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## Combined analysis of $D^+, D^0 \rightarrow \bar{K}\pi\pi$ decays using isospin symmetry analyticity and unitarity

*Tuesday, 18 July 2023 15:00 (20 minutes)*

We discuss some applications of isospin symmetry in the Cabibbo favoured  $D \rightarrow \bar{K}\pi\pi$  decays. These processes are important for precision testing of the Standard Model and for hadronic physics. Combining isospin symmetry with a dispersive reconstruction theorem we derive a representation in terms of one-variable functions which allows one to predict all the  $D \rightarrow \bar{K}\pi\pi$  amplitudes given inputs from one  $D^+$  mode and one  $D^0$  mode. From this, using dispersion relations and unitarity, we derive a set of Khuri-Treiman type integral equations which enable to take three-body rescattering effects into account. These could be more significant in D than in K or B decays. A first test of this approach is presented using experimental results on the  $D^+ \rightarrow K_S\pi^0\pi^+$  and the  $D^0 \rightarrow K_S\pi^-\pi^+$  modes.

### Consent

I consent to recording/broadcasting my presentation.

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