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Cascade production in antikaon reactions with protons and nuclei

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We study the meson-baryon interaction in S-wave in the strangeness S=-1 sector using a chiral SU(3) Lagrangian extended to next-to-leading order (NLO). Our model has 7 new parameters, which have to do with NLO terms in the chiral Lagrangian, and which are fitted to the large set of experimental data available for different two-body channels. We pay particular attention to the K- p –> K Cascade reactions, where the effect of the NLO terms in the Lagrangian is very important. In order to improve our model in these particular channels, we take into account phenomenologically the effects of the high spin hyperonic resonances, namely Sigma(2030) (7/2^+) and Sigma(2250) (5/2^-). Some preliminary results can be found in Refs. [1]. Finally, the developed model is applied to simulate the Cascade production in nuclei.

[1] V.K. Magas, A. Feijoo Aliau, A. Ramos, arXiv:1311.5025 [hep-ph]; arXiv:1402.3971 [hep-ph].

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