

Temperature dependence of the rho-meson mass and width

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Abstract

It is shown, to leading order in the virial expansion, that unitarity of the $\pi\pi$ scattering amplitude implies that if the ρ -meson width $\Gamma_\rho(T)$ increases with temperature, then the ρ -meson mass $M_\rho(T)$ must also increase. The temperature dependence of $M_\rho(T)$ is explicitly obtained from a simple, but physically motivated, parametrization of the $l=J=1$ $\pi\pi$ scattering amplitude.