

Compilation of Properties of Low-Lying Nuclear Levels

S.I.Sukhoruchkin, Z.N.Soroko, D.S.Sukhoruchkin
Petersburg Nuclear Physics Institute, 188300 Gatchina, Russia

Properties of bound nuclear states are the main source of information for the check of existing nuclear models and for further development of nuclear theory. It was suggested long ago by S.Devons that fine nuclear effects connected with the influence of nucleon structure could be found.

Two compilations of nuclear levels are now being collecting in PNPI. Properties of excited states of all nuclei seen in transfer reactions are forming a compilation of parameters of nuclear states from reactions with charged particles (energies, orbital moments, spectroscopic factors). It will be published as volumes I/19B1 ($Z \leq 36$), I/19B2 ($Z=37-63$) and I/19B3 ($Z \geq 64$) by Springer in Landoldt-Boernstein Library New Series Group I, Editor H.Schopper. Theoretical description of stable nuclei for these groups of nuclei was given in the previous compilation by V.G.Soloviev and coworkers in volumes I/18.

Another file contains data on all known low-lying states of neutron-rich and proton-rich nuclei. Both compilations contain data on branching ratios of γ -transitions. Data are presented in the same standard format as in earlier published compilations of highly excited states seen as neutron or proton and α -particle resonances.

Results of correlation analysis of few-nucleon effects in spacing distributions of energy levels measured with high-resolution will be discussed.