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## Fit of the $a_1(1420)$ as a Triangle Singularity

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Recently, many new hadronic states were found that do not fit into the simple constituent-quark model for mesons and baryons. One prominent example is the  $a_1(1420)$  signal that was observed by the COMPASS experiment in the  $f_0(980)\pi$  P-wave with  $J^{PC} = 1^{++}$  quantum numbers.

Different mechanisms were suggested to explain these signals, one of which is rescattering of final-state particles. The Triangle Singularity (TS) is a prominent rescattering mechanism that is able to produce signals that fully mimic the behavior of a resonance, i.e. a peak in the intensity accompanied by a phase motion of the amplitude.

We present our analysis of the  $f_0(980)\pi$  amplitude using a TS model that incorporates spin effects via a dispersion technique. We will show that the  $a_1(1420)$  signal is explained by a TS that appears in the decay of the ground-state axial-vector meson  $a_1(1260)$  to the  $K\bar{K}\pi$  final state, which couples to the observed  $f_0(980)\pi$  system in the  $3\pi$  final state via rescattering.

## Category

talk

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