

## Statistical Treatment of Low-Energy Nuclear Level Schemes

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**Abstract:** The level density parameter and the back shift energy  $E_1$  are determined for nuclei with A-values across the whole periodic table from fits to complete level schemes at low excitation energy near the neutron binding energies. We find that the energy back shift  $E_1$  shows complicated behavior and depends on the type of the nucleus, even-even, odd mass, and odd-odd. The spin cut-off factor has also been investigated for nuclei mentioned above. The results are compared with the previous results and different experimental data on level densities.

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**Key words:** nuclear structure, level density parameters, nuclear spin cut-off factor

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