“CP violation effects in multibody B decays” on behalf of the LHCb Collaboration

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CP Violation is one of the necessary ingredients to produce the matter anti-matter asymmetry we observe in the Universe today. The LHCb experiment is a general purpose forward-spectrometer located along the LHC proton-proton collider at CERN and is ideally suited for the investigation of such phenomena. We present the latest results of 3-body charmless B decays where large local CP violating effects have been observed across various regions of the phase space [1,2]. These results are discussed in the light of recent theoretical developments that attempt to understand the origin of the large asymmetries [3] and their impact on future amplitude analyses.

References
[1] R. Aaij et al. (LHCb Collaboration), Measurement of CP Violation in the Phase Space of $B^\pm \to K^\pm \pi^+ \pi^-$ and $B^\pm \to K^\pm K^+ K^-$ Decays, Phys. Rev. Lett. 111 (2013) 101801.
[2] R. Aaij et al. (LHCb Collaboration), Measurement of CP Violation in the Phase Space of $B^\pm \to K^+ K^- \pi^\pm$ and $B^\pm \to \pi^+ \pi^- \pi^\pm$ Decays, Phys. Rev. Lett. 112 (2014) 011801.