Exact Solutions to Three-Dimensional Schrödinger Equation with an Exponentially Position-Dependent Mass

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Abstract: For an exponentially position-dependent mass, we obtain the exact solutions of the three-dimensional Schrödinger equation by using coordinate transformation method for the reference problems with Coulomb potential, Kratzer potential, and spherically square potential well of infinite depth, respectively. The explicit expressions for the energy eigenvalues and the corresponding eigenfunctions of the three systems are presented.

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