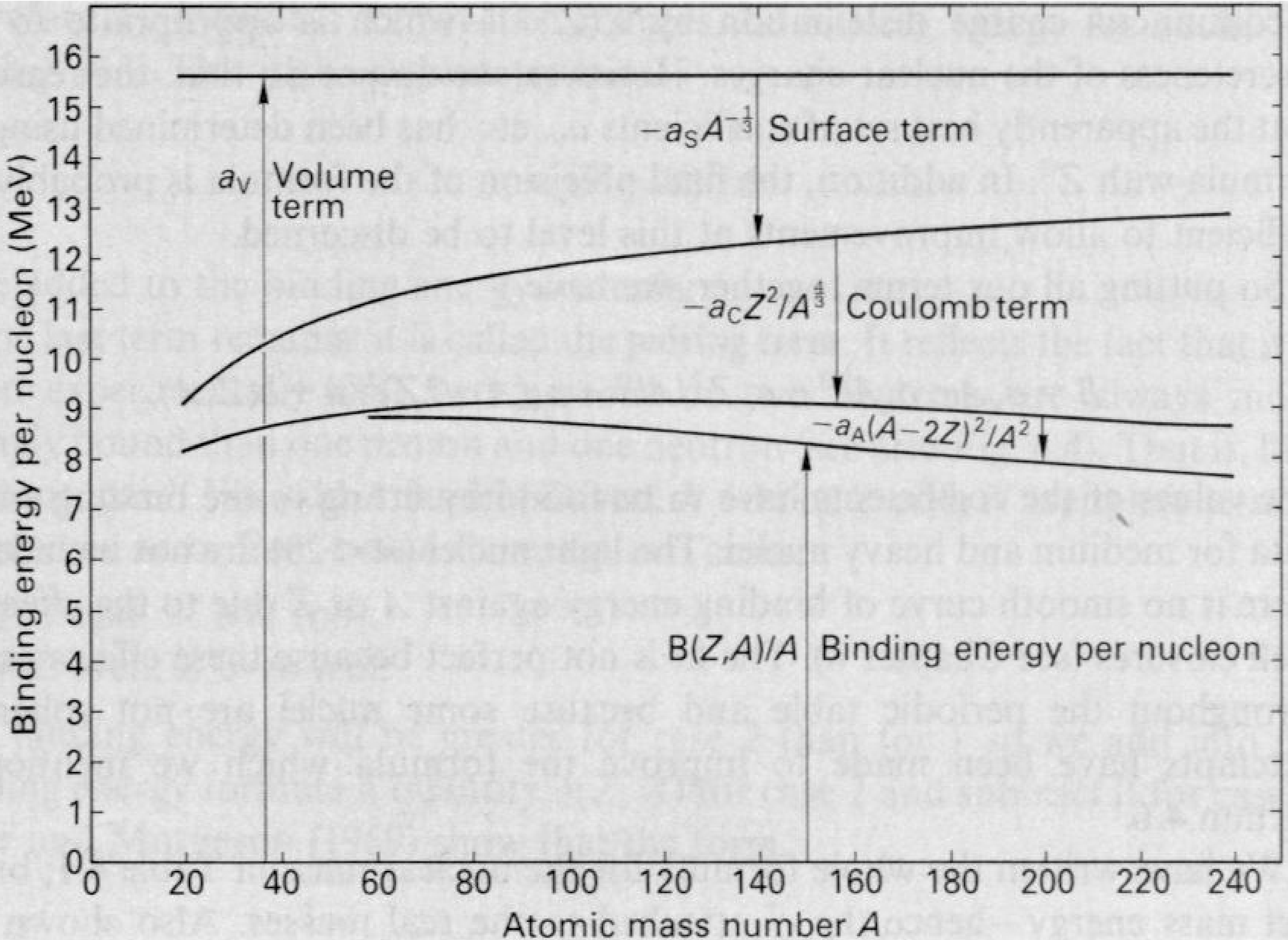


Table 13.1 The conservations laws of particle physics: √ = conserved: x = not conserved; — = not relevant.

Quantity	Strong interaction	Electromagnetic interaction	Weak interaction
Momentum	√	√	√
Total energy	√	√	√
Angular momentum	√	√	√
Electric charge	√	√	√
Quark number*	√	√	√
Quark flavour	√	√	x
Lepton generation number*	—	√	√
Parity	√	√	x
Charge conjugation quantum number	√	√	x
Isotopic spin	√	x	x
Baryon number*	√	√	√

* May not be conserved if grand unified theories correctly predict the existence of leptoquarks (Section 13.6).



a_V Volume term
$-a_S A^{-\frac{1}{3}}$ Surface term
$-a_C Z^2/A^{\frac{4}{3}}$ Coulomb term
$-a_A(A-2Z)^2/A^2$
$B(Z,A)/A$ Binding energy per nucleon
Binding energy per nucleon (MeV)
Atomic mass number A
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
20
40
60
80
100
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160
180
200
220
240

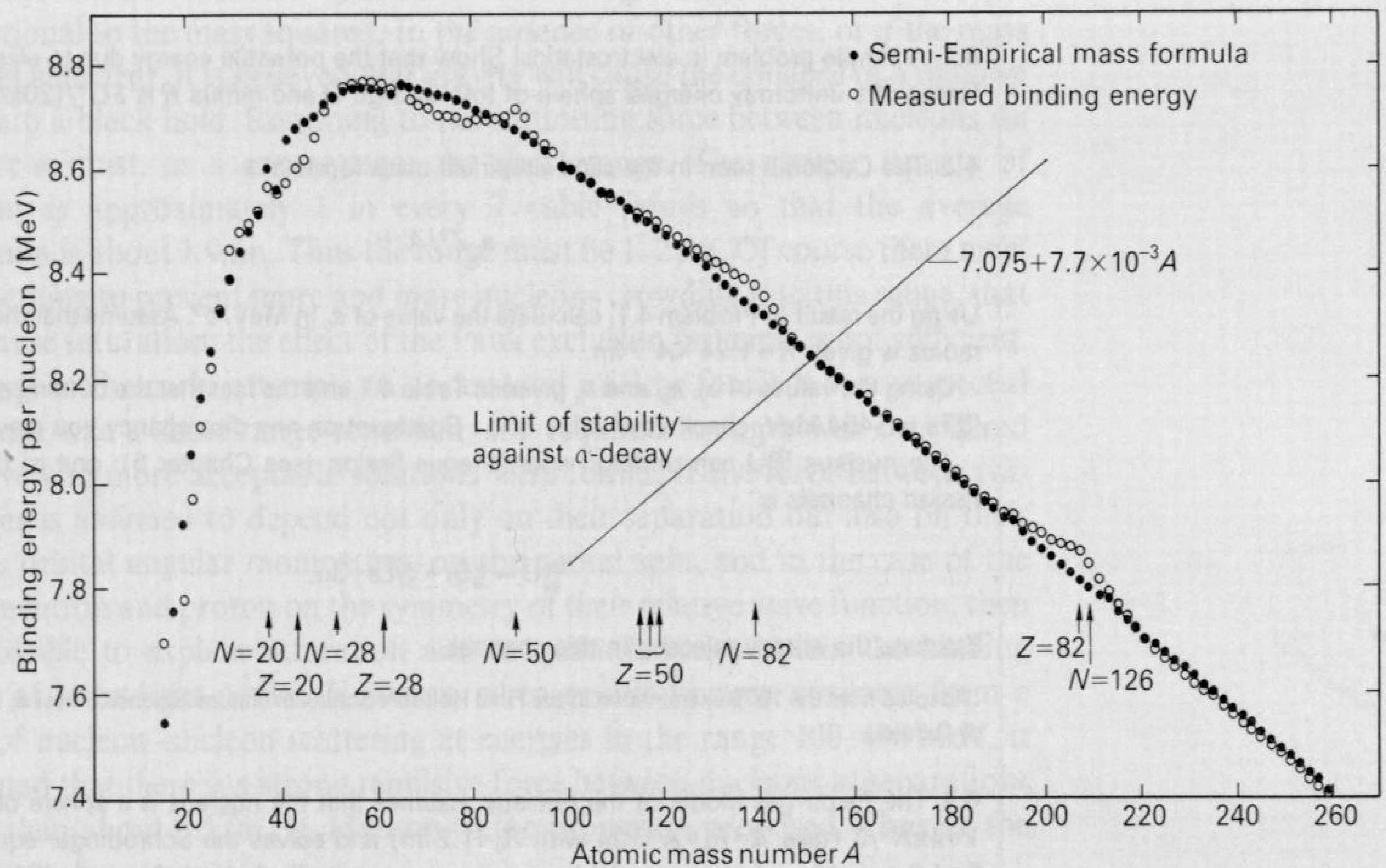

Fig. 4.6 The binding energy as a function of A for the odd-A nuclei from $A = 15$–259. The solid points are the prediction of the semi-empirical mass formula as given in Table 4.1. The open points are the measured values. The points for the formula do not lie on a smooth curve because Z for these nuclei is not a smooth function of A (see Fig. 4.1). Note that the zero of the ordinate is suppressed and its scale is much enlarged. Thus, in spite of the deviations from the formula, it is clear that the formula predicts the binding energy per nucleon for $A > 20$ with a precision which is, for the majority of cases, better than 0.1 MeV. The straight line crossing the curve at $A = 151$ gives the limit of stability of nuclei to α-decay (see Section 5.4).

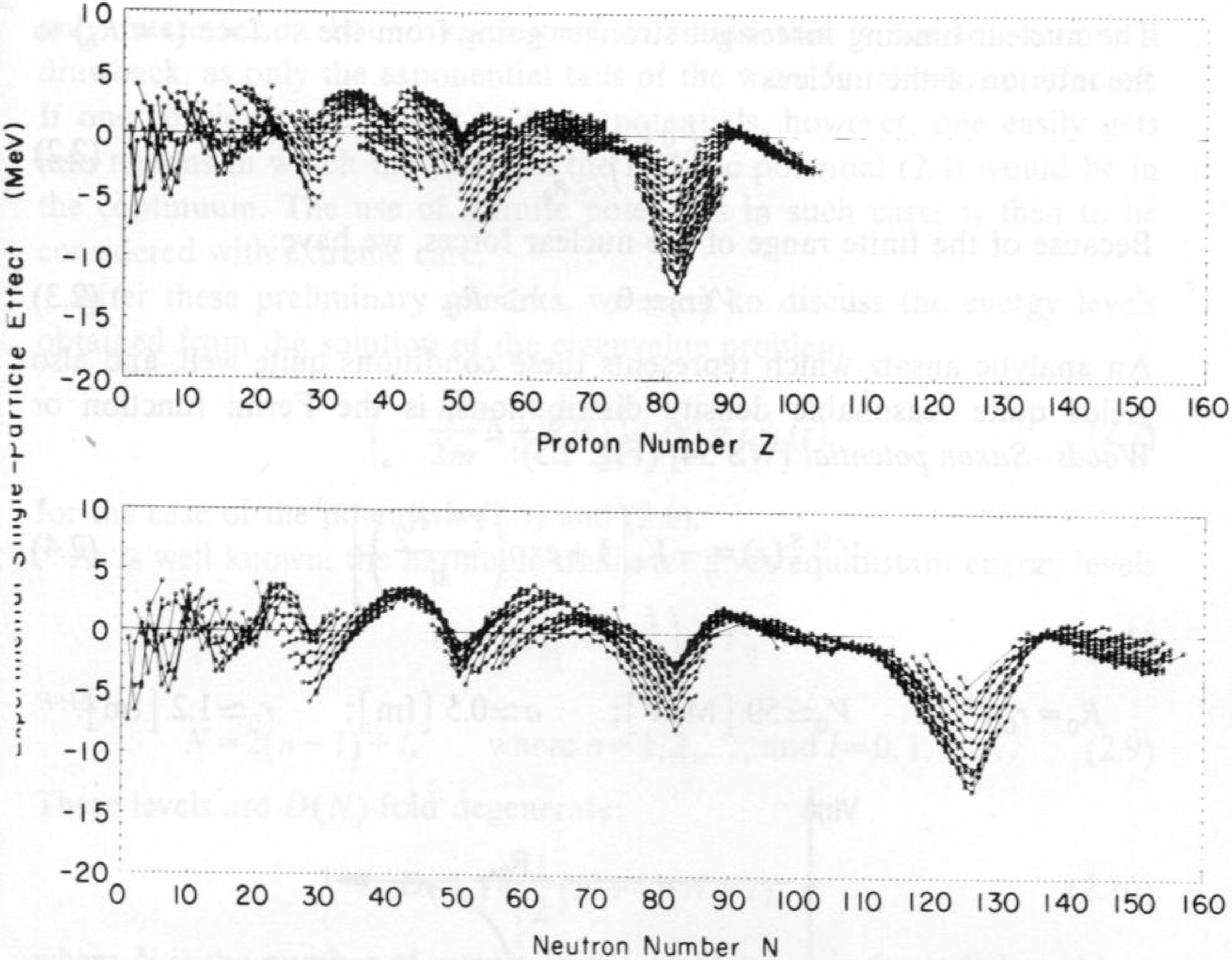

Figure 2.2. Deviations of nuclear masses from their mean values plotted as a function of neutron and proton number. (From [MS 66].)