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Momentum dependences of charmonium properties from lattice QCD

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We study the momentum dependence of charmonia in a hot medium using lattice QCD calculations. We analyze correlation functions and extract spectral functions from quenched calculations on large lattices close to the continuum limit in the temperature region $1.5 < T/T_c < 3$ as well as for $T \simeq 0.75T_c$. We examine the modifications of dissociation temperatures of the bound states when they are in motion with respect to the heatbath frame. We will also discuss the charm diffusion coefficients in connection with transport properties of charm quark at finite momentum. Furthermore, we expect to be able to present preliminary results at temperatures closer to the transition temperature, i.e. $T_c < T < 1.5T_c$, which is crucial to locate the dissociation temperature of $J\psi$ and examine the sequential suppression scenario[1].

[1] H.-T. Ding, A. Francis, O. Kaczmarek, F. Karsch, H. Satz and W. Soeldner, BI-TP 2012/13, to appear on arXiv soon

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