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Three-body model of the ^{12}C nucleus with distortion of α -clusters
IGOR FILIKHIN, VLADIMIR SUSLOV, BRANISLAV VLAHOVIC, North Carolina Central University — The Faddeev equations in configuration space are used to study ^{12}C nucleus considered as 3α -cluster system. The model includes a phenomenological (Ali-Bodmer) pair potential, a three-body potential, and takes into account the Coulomb interaction. The range parameter of the three-body potential is fixed by adjusting the position of the diffraction minimum of the ^{12}C elastic form factor. It is shown that the model must be supplemented by assumption of a distortion in the charge density of an α cluster inside the ^{12}C nucleus. The model allows to reproduce well observed characteristics of the low-lying 0^+ levels for ^{12}C .

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