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The first observation of narrow peak and isospin-violating $\Lambda(1405)$ production

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In this talk I will discuss the triangle mechanism in Λ_c decay and isospin-violating $\Lambda(1405)$. This process is prohibited by the isospin symmetry, but the decay into this channel is enhanced by the contribution of the triangle diagram, which is sensitive to the mass of the internal particles. Interestingly, a first narrow peak was observed in the $\pi^0 \Sigma^0$ invariant mass distribution, which originates from the $\Lambda(1405)$ amplitude, but is tied to the mass differences between the charged and neutral \bar{K} or N states. The observation of the unavoidable peak of the triangle singularity in the isospin-violating $\Lambda(1405)$ production would provide further support for the hadronic molecular picture of the $\Lambda(1405)$ and further information on the $\bar{K} N$ interaction.

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