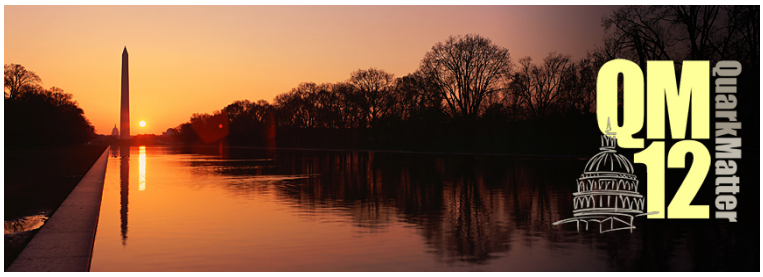

Contribution ID: **58** Type: **Poster**

Thermal meson properties and chiral symmetry: recent advances.

Thursday 16 August 2012 16:00 (2 hours)

I will review recent and ongoing work on thermal meson properties relevant for the hadron gas regime in Relativistic Heavy Ion Collisions. These include transport coefficients, chemical nonequilibrium, susceptibilities, isospin breaking and different aspects on chiral symmetry restoration and the QCD transition. The basic framework is the use of Chiral Effective Lagrangians which ensure the model independency of the low-energy and low-temperature regimes and allows to include interactions consistently. This is combined with unitarity when an accurate analytical description of particle scattering is needed, as in the case of resonance studies, virial analysis and transport coefficients, for temperatures and energies where deviations from Chiral Perturbation Theory are significant. Our scheme provides an adequate phenomenological description for several quantities. The shear viscosity is compatible with the KSS bound and recent data on elliptic flow, bulk viscosity correlation with the trace anomaly is established without appealing to the spectral function profile and the electrical conductivity is consistent with the low-energy photon spectrum. At the same time, this framework helps to understand theoretical aspects such as the role of scalar resonances and degeneration of partners in chiral restoration or the effects of meson interactions in a possible window between chemical and thermal freeze-out. We will pay also attention to the connection with lattice results, particularly in the analysis of connected and disconnected scalar susceptibilities, whose quark mass and temperature behaviour we can establish rigorously from our isospin-breaking analysis, providing then a useful benchmark for the continuum limit.

Some related references:

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