B_s and B_c mesons in lattice QCD with exact chiral symmetry

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Abstract: We determine the masses and decay constants of the pseudoscalar mesons B_s and B_c, and also the masses of the vector mesons B_s^* and B_c^*, in quenched lattice QCD with exact chiral symmetry. For 100 gauge configurations generated with single-plaquette action at $\beta = 7.2$ on the $32^3 \times 60$ lattice, we compute point-to-point quark propagators for 21 quark masses in the range $0.01 \leq m_q a \leq 0.85$, and measure the time-correlation functions of pseudoscalar and vector mesons. The inverse lattice spacing and the charm quark bare mass are determined using the mass and decay constant of $\eta_c(2980)$. The bare masses of **s** and **b** quarks are chosen such that the masses of the corresponding vector mesons are in good agreement with $\phi(1020)$, and $\Upsilon(9460)$ respectively. Our preliminary results are: $m_{B_s} = 5376(25)$ MeV, $f_{B_s} = 233(17)$ MeV, $m_{B_c} = 6281(14)$ MeV, $f_{B_c} = 451(4)$ MeV, $m_{B_s^*} = 5434(16)$ MeV, and $m_{B_c^*} = 6330(11)$ MeV.