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Detecting the long-distance structure of the X(3872)

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We study the X(3872) to D bar{D} pi^0 decay within a molecular D bar{D}^ *picture for the X(3872) state. This mode is more sensitive to the long-distance structure of the X(3872) resonance than its J/\psi\pi\pi and J/\psi 3pi$ decays, which are mainly controlled by the details of the X(3872) wave function at short distances. We show that the D bar{D} final state interaction can be important, and that a precise measurement of this partial decay width can provide valuable information on the interaction strength between D^()*bar{D}^{(*)} charm mesons.

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