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A10: Precision bottomonium properties and b quark mass from lattice QCD+QED

Wednesday, 28 July 2021 08:45 (15 minutes)

We will discuss the determination of the properties of heavyonium mesons in lattice QCD + quenched QED, using the HISQ action on gluon field configurations that include 2+1+1 flavours of sea quarks and with lattice spacing values going down to 0.03 fm. Results include values for the bottomonium hyperfine splitting and Upsilon and η_b decay constants, for comparison to our earlier results for the properties of charmonium from lattice QCD+QED. We also determine the ratio of the masses of b and c quarks in the $\overline{\text{MS}}$ scheme at 3 GeV, including QED contributions. Using our earlier result for c quark mass in QCD+QED, this enables a new 0.5% accurate determination of the b quark mass.

Results have appeared in: 2101.08103 and 2102.09609

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