

## Study the structure of $X(3872)$ from its lineshape

We fit the invariant mass distribution of  $X(3872) \rightarrow J/\psi\pi^+\pi^-$  from LHCb and  $X(3872) \rightarrow D^0\bar{D}^{0*}$  from Belle using the propagator for S-wave threshold states in effective field theory. In this way, we can directly determine the  $Z$  which is the probability of finding the compact component in  $X(3872)$ . We find that  $Z$  is a non-vanishing value within error, which strongly supports that  $X(3872)$  has a compact short-distant core.

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