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Three-body decays with Khuri-Treiman equations

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One of the main issues posed by the presence of hadrons in any reaction is their final-state interactions, which are formally expressed in terms of the unitarity of the amplitude. In two-body scattering, unitarity is usually imposed in the direct channel only, as one is not sensitive to the details of the crossed channels. This is certainly not the case for a three-body decay, where the three possible two-hadron channels are physical, and one ideally wants to impose unitarity in all channels at once. The Khuri-Treiman formalism is a dispersive approach which indeed allows one to do so. In this talk, I will review the contributions made by the JPAC Collaboration to this field with focus on various important applications, e.g. $V \rightarrow 3\pi$ ($V = \omega, \phi, J\psi$) and the related transition form factor $V \rightarrow \pi^0 \gamma^*$, or the exotic $\pi_1(1600) \rightarrow 3\pi$ decay.

Collaboration

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