The ρ Meson and the Thermal Behavior of an Effective Hadronic Coupling Constant

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Abstract

Vector Meson Dominance ideas together with a Finite Energy QCD sum rule allows for the determination of the q^2- and the T- dependence of the effective hadronic coupling constant $g\rho\pi\pi$ in the space-like region. It turns out that $g\rho\pi\pi(q^2,T)$ vanishes at the critical temperature T_c, independently of q^2. A comparison with a previous independent QCD determination of the electromagnetic pion form factor at finite temperature supports the validity of Vector Meson Dominance at finite temperature. We find also thet the pion radius increases with T, having a divergent behavior at T_c.