Deconfinement and Quarkonium suppression from lattice QCD

Presenter: Felix Zantow
O. Kaczmarek, F. Zantow

Abstract: Thermal modifications of heavy quark bound states have long been considered to provide signatures for the properties of dense matter such as created in heavy ion collisions. In view of the concept introduced by Matsui and Satz for quarkonium suppression as a signal for the quark gluon plasma production we discuss recent results for the quark anti-quark free and internal energies in 2-flavor lattice QCD. The intermediate and large distance behavior of these energies reflects string breaking and color screening and is used to characterize the energies which are needed to dissolve heavy quarkonium states in a thermal medium. Our analysis supports recent findings from the analysis of quarkonium spectral functions that parts of these states survive the phase transition and will dissolve at higher temperatures.