

# The Spectrum of Charmonium-like Vector Mesons in Lattice QCD

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Abstract: We present the first results of the spectrum of exotic vector mesons extracted from the molecular and diquark-antidiquark operators, with quark fields  $(cq\bar{c}\bar{q})$ , and  $(cs\bar{c}\bar{q})/(cq\bar{c}\bar{s})$  respectively, in lattice QCD with exact chiral symmetry. Our results suggest that  $X(3872)$  and  $Y(4260)$  are in the spectrum of QCD, with  $J^{PC} = 1^{++}$  and  $1^{--}$  respectively. Moreover, we obtain the spectrum of heavier exotic mesons with  $(cs\bar{c}\bar{u})/(cu\bar{c}\bar{s})$ ,  $(cs\bar{c}\bar{s})$ , and  $(cc\bar{c}\bar{c})$ , as the first theoretical predictions in lattice QCD.