

# Heavy hadron spectroscopy in a Salpeter model with AdS/QCD inspired potential

Thursday 16 July 2009 16:50 (20 minutes)

The quark-antiquark potential obtained in a gauge/gravity (AdS/QCD) approach is inserted in a Salpeter equation to determine heavy hadron masses. The parameters of the model are fixed fitting the known spectrum of the  $S$ -wave mesons in the sector of heavy-light quarks, charmonium and bottomonium. The predicted mass of  $\eta_b$  is in agreement with the subsequent observation by BaBar Collaboration. A discussion of heavy tetraquark masses is also presented, motivated by the possibility of a diquark-antidiquark structure for some states. The decay constants of charmonium and bottomonium are determined: they control the processes  $\eta(nS)_{c/b} \rightarrow \gamma\gamma$  and  $\psi(nS)/\Upsilon(nS) \rightarrow \ell\bar{\ell}$ .

Finally, the masses of baryons comprising two heavy quarks are computed in the same model, assuming a quark-diquark scheme; these states are predicted to exist by the quark model, but so far there is only one experimental candidate,  $\Xi_{cc}$ , observed by the Selex Collaboration.

based on:

Eur. Phys. J. C **57**, 569 (2008)

Phys. Rev. D **78**, 117501 (2008)

arXiv:0902.4624 [hep-ph], to appear on Phys. Rev. D **79**, 094002 (2009)

**Primary author:** GIANNUZZI, Floriana (University of Bari and INFN)

**Presenter:** GIANNUZZI, Floriana (University of Bari and INFN)

**Session Classification:** VI. QCD in Hadronic Physics

**Track Classification:** QCD in hadronic physics