$B^0 \to 3K$ decays in an unitary approach and $B \to D^*(D\pi)l\nu$ decays

Collaboration 23-155:
Phenomenological analyses of high precision B and D decay data and tests of the Standard Model

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Abstract

Based on the interesting and valuable results of our previous articles, frequently cited and with a great impact on theoretical and experimental analyses, we will present our derived amplitudes, parameterizations and outcome of our recent $B^0 \to K^0_S K^+ K^-$ analysis. Its aim will be to disseminate the use of our unitary approach, which should effectively, with a small number of free parameters, replace the non-unitary isobar model often used so far. The obtained decay ratios and asymmetry values are free from assumptions of a non-resonant background and are described by amplitudes and form factors over a wide energy range. They can be used in experimental Dalitz plot analyzes of the LHCb and Belle II groups. We plan to use our approach to analyze the available data on the $B^\pm \to K^+ K^- \pi^\pm$ decay.

We also want to extend the study of the $B \to D^*(D\pi)l\nu$ decays - sensitive to the new physics.