Four-body calculation of ${}^4_\Lambda$H and ${}^4_\Lambda$He with realistic YN and NN interactions

Emiko Hiyama

High energy accelerator Research Organization (KEK)
Oho 1-1, Tsukuba 305-0801, Japan
e-mail: hiyama@post.kek.jp

Abstract

Precise four-body calculations for ${}^4_\Lambda$He and ${}^4_\Lambda$H have been performed in the framework of the variational method with Jacobian-coordinate Gaussian-basis functions. All the rearrangement channel of both $NNN\Lambda$ and $NNN\Sigma$ are explicitly taken into account for the first time with the use of realistic NN and YN interactions. The role of Λ-Σ conversion and the amount of the virtual Σ-component in ${}^4_\Lambda$He and ${}^4_\Lambda$H are discussed.