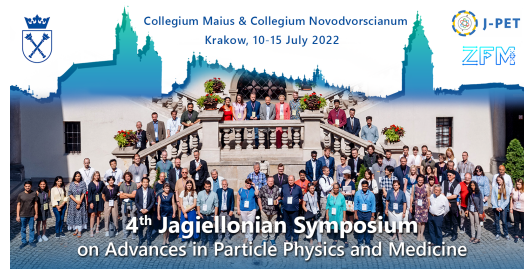


4th Jagiellonian Symposium on Advances in Particle Physics and Medicine



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Invited talk: Sensitivity of the deeply bound pionic atoms to the pion-nucleon sigma term

Tuesday, 12 July 2022 15:20 (20 minutes)

The deeply bound pionic atom is known to be a very useful system to investigate the pion properties and the aspects of chiral symmetry at finite density. The pion-nucleon sigma term $\sigma\pi N$ is one of the essential quantities to investigate the value of the chiral condensate in the nuclear medium. However, the $\sigma\pi N$ value has not been determined accurately enough. Therefore, it seems to be very interesting to determine the $\sigma\pi N$ value by the deeply bound pionic atoms.

We have theoretically studied the sensitivity of the observables of the deeply bound pionic atoms to the pion-nucleon sigma term $\sigma\pi N$ to investigate the possibility of the precise determination of the value of $\sigma\pi N$ by the accurate data of the deeply bound pionic atoms expected to be obtained at RIBF/RIKEN. I will give a presentation based on the paper of Ref. [1].

[1] N. Ikeno, T. Nishi, K. Itahashi, N. Nose-Togawa, A. Tani and S. Hirenzaki, arXiv:2204.09211 [nucl-th].

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