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Probing K-molecule interactions via correlation functions: three-body bound states in $K X(3872)$ and $K D_{s0}^{*}(2317)$

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We study the interactions of a kaon with the exotic states $X(3872)$ and $D_{s0}^{*}(2317)$, assumed as $D\bar{D}^*$ and DK molecules with $I=0$. Using the fixed-center approximation to the Faddeev equations, we compute the three-body scattering amplitudes, unitarized via the Lippmann-Schwinger equation. For both systems, we find narrow resonant structures below the respective thresholds (about 50 MeV and 40 MeV) with widths of order 1 MeV, indicating three-body bound states. The corresponding correlation functions show clear deviations from unity at low momenta, characteristic of strong attraction. These predictions are directly testable in future correlation measurements (e.g., at ALICE) and in invariant-mass distributions, providing clear experimental signatures of the molecular nature of these resonances

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