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Open charm meson and baryon spectroscopy from lattice QCD

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We present results of simulations of the RQCD Collaboration on open charm states, including a scattering analysis of scalar and axialvector D_s mesons near the physical pion mass, utilizing different spatial volumes. The spectra are obtained, using $N_f = 2$ QCDSF and RQCD as well as $N_f = 2 + 1$ CLS ensembles, employing non-perturbatively improved Wilson fermions. In the latter case, extrapolations to the physical point are performed along two lines in the quark mass plane: keeping the strange quark mass constant and keeping the sum of the three sea quark masses (approximately) constant.

Summary

We present results of simulations of the RQCD Collaboration on open charm states. This includes a scattering analysis of scalar and axialvector D_s mesons near the physical pion mass, utilizing different spatial volumes with $N_f = 2$ sea quark flavours. Moreover, open charm spectra are obtained, using $N_f = 2 + 1$ CLS (Coordinated Lattice Simulations) ensembles, employing non-perturbatively improved Wilson fermions with open boundary conditions in time. In this case, extrapolations to the physical point are performed along two lines in the quark mass plane: keeping the strange quark mass constant and keeping the sum of the three sea quark masses (approximately) constant.

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