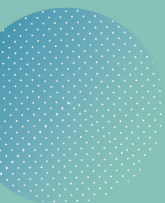




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# The $f_0(1370)$ controversy from dispersive meson-meson scattering data analyses

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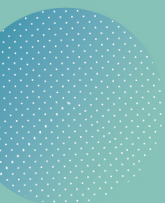
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## Abstract

We establish the existence of the long-debated  $f_0(1370)$  resonance in the dispersive analyses of meson-meson scattering data. For this, we present a novel approach using forward dispersion relations, valid for generic inelastic resonances. We find its pole at  $(1245 \pm 40) - i(300^{+30}_{-70})\text{MeV}$  in  $\pi\pi$  scattering. We also provide the couplings as well as further checks extrapolating partial-wave dispersion relations or with other continuation methods. A pole at  $(1380^{+70}_{-60}) - i(220^{+80}_{-70})\text{MeV}$  also appears in the  $\pi\pi \rightarrow K\bar{K}$  data analysis with partial-wave dispersion relations. Despite settling its existence, our model-independent dispersive and analytic methods still show a lingering tension between pole parameters from the  $\pi\pi$  and  $K\bar{K}$  channels that should be attributed to data.

