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CP sensitivity Dalitz plot analysis of the decay $B^0 \rightarrow K_s^0 K^+ K^-$

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I study the weak three-body decay $B^0 \rightarrow K_s^0 K^+ K^-$ at the LHCb experiment (Large Hadron Collider beauty) in the LHC (Large Hadron Collider) at CERN (Conseil Européen pour la Recherche Nucléaire). We validate the current results from Run 1 (2010-2012) and study the expected results for Run 2 (2015-2018) and Run 3 (2021-). The simulation of the experimental conditions like the tagging (flavour of the B^0), the detector efficiency and the number of expected events will determine the sensitivity of the phase space density (Dalitz plot) to the isobar amplitudes for the many resonance modes in the three-body decay, expecting to determine the expected precision of the CP-violating asymmetries of the flavour specific modes.

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