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Strategies for an accurate determination of the X(3872) energy from QCD lattice simulations

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We develop a method to determine accurately the binding energy of the X(3872) from lattice data for the $D\bar{D}^*$ interaction. We show that, because of the small difference between the neutral and charged components of the X(3872), it is necessary to differentiate them in the energy levels of the lattice spectrum if one wishes to have a precise determination of the the binding energy of the X(3872). The analysis of the data requires the use of coupled channels. Depending on the number of levels available and the size of the box, we determine the precision needed in the lattice energies to finally obtain a desired accuracy in the binding energy.

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