Meson Screening Masses in Thermal QCD

Piotr Czerski

The H. Niewodniczański Institute of Nuclear Physics, Polish Academy of Sciences,
ul. Radzikowskiego 152, 31-342 Kraków, Poland

The meson screening masses in the scalar and pseudoscalar channels are calculated from the momentum dependent meson spectral functions in the Hard Thermal Loop Approximation (HTL) of the QCD[1]. A new subtraction procedure is invented to get an UV finite result. It is a numerical approach, which requires the analytical form of the mesonic spatial correlation functions in the free case[2] in order to calculate the divergent integrals. Results are compared to the recent QCD lattice results[3,4].

This analysis leads to a better understanding of the excitations of Quark Gluon Plasma in finite temperatures and is of relevance for interpreting lattice results.

[1] P. Czerski, Cent. Eur. J. Phys DOI: 10.2478/s11534-011-0117-1

[2] W.M. Alberico, A. Beraudo, A.Czerska, P. Czerski and A. Molinari, Nucl. Phys. **A792** (2007) 152

[3] M. Cheng, *et al.* Eur. Phys. J. **C71** (2011) 1564

[4] S. Mukherjee, Nucl. Phys. **A820** (2009) 283c

E-mail: piotr.czerski@ifj.edu.pl