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## Charmless three body decays at LHCb

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The study of charmless three body decays with final states including a  $K^0$  meson has an extensive number of application.

In this talk a review of the recent and ongoing analyses at LHCb will be reported. First, a search for previously unobserved decays of beauty baryons to the final states  $K_S^0 p \pi^-$  and  $K_S^0 p K^-$  is reported. The analysis is based on a data sample corresponding to an integrated luminosity of  $1.0 \text{ fb}^{-1}$  of pp collisions. The  $\Lambda_b^0 \rightarrow K_S^0 p \pi^-$  decay is observed for the first time with a significance of  $8.6 \sigma$ , and a measurement is made of the  $CP$  asymmetry, which is consistent with zero.

Moreover, with the recent measurement of branching fractions of the  $B_{(s)}^0 \rightarrow K_S^0 h^+ h'^-$  decay modes ( $h^{(\prime)} = \pi, K$ ) with 2011 data, a number of developments have been performed towards the analysis of the full dataset. In particular, the details considering a time integrated untagged Dalitz plot analysis will be described.

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