

Building a Model to Understand the Singular Behavior of the $\bar{K}N$ Potential in the HAL QCD Method

Friday, April 4, 2025 10:20 AM (25 minutes)

The HAL QCD method has been established as a reliable method to study hadron-hadron interactions. However, singular behavior around the origin has been observed in the $\bar{K}N$ potential, which dynamically generates the $\Lambda(1405)$ as the bound state. In order to clarify the cause of such behavior in the HAL QCD method, we calculate the NBS wave functions and R correlators in an effective model of hadron-hadron interactions and compare it with the $\bar{K}N$ potential in the HAL QCD method.

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Session Classification: Plenary Session