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## Beauty hadron semileptonic decays in the Standard Model and beyond

Friday, 8 July 2022 18:25 (17 minutes)

I discuss exclusive  $B_c$  decays. FIrst I consider the case of semileptonic modes  $B_c^+ \to B_a \bar{l} \nu_l$  and  $B_c^+ \to B_a^* (\to B_a \gamma) \bar{l} \nu_l$ , with a = s, d and  $l = e, \mu$  in the Standard Model (SM) and in its extension based on the low-energy Hamiltonian comprising the full set of dimension-6 semileptonic  $c \to s, d$  operators with left-handed neutrinos. Heavy quark spin symmetry has been used to relate the relevant hadronic matrix elements and to exploit lattice QCD results on  $B_c$  form factors. Optimised observables are selected, and the pattern of their correlations is studied to identify the effects of the various operators in the extended low-energy Hamiltonian.

Furthermore, I present the analysis for  $B_c^+ \to B^{(*)+}\nu\bar{\nu}$  decays, for which branching fractions of at most  $\mathcal{O}(10^{-16})$  are predicted in the SM. New physics effects are discussed also in this case.

Perspectives on inclusive semileptonic  $\Lambda_b^0$  decays will be briefly discussed.

## **In-person participation**

Yes

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