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Charmonium spectroscopy with optimal distillation profiles

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We use the method of optimal distillation profiles to compute the low-lying charmonium spectrum in an $N_f = 3 + 1$ ensemble at the $SU(3)$ light flavor symmetric point ($m_\pi \approx 420$ MeV), physical charm quark mass and lattice spacing $a \approx 0.0429$ fm. The spectrum and mass splittings display good agreement with their values in nature and the statistical errors are comparable, if not smaller, than those of state-of-the-art lattice calculations. We also present first results on the mixing of charmonium with glueballs and light hadrons obtained in a similar $N_f = 3 + 1$ ensemble but at larger pion mass ($m_\pi \approx 1$ GeV).

Topical area

Hadronic and Nuclear Spectrum and Interactions

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