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A Unified Potential Model Framework for Charmonium and Bottomonium

We present a unified non-relativistic framework to study the charmonium and bottomonium systems. We utilize the Cornell potential, along with spin-dependent interactions, and optimize the parameters to simultaneously describe the spectra of both systems. We analyze the impact of these “uniform fit” parameters and individual interactions on the mass spectra, including the non-linearity in Regge trajectories. Furthermore, we predict annihilation decay widths and investigate their scale dependence, considering the wave function at the origin. Our findings are compared with experimental data.

Field of contribution

Phenomenology

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