

USE OF THE CONFIGURATION INTERACTION  
METHOD TO DESCRIBE “FINE”-SPLITTING  
IN THE BOUND TWO-QUARK SYSTEMS

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The screened quasi-relativistic potential is used for describing the spin-orbit splitting in  ${}^3P_J$  waves in a quark-antiquark system. The Fermi–Breit equation is numerically solved in the configuration interaction approximation. This approximation takes the mixing of wave functions into account up to the fifth order and corrects substantially perturbative calculations. We research the Lorentz nature of the potential. The good quantitative results for  $b\bar{b}$  and  $c\bar{c}$  quarkonia and the quite acceptable qualitative characteristics for unequal quark masses are obtained.