Contribution ID: **36** Type: **Contributed**

Pion-nucleon ¥$sigma$ term by the pion deep bound states

Thursday, 8 June 2023 18:00 (20 minutes)

We investigate the possibility to determine the value of the pion–nucleon sigma term precisely by the experimental observables of the deeply bound pionic atoms. We discuss the sensitivity of the observables of the deeply bound pionic atoms to the value of the sigma term. We find that the gap of the binding energies and the width of the deeply bound pionic states are good quantities for the sigma term determination by the experimental data. We also discuss the expected difficulties for the accurate determination of the value of the sigma term due to the correlation between the sigma term and the potential parameter in the pion–nucleus optical potential. This abstarct is based on Ref. [1].

[1] Natsumi Ikeno et al., arXiv:2204.09211v2 [nucl-th]

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Session Classification: Hadrons in hot and nuclear environment

Track Classification: Hadrons in hot and nuclear environment