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Monte Carlo event generator with model-independent new physics effect for B->K(*)ll decays

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At the high luminosity flavor factory experiments such as the Belle II experiment, it is expected to find the new physics effect and constrain the new physics models with the high statics and many observables. In such analysis, the global analysis of the many observables with the model-independent approach is important. One difficulty in such global analysis is that the new physics could affect the numerical results obtained by experiments assuming the Standard Model, because of the changes of the reconstructed kinematical distributions used in the event selection and in the fitting to obtain the number of signal and background events. Therefore, it is also important to prepare the event generator including the new physics effects for the Monte Carlo simulation of the detector response to estimate and consider the effects properly in the global analysis.
In this work, we present development of the event generator of B->K(*)ll decays including the new physics effect in the model-independent way by parametrizing with the Wilson coefficients. We implement the decay model using the EvtGen [https://evtgen.hepforge.org/] framework so that it can be applicable in the analysis software framework of the B physics experiments. For the theoretical calculation of the new physics effect we consider the EOS [https://eos.github.io/] library and other possible calculations. We report the results obtained by the developed event generator and application in the global analysis.

Consider for promotion

No

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