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## The influence of broad resonances on strangeness fluctuations

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Motivated by recent lattice QCD (LQCD) studies on fluctuations of conserved charges and their interpretation within the Hadron Resonance Gas (HRG) model, we explore the effects of interactions on strangeness fluctuations in hadronic matter at finite temperature. We focus on the s-wave K-pi interactions and discuss the role of the attractive isospin-1/2 channel, with the broad  $\kappa(869)$  and the  $K^*(1430)$  resonances, as well as the repulsive isospin-3/2 channel. The interaction contributions to the thermodynamics are handled within the S-matrix formalism using the empirical K-pi phase shifts as input.

We show that a simplified treatment of interactions in this channel, using a Breit-Wigner spectral function for each resonance, as frequently employed in applications of the hadron resonance gas, systematically overestimates the strangeness fluctuations. Thus, when modeling the LQCD results and experimental data on strangeness fluctuations the contribution of broad resonances must be treated with particular caution.

### **On behalf of collaboration:**

NONE

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