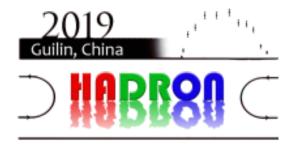
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Properties of X(3872) beyond the effective range expansion

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We proposed a more general two-body scattering amplitude than the effective range expansion. Based on this new method, we found many new features on the exotic meson X(3872)

that is not realized previously. It can either be a bound state of $\bar{D}D^*$ or a virtual state, or a simultaneous virtual and bound state in the physical and unphysical Riemann Sheet. We also found it can correspond to a higher-order S-matrix pole, which may be the first example of such case in hadron physics.

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