

# Evaluating in-medium $\Lambda$ isospin impurity from charge symmetry breaking in four-body hypernuclei

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We report on our recent result [1] concerning in-medium  $\Lambda$  isospin impurity derived from charge symmetry breaking (CSB) in the mirror hypernuclei  ${}^4\text{H} - {}^4\text{He}$ . Using pionless effective field theory and partially conserved baryon-baryon SU(3) flavor symmetry we find that the in-medium admixture amplitude  $calA_{I=1}$  in the dominantly isospin  $I = 0$   $\Lambda$  hyperon retains its free-space value  $\approx 1.5\%$  inferred by Dalitz and von Hippel [2] and recent QCD+QED lattice calculations [3]. In agreement with recent work [4] we observe that CSB affects spin-singlet and spin-triplet  $\Lambda N$  channels differently - in opposite directions, with the former dominating by an order of magnitude. This difference might be explained as a consequence of SU(3) flavor symmetry.

[1] M. Schafer, N. Barnea, A. Gal, arXiv:2202.07460v2 [nucl-th] (2022).

[2] R. H. Dalitz and F. von Hippel, Phys. Lett 10, 153 (1964).

[3] Z. R. Kordov, R. Horsley, Y. Nakamura et al. Phys. Rev. D 101, 034517 (2020).

[4] J. Haidenbauer, U.-G. Meissner, and A. Nogga, Few-Body Syst. 62, 105 (2021).

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