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Charmed meson physics from three-flavour lattice QCD

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We report on analysis aspects within a joint ongoing effort of the ALPHA and RQCD Collaborations to compute charmed meson masses and the leptonic decay constants f_D and f_{D_s} in $(2 + 1)$ -flavour lattice QCD, employing non-perturbatively $O(a)$ improved Wilson quarks and the tree-level Symanzik-improved gauge action. Our studies make use of large-volume CLS configurations at two lattice spacings ($a \approx 0.086, 0.064$ fm) with open boundary conditions. In particular, we present our implementation of distance preconditioning (as proposed by de Divitiis et al.) for the calculation of heavy quark propagators and discuss the resulting accuracy improvements of charmed meson correlators and its impact on the extraction of charmed meson masses and decay constants.

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