

Electromagnetic form factors and radii of charmed mesons from lattice QCD

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Using $N_f = 2 + 1$ clover fermions across six gauge ensembles generated by the CLQCD collaboration, this work performs simultaneous chiral and continuum extrapolations to determine the electromagnetic properties of charmed mesons, providing the first lattice QCD calculations for the magnetic moments and radii of D^{*+} and D_s^* , and filling the gap for the D_s^* charge radius. The preliminary numerical results yield the charge radii squared as $(r_c)_D^2 = 0.208(26) \text{ fm}^2$, $(r_c)_{D^{*+}}^2 = 0.258(25) \text{ fm}^2$, $(r_c)_{D_s}^2 = 0.083(17) \text{ fm}^2$, and $(r_c)_{D_s^*}^2 = 0.101(15) \text{ fm}^2$; the magnetic dipole moments as $(G_M)_{D^{*+}} = 2.21(17)$ and $(G_M)_{D_s^{*+}} = 2.19(12)$; and the magnetic radii squared as $(r_m)_{D^{*+}}^2 = 103(84) \text{ fm}^2$ and $(r_m)_{D_s^*}^2 = 0.088(54) \text{ fm}^2$.

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