

# Dispersive study of $\pi K$ and $\pi\pi \rightarrow K\bar{K}$ scattering: threshold parameters and kappa/ $K^*(700)$ resonance determination

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We report on our recently finished dispersive study of pion-kaon and pion-pion to kaon-antikaon scattering data. We have shown that naive fits to data fail to satisfy the dispersive representation, sometimes severely. We have then obtained a fairly simple Constrained Fit to Data set of partial waves that simultaneously describes the data and satisfy Forward, fixed-t and hyperbolic dispersion relations. Using these amplitudes inside partial-wave hyperbolic dispersion relations we have confirmed the existence of the controversial kappa/ $K^*(700)$  light meson, providing a precise determination of its parameters. We have also derived sum-rules from these dispersion relations that provide precise and model-independent values for pion-kaon threshold parameters, confirming the tension between lattice and dispersive results, as well as the leading contribution to the kaon-sigma term.

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