APR05-2004-000021

Abstract for an Invited Paper
for the APR05 Meeting of
the American Physical Society

Possible Medium Modifications of Resonances at RHIC

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In-medium modifications of resonances due to effects of increasing temperature and density have been proposed as a possible signal of a phase transition of nuclear matter to a deconfined plasma of quarks and gluons. Even in the absence of the phase transition, at lower temperature and density, modifications of resonances are expected to be measurable. Effects such as phase space and dynamical interactions with matter may modify the resonance mass, width, and shape. The effects of phase space due to the rescattering of hadrons and Bose-Einstein correlations between the daughters from resonance decays and the hadrons in the surrounding matter are present in p+p, d+Au, and Au+Au collisions at RHIC. The interference between different hadrons scattering channels can also effectively distort the line shape of resonances. Results from resonances measured at RHIC, such as $\rho(770)^0 \rightarrow \pi^+\pi^-$, will be presented and the possible medium modification due to the effects listed above will be discussed.