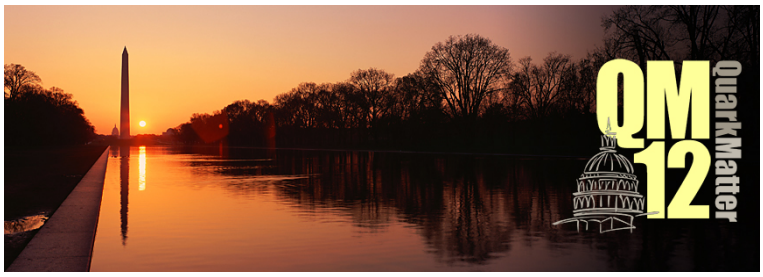

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Hot quarkonium spectral functions from QCD sum rules and the maximum entropy method

Thursday, August 16, 2012 4:00 PM (2 hours)

Quarkonia spectral functions at finite temperature are studied using QCD sum rules in combination with the maximum entropy method. This approach enables us to directly obtain the spectral function from the sum rules, without having to introduce any specific assumption about its functional form [1].
QCD sum rules incorporate finite temperature effects in form of changing values of the various gluonic condensates that appear in the operator product expansion. These changes depend on the energy density and pressure at finite temperature, which we extract from lattice QCD.
As a result, we find that the charmonium states J/\psi, \eta_c, \chi_{c0} and \chi_{c1} dissolve into the continuum already at temperatures around or slightly above the critical temperature T_c [2].
As for bottomonium, it is found that \Upsilon(1S) and \eta_b survive in quark-gluon matter of temperature up to 2.5 -3.0 T_c, while \chi_{b0} and \chi_{b1} dissociate at 2.0 -2.5 T_c [3]. Furthermore, we find evidence for the melting of the excited states \Upsilon(2S) and \Upsilon(3S) in the region of T=1.5 -2.0 T_c [3].

[1] P. Gubler and M. Oka, Prog. Theor. Phys. 124, 995 (2010).
[2] P. Gubler, K. Morita and M. Oka, Phys. Rev. Lett. 107, 092003 (2011).
[3] K. Suzuki, P. Gubler, K. Morita and M. Oka, arXiv:1204.1173 [hep-ph].

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