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New measurement of b-hadron lifetimes at CDF

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We report new, world-leading measurements of b-hadron lifetimes and their ratios using $B^{+-} \rightarrow J/\psi K^+$, $B^0 \rightarrow J/\psi K^0$, $B^0 \rightarrow J/\psi K^0_s$ and $\Lambda_b \rightarrow J/\psi \Lambda$, decays reconstructed in a data sample corresponding to 4.3 fb⁻¹ collected by the CDF experiment. A detailed resolution model provides improved systematic uncertainties on the lifetimes, and determination of the b hadron decay-length using only the J/ψ decay-vertex, common to all modes, allow cancellation of the major systematic uncertainties in their ratios.

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