

Rationally extended exactly solvable potentials and the potential algebra

Rajesh Kumar Yadav

Department of Physics, S. P. College, S. K. M. University, Dumka-814101 (India)

rajeshastrophysics@gmail.com

We discuss the rationally extended exactly solvable real and PT symmetric complex potentials whose bound state spectrums are in terms of exceptional Jacobi orthogonal polynomials. These potentials are isospectral to their conventional counterparts. We obtain these extended potentials by using potential algebra (or group theoretical) approach. The modified generators of the associated potential groups corresponding to these extended potentials are constructed by introducing a new operator $U(x, J_3 \pm \frac{1}{2})$. The Hamiltonian of these extended potentials are written in terms of the corresponding Casimir operators.