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Charmed and Bottom baryon spectrum from Lattice QCD KOSNSTANTINOS ORGINOS, College of William and Mary, JLab — We compute the masses of the singly and doubly charmed baryons in full QCD using the relativistic Fermilab action for the charm quark. For the light quarks we use domain-wall fermions in the valence sector and improved Kogut-Susskind sea quarks. We use the low-lying charmed meson spectrum to tune our heavy-quark action and as a guide to understanding the discretization errors associated with the heavy quark. Our results are in good agreement with experiment within our systematics. In addition we predict the mass of the (isospin averaged) spin-1/2 Ω_{cc} to be 3680(31)(36)(11) MeV. In addition We calculate bottom-hadron mass splittings with respect to B_d and Λ_b in the static limit for the heavy quark. Our results are in agreement with experimental observations and other lattice calculations within our statistical and systematic errors. In particular, we find the mass of the Ω_b to be consistent with the recent CDF measurement. We also predict the mass for the as yet unobserved Ξ'_b to be 5955(27) MeV.

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