

## Comparison between models with and without dynamical charm quarks

*Friday, July 27, 2018 2:00 PM (20 minutes)*

We investigate the influence of dynamical charm quarks on observables with an explicit charm quark dependence, like the hyperfine splitting, quark masses and meson decay constants. For this purpose, instead of working in full QCD we study a simplified setup.

We simulate two theories:  $N_f = 0$  QCD and QCD with  $N_f = 2$  degenerate charm quarks. The absence of light quarks allows us to reach extremely fine lattice spacings

( $0.02 \text{ fm} < a < 0.05 \text{ fm}$ ) which are crucial for reliable continuum extrapolations. Our main result is a comparison of various quantities in the continuum limit with a precision that in some cases exceeds 0.5%.

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