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Amplitude analyses of $D_s^+ \to \pi^+\pi^-\pi^+$

The study of a heavy meson decaying to three lighter mesons can be described, in general, as quasi-two-body processes through the production of resonance intermediate states. To understand the dynamics of these processes, a full amplitude analysis of the corresponding Dalitz Plot is necessary. The most traditional way to describe it is to use the so-called Isobar Model where the total amplitude is written as a coherent sum of the individual resonance amplitudes, typically described as a product of the resonance propagator, angular functions, and form factors. However, the Isobar Model turns out to be inadequate when dealing with broad scalar states and another approach such as the quasi-model-independent partial wave analysis (QMI) is an interesting alternative. In this talk, we show recent LHCb results of $D_s^+ \to \pi^+\pi^-\pi^+$ and $D^+ \to \pi^+\pi^-\pi^+$ amplitude analyses.

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