

Study of $\bar{K}N$ Interactions

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Finding that the $\Lambda(1405)$ consist of $\bar{K}N$ bound state with only a small admixture of elementary threequark state suggests a reasonable model is possible with the $\bar{K}$, N , Σ , and π as elementary particles interacting via potentials or meson-exchange. The work is to work out potentials which would reproduce the low-energy $\bar{K}N$ scattering data, kaonic hydrogen atom data, and transition amplitudes predicted by other theoretical approaches. Unlike interactions in momentum space derived in the framework of quantum field theory, such a potential would be conveniently applied to multi-particle systems. The computational result shows the feasibility of the coupled-channel interactions.

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