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Analysis of $B \rightarrow PP, PV$ decays in Factorization Assisted Topological Amplitude Approach

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We analyze charmless two-body non-leptonic B decays $B \rightarrow PP, PV$ under the framework of factorization assisted topological amplitude approach, where $P(V)$ denotes a light pseudoscalar (vector) meson. Compared with the conventional flavor diagram approach, we consider flavor $SU(3)$ breaking effect assisted by factorization hypothesis for topological diagram amplitudes of different decay modes, factorizing out the corresponding decay constants and form factors from non-factorization (factorization) topological amplitudes after parameterizing (factorized in factorization framework) it as associated magnitude χ and strong phase ϕ (effective Wilson coefficient). These non-perturbative parameters are universal that can be extracted from current abundant experimental data of $B \rightarrow PP, PV$ simultaneously. With these best fitted parameters, we predict branching fractions and CP asymmetries of 97 decay modes, which are in good agreement with measured data or to be test in the LHCb and the Belle-II experiments in the future. The long-standing $\pi\pi$ and πK - CP puzzles are resolved with favorable color-suppressed tree emission diagram C .

Author: LU, Cai-Dian (IHEP, Beijing)

Presenter: LU, Cai-Dian (IHEP, Beijing)

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