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Prospects for thermal dilepton rates from lattice QCD

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We discuss the prospects of computing thermal dilepton rates from first principles lattice QCD. The focus lies in the determination of the meson vector-vector current spectral function in the low mass region. We review and compare recent results from continuum-extrapolated, quenched calculations, as well as dynamical two-flavor setups.

Additionally we update our two-flavor dynamical analysis to include newly generated ensembles using Wilson-Clover fermions at pion masses of 270MeV and spatial (box) lengths of 3.1fm. These lattice setups cover a temperature range of 170MeV to 340MeV, with the pseudocritical temperature at roughly 200MeV. Also large vacuum ensembles are available, enabling a comparison to the experimentally observed spectral function extracted from electron-positron annihilation to hadrons. At finite temperature, we discuss the electrical conductivity across the phase transition and the signs of the dissociation of the ρ particle.

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