Uniqueness and nondegeneracy of ground states for nonlinear Schrödinger equations with attractive inverse-power potential

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We consider the uniqueness and nondegeneracy of ground states for stationary nonlinear Schrödinger equations with a focusing power-type nonlinearity and an attractive inverse-power potential. In this talk, we prove that all ground states are positive up to phase rotation, radial, and decreasing. Moreover, by extending the results of Shioji and Watanabe (2016), we prove the uniqueness and nondegeneracy of the positive radial solutions.