RELATIVISTIC PSEUDOSPIN AND SPIN SYMMETRIES OF THE ENERGY-DEPENDENT YUKAWA POTENTIAL INCLUDING A COULOMB-LIKE TENSOR INTERACTION

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We solve the Dirac equation for the energy-dependent Yukawa potential including a tensor interaction term within the framework of the pseudospin and spin symmetry limits with arbitrary spin-orbit quantum number κ. We obtained explicitly the energy eigenvalues and the corresponding wave function using the Nikiforov–Uvarov method. The limiting cases of this model are reduced to the energy-dependent Yukawa and Coulomb potentials, respectively.