

# BOX-DIAGRAM CALCULATION OF KAON PHOTOPRODUCTION AT $K^* \Lambda$ AND $K^* \Sigma$ THRESHOLDS

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In this work, we present contribution of box-diagram with  $\gamma + p \rightarrow K^* Y \rightarrow K_S^0 + \Sigma^+$  process to study anomaly of the  $K_S^0 \Sigma^+$  photoproduction cross section from CBELSA/TAPS experiment at Electron Stretcher Accelerator ELSA of Bonn University [1]. We use the Cutkosky rules scheme [2] to calculate imaginary part of scattering amplitude in the box-diagram at  $K^* \Lambda$  and  $K^* \Sigma$  thresholds. We found that the on-shell approximation of intermediated particles of such process can describe the anomaly of differential cross section from the experimental data.

[1] R. Ewald, B. Bantes, O. Bartholomy, D. Bayadilov, R. Beck, Y. A. Beloglazov, K. T. Brinkmann and V. Crede *et al.*, Phys. Lett. B **713**, 180 (2012) [arXiv:1112.0811 [nucl-ex]].

[2] R. E. Cutkosky, J. Math. Phys. **1**, 429 (1960).

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