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Microscopic particle-rotor model for low-lying spectrum of Λ hypernuclei KOUICHI HAGINO, MEI HUA, JIANGMING YAO, Tohoku University, TOSHIO MOTOBA, Osaka Electro-Communications University — We will propose a novel microscopic particle-rotor model for the low-lying states of single-Λ hypernuclei. The novel feature is that we combine the motion of Λ particle with the core nucleus states, which are described by the state-of-the-art covariant density functional approach, that is, the generator coordinate method (GCM) based on the relativistic mean-field (RMF) approach supplemented with the particle number and the angular momentum projections. We will apply this model to ${}^{9}_{\Lambda}$Be employing a point-coupling version of the relativistic mean-field Lagrangian. We will show that a reasonable agreement with the experimental data for the low-spin spectrum is achieved using the ΛN coupling strengths determined to reproduce the binding energy of the Λ particle. We emphasize that, using this method, a spectrum of hypernuclei is calculated for the first time based on a density functional approach.

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