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Stochastic features of decay of the multipole giant resonances in nuclei

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We present generalized multi-configuration model to describe a decay of multipole giant resonances (MGR), which is based on shell model and microscopic model of pre-equilibrium decay with statistical account for complex configurations within generalized Zhivopistsev-Slivnov model [1,2]. All possible configurations are divided on two groups: i) complicated configurations, which are considered within shell model with account for residual interaction; ii) statistical group of complex configurations with large state density and strong overlapping. To account for collectivity of separated complex configurations for input state a diagonalization of residual interaction on the increased basis (ph, ph+ phonon, ph+2 phonon) is performed. Process of arising a collective state of MGR and an emission process of nucleons are described by the corresponding diagram with V effective Hamiltonian of interaction, resulted in capture of muon by nucleus with transformation of proton to neutron and emission by antineutrino. Isobaric analogs of isospin and spin-isospin resonances of finite nucleus are excited. Proposed model of MGR decay is applied to analysis of reaction $(-n)$ on nucleus ^{40}Ca . The residual interaction was chosen in form of Soper force. Our data are compared with experimental data and other calculation data.

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[2] H. Feschbach et al., *Ann. Phys.* 125, 429 (1980); F. Zhivopistsev et al., *Izv. AN USSR* 48, 821 (1984); I. Vaytkowska *Nucl. Phys.* 15, 1154 (1972).

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