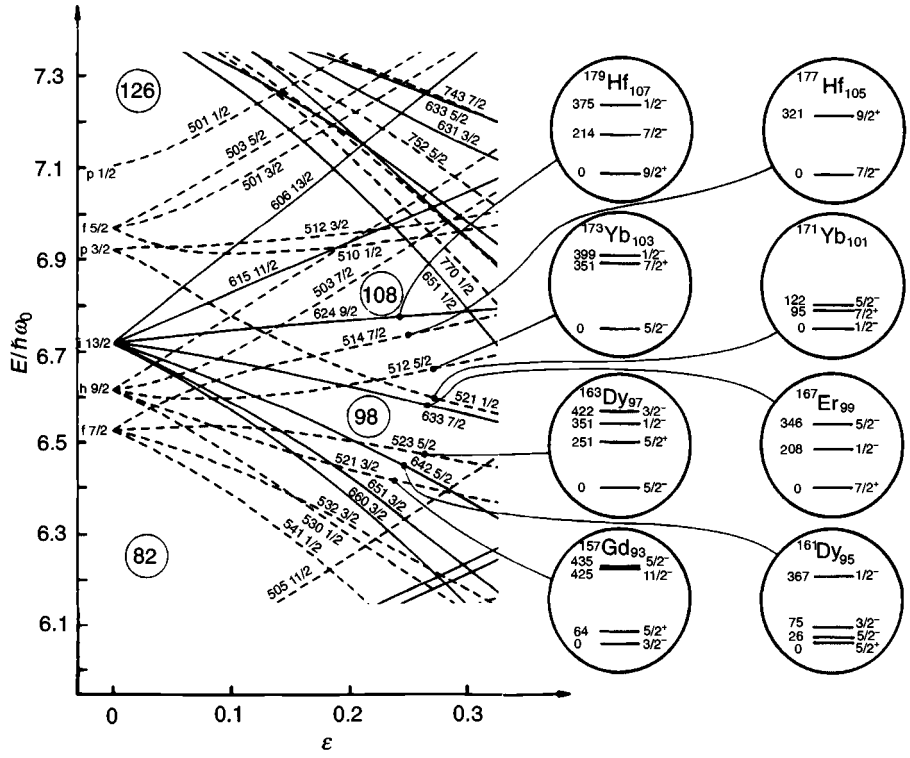

Fig. 11.6. Similar to fig. 11.5 but for neutrons instead.

Also in this case, the agreement between theory and experiment is very satisfying. In an early stage, the classification of such data as presented in figs. 11.4–11.6 played a very important role in the understanding of deformed nuclei, see e.g. Mottelson and Nilsson (1959a).

Coming back to even nuclei, we find that, for the ground state rotational band, the wave function that is properly invariant with respect to the R_1-operation takes the form

$$\psi_{I0M} \propto \mathscr{D}^I_{M0}(\alpha,\beta,\gamma)\left[1+(-1)^I\right]$$

Thus, for odd I, the wave function disappears in agreement with the fact that only even spins, $I = 0, 2, 4, \ldots$ are observed.

11.2 Decoupled bands – rotation alignment

In the preceding section, we discussed situations where the rotational motion and the nuclear deformation are essentially uncoupled. The rotational frequency was not high enough to break the coupling scheme caused by the