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Novel approaches to determine B meson production fractions

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In this talk, I present novel methods [Bernlochner:2023bad] to determine the $\Upsilon(4S) \to B^+B^-$ and $\Upsilon(4S) \to B^0\bar{B}^0$ decay rates. The precision to which they and their ratio are known yields at present a limiting uncertainty around 2% in measurements of absolute B meson decay rates, and thus in a variety of applications, such as precision determinations of elements of the Cabibbo–Kobayashi–Maskawa matrix and flavor symmetry relations. The new method proposed here is based on exploiting the existing and future $\Upsilon(5S)$ data sets, as well as global event characteristics in $B^\pm$ and B^0 decays. Estimates of future sensitivities using these methods and possible measurements of f_d/f_u at the (HL-)LHC are briefly discussed.

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Classification de Session: Beauty and Charm Physics

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