Contribution ID: **25** Type: **not specified**

Charm and Strangeness with Heavy Quark Symmetry in Dense Matter

Wednesday, May 16, 2012 1:50 PM (20 minutes)

Chair: Sven Vahsen (UH)

Abstract:
We study charmed and strange baryon resonances that are generated dynamically within a unitary meson-baryon coupled-channel model which incorporates heavy-quark symmetry [1,2]. This is accomplished by extending the SU(3) Weinberg-Tomozawa chiral Lagrangian to SU(8) spin-flavor symmetry and implementing a strong flavor symmetry breaking. The model generates dynamically resonances with negative parity in all the isospin, spin, and strange sectors with one, two, and three charm units that one can form from an s-wave interaction between pseudoscalar and vector meson multiplets with 1/2^+ and 3/2^+ baryons [3]. Our results are compared with experimental data from several facilities, such as the CLEO, Belle or BaBar Collaborations, as well as with other theoretical models. Some of our dynamically generated states can readily be assigned to resonances found experimentally, while others do not have a straightforward identification and require the compilation of more data and also a refinement of the model. Moreover, we obtain the properties of charmed pseudoscalar and vector mesons in dense matter [4] within this coupled-channel unitary effective model by taking into account Paul-blocking effects and meson self-energies in a self-consistent manner. We obtain the open-charm meson spectral functions in this dense nuclear environment, and discuss their implications on the formation of D-mesic nuclei at FAIR energies [5, 6].

Presenter: TOLOS, Laura (ICE (IEEC-CSIC, Barcelona))

Session Classification: Charm Production Session