Contribution ID: **480** Type: **Poster**

Status of mesons in the hidden strange sector

Tuesday 13 December 2022 14:00 (1 hour)

The spectral properties of strange quarkonium ($s\bar{s}$) is analysed using quark model approach. Present study also incorporates spin dependent interactions to obtain the hyperfine splitting of $s\bar{s}$. To compute these mass spectra of ($s\bar{s}$), we have solved Dirac equations with a Martin plus constant confinement mean field potential. The predicted masses of nS states of strange quarkonium are in good agreement with available experimental as well as with the theoretical predictions. Our predicted mass of ø(1680) is 1681 for 23S1 state, which is in very close agreement with experimental results of 1680 ± 20 MeV . Our computed vector decay constant for ϕ(1020) meson is 251 MeV, which is in good accordance with Lattice QCD result of 238 MeV and its leptonic decay width of 1.098 keV. The Leptonic decay width is calculated with and without QCD correction, it is noted that in the calculation of leptonic decay width QCD correction factor is not effective. Other properties of the ($s\bar{s}$) bound state predicted here include the pseudoscalar decay constants widths and digamma decay widths for S -
wave ($s\bar{s}$) meson. The present study thus will be useful to identify the new and exotic states in the energy sector 1.5 GeV to 2.5 GeV.

Session

Quark and Lepton Flavour Physics

Authors: Dr SHAH, Manan (Department of Physical Sciences, P. D. Patel Institute of Applied Sciences, Charotar, University of Science and Technology, CHARUSAT, Changa - 388421, Gujarat, INDIA); Prof. VINODKUMAR, P C (Department of Physical Sciences, P. D. Patel Institute of Applied Sciences, Charotar, University of Science and Technology, CHARUSAT, Changa - 388421, Gujarat, INDIA); Dr BHAVSAR, Tanvi (School of Engineering, P P Savani University, Dhamdod, Kosamba ,Gujarat, India - 394 125)

Presenter: Dr BHAVSAR, Tanvi (School of Engineering, P P Savani University, Dhamdod, Kosamba ,Gujarat, India - 394 125)

Session Classification: Poster - 2