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Charge symmetry breaking in light hypernuclei

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Collaboration

A1

Abstract content

At the Mainz Microtron MAMI the high-resolution spectroscopy of decay-pions in strangeness electro-production is used to extract the Λ hyperon ground state binding energy in ${}^{4}_{\Lambda}$H. This binding energy is used together with the ${}^{4}_{\Lambda}$He ground state binding energy from nuclear emulsion experiments and with energy levels of the 1^+ excited state for both hypernuclei from γ-ray spectroscopy to address the charge symmetry in the strong interaction. The full understanding of the large and spin-dependent breaking of this symmetry in the $A = 4$ hypernuclei still remains one of the open issues of hypernuclear physics.

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