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Search for Bc± ⟶ ϕK± in the LHCb experiment

There is no annihilation decay experimentally observed for the Bc meson to date. The Bc± ⟶ ϕK± decay can proceed via annihilation of anti-b and c quarks into a W intermediate boson or, alternatively, involving final-state rescattering effects. Observation of the Bc± ⟶ ϕK± decay will provide a new insight on the Bc meson properties and lead to a new independent determination of the Vcb element of the CKM matrix, as well as determine the size of annihilation diagrams. The analysis is performed using data from the LHCb experiment, collected in pp collisions at 13 TeV center-of-mass energy. The ϕ meson is reconstructed via its decay to two charged kaons. The B± ⟶ ϕK± decay is used for control and normalization.

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