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B0 –¯B0 entanglement for an ideal experiment for the direct CP violation φ3=γ phase

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B0¯B0 entanglement offers a conceptual alternative to the single charged B-decay asymmetry for the measurement of the direct CP-violating γ=φ3 phase. With f=J/ΨK_L ; J/ΨK_S and g=(ππ)0; (ρ_Lρ_L)0, the 16 time-ordered double-decay rate intensities to (f,g) depend on the relative phase between the f- and g-decay amplitudes given by γ at tree level. Several constraining consistencies appear. An intrinsic accuracy of the method at the level of 1° could be achievable at Belle-II with an improved determination of the penguin amplitude to g channels from existing facilities.

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