Contribution ID: **105** Type: **Contributed Talk**

Strange partial pressures from Lattice QCD

Thursday, 30 June 2016 10:00 (20 minutes)

The precision reached by recent lattice QCD results allows for the first time to investigate whether the measured hadronic spectrum is missing some additional strange states, which are predicted by the Quark Model [1,2] but have not yet been detected. This can be done by comparing some sensitive thermodynamic observables from lattice QCD to the predictions of the Hadron Resonance Gas model (with the inclusion of decays [3]). We propose a set of specific observables [4], defined as linear combinations of conserved charge fluctuations, which allow to investigate this issue for baryons containing one or more strange quarks separately. Applications of these observables to isolate the multiplicity fluctuations of kaons from lattice QCD, and their comparison [5] with the experimental results, are also discussed.

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Session Classification: Strangeness in Astrophysics