

SCHEMES OF FINITE ELEMENT METHOD FOR COLLECTIVE MODELS OF ATOMIC NUCLEI

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A finite element method calculation scheme for solving the boundary value problem of collective nuclear models is presented. Its efficiency is demonstrated on calculations of rotational-vibrational spectra and electrical quadrupole transitions $B(E2)$ for the isotopes ^{154}Gd and ^{238}U with tabularly specified coefficients of the boundary value problem, including one-well and double-well potential energy surfaces, respectively, calculated from the relativistic mean-field model.

Представлена вычислительная схема метода конечных элементов для решения краевой задачи для коллективных моделей ядра. Эффективность продемонстрирована расчетами вращательно-колебательных спектров и квадрупольных переходов $B(E2)$ для изотопов ^{154}Gd и ^{238}U с таблично заданными коэффициентами краевой задачи, рассчитанными в релятивистской модели среднего поля.

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