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RECENT THEORETICAL ADVANCES REGARDING α-SPECTROSCOPY

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Abstract

We present an overview of a unified description of the structure and α-emission properties of even-even nuclei. The low-energy spectrum relevant for α-emission is described within the framework of the Coherent State Model (CSM). The treatment of the α-emission process is based on an α-daughter interaction containing a monopole component, calculated through a double folding procedure with a M3Y interaction plus a repulsive core simulating the Pauli principle, and a quadrupole-quadrupole (QQ) interaction. The decaying states are identified with the lowest narrow outgoing resonances obtained through the coupled channels method. The α-branching ratio to the first excited state is reproduced by means of the QQ strength. Simultaneously, a reasonable agreement is obtained for the α-branching ratios to the second and third excited states.

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