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A Study on Breit Interaction Through Heavy Mesons Spectra

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Abstract: In the present work the adequacy of the complete Breit interaction terms in describing the strong interaction can be tested through studying $c\bar{c}$ and $b\bar{b}$ spectra. Breit equation is solved using the complete Breit interaction form. The Breit equation can be transformed into three categories of differential equations according to the spectroscopic signature of the different states. The resonance masses of $c\bar{c}$ and $b\bar{b}$ states are calculated to order α^4. One can see a good agreement between our results and the corresponding experimental data in all considered states.

Key Words: Quarkonium spectroscopy, Breit equation, Bound states.