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## Constraining the $\pi\Sigma - \bar{K}N$ models with the $\pi\Sigma$ photoproduction data

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The measurements of  $\pi\Sigma$  mass distributions in the  $\gamma p \rightarrow K^+ \pi\Sigma$  photoproduction reaction [1] probe the energy region of the  $\Lambda(1405)$  resonance, just below the  $\bar{K}N$  threshold, and provide new challenges for the theoretical models of  $\pi\Sigma - \bar{K}N$  coupled channels interactions. Adopting the photoproduction model presented in [2, 3] and the chirally motivated Prague model for  $\bar{K}N$  interactions [4] we performed a first time attempt on a combined fit of the  $K^-p$  low-energy data and the  $\pi\Sigma$  photoproduction mass spectra, without fixing the meson-baryon rescattering amplitudes [5]. The achieved description of the photoproduction mass distributions represents a significant improvement when compared with the parameter free predictions made in [3] but remains inferior to a more comprehensive model presented in [6] that employs much larger set of adjustable parameters, some of them purely phenomenological. I will discuss our current results in view of further upgrades being made to the photoproduction kernel.

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