

Mass spectra of Bottomonia using relativistic corrections to the potential

Monday, 2 October 2017 15:10 (170)

We compute the masses of different states of bottomonia in the framework of potential non-relativistic QCD (pNRQCD), non-perturbatively. The potential consists of two terms, a static term incorporating Coulombic plus confinement part along with a constant and a relativistic correction term classified in powers of the inverse of heavy quark mass $\mathcal{O}(1/m)$. The $\mathcal{O}(1/m)$ Spin dependent corrections are incorporated to compute the singlet and the triplet states of bottomonia. The Schrödinger equation is solved numerically to obtain the masses from 1S to 6S states, the calculated masses for $\eta_b(1S)$ is 9.390 GeV and for $\chi_{b0}(1S)$ is 9.459 GeV and is found to be in good accordance with the experimental results.

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Session Classification : Poster session and coffee&reception