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Light quark mass dependence of the $X(3872)$ in XEFT

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The quark mass dependence of hadrons is an important input for lattice calculations. We investigate the light quark mass dependence of the binding energy of the $X(3872)$ and the $\bar{D}^0 D^{0*}$ scattering length in the $C = +1$ channel in the framework of XEFT. We find a moderate dependence of the binding energy for quark masses up to twice the physical value while the scattering length is much more sensitive. The treatment of infrared divergences due to on-shell pions in XEFT is discussed in detail.

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