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## Investigation of $\Lambda p$ invariant mass spectrum in $K^- + d \rightarrow \Lambda p \pi^-$ reaction

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### Abstract

In the present work, the in-flight kaon interaction on the deuteron target at incident  $K^-$  momentum of  $p_K = 760$  MeV/c is investigated in the  $\Lambda$  channel by a phenomenological potential model. By considering the effect of  $\Sigma^{*-}(1385)$  resonance in the  $\Lambda p$  invariant mass spectra comes from  $K^- d \rightarrow \Lambda p \pi^-$  reaction, and a comparison between theoretical spectra and Braun's data, we found the best theoretical spectrum fitted to the experimental data. The energy and width of  $\Lambda p$  resonance state are respectively extracted  $E_{\Lambda p} = 0$  MeV and  $\Gamma_{\Lambda p} = 9$  MeV from the fitting process.

**Keywords:** kaonic nuclei,  $K^- - d$  interaction and  $\Lambda p$  resonance state

For full article, refer to the Persian section