



w_0 from $0.5M_{J/\psi} - M_{D_s}$

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HPQCD Collaboration

November 18, 2020



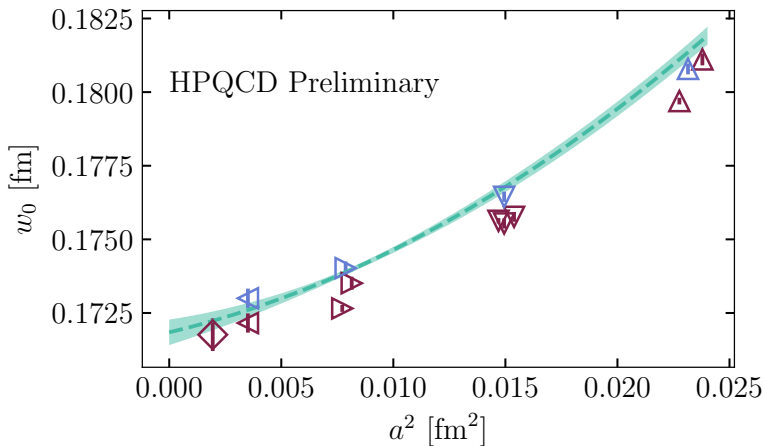
$$0.5M_{J/\psi} - M_{D_s}$$



- D_s and J/ψ masses experimentally very well determined
- Can be precisely calculated using the HISQ action across a wide range of lattice spacings 0.15–0.045 fm
- HPQCD already included quenched QED in J/ψ calculations [2005.01845]
- Tuning of the charm quark mass was done using the $M_{J/\psi}$
- HPQCD uses the η_s mass to tune the strange mass
- M_{η_s} determined from fits including pions and kaons [1303.1670]
- Analysis was updated to include valence isospin breaking effects on these quantities



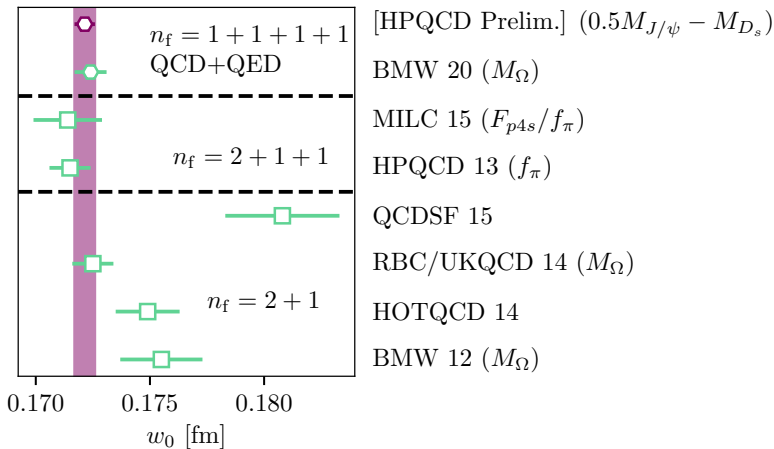
w_0



Calculate $w_0/(0.5M_{J/\psi} - M_{D_s})$ and multiply by experimental mass difference



Comparison



$\sim 0.3\%$ precision (preliminary)

