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Application of the Misner's method to the coupled-channel NΛ-NΣ potential in lattice QCD

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The baryon-baryon interaction in the strangeness =-1 channel was recently analysed by using the lattice QCD data near the physical point combined with the HAL QCD method [1]. In the present contribution, we show our first attempt to extract the coupled-channel NΛ-NΣ potential from thesame data by using the Misner's method which is known to be a reliable way to perform the partial wave decomposition on the lattice [2,3]. The resultant potential is used to calculate scattering phase shifts and the mixing parameter for the low energy scattering in the 1S0 and 3SD1 channels.
[1] H. Nemura, AIP Conference Proceedings 2130, 040005 (2019).
[2] C. W. Misner, Class. Quant. Grav. 21 (2004) S243.
[3] T. Miyamoto et al., Phys. Rev. D 101 (2020) 074514.

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