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Shape Coexistence in ^{96}Zr within Geometrical Collective Model

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Shape coexistence is a remarkable phenomena consisting in the presence in the same nucleus, within the narrow energy range, of two or more states which have distinct properties and can be interpreted in terms of different intrinsic shapes [1]. Recently accumulated experimental data have shown that ^{96}Zr has coexisting spherical and deformed structures with small mixing amplitudes. The observed properties of the low-lying collective states in ^{96}Zr was investigated in the frame of the geometrical collective model by diagonalization of the quadrupole collective Bohr Hamiltonian. Good agreement with the experimental data on the excitation energies, B(E2) and B(M1) reduced transition probabilities is obtained. It is shown that the low-energy structure of ^{96}Zr can be described in a satisfactory way within the geometrical collective model with a potential function supporting shape coexistence without other restrictions of its shape [2].

[1] J. E. García-Ramos and K. Heyde. Phys. Rev. C 100, 044315 (2019)
[2] D. A. Sazonov, E. A. Kolganova, T. M. Shneidman, R. V. Jolos, N. Pietralla, and W. Witt. Phys. Rev. C 99, 031304(R) (2019)

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