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# Charge Symmetry Breaking in strange nuclei

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The Charge Symmetry of the strong interaction requires that nn and
pp interaction strengths are equal. As a consequence, the energy levels of nuclear isospin multiplets are expected to be identical, after correcting for the Coulomb energy difference. The breaking of this symmetry manifests itself in experiments at a level of ~0.07 MeV for the NN interaction in normal, not strange, nuclei.

In Lambda hypernuclei, where the Lambda-N interaction acts, the breaking is predicted to be ~0.05 MeV by theoretical models which do not consider the effects of Lambda-N - Sigma-N coupling and of the three-body LambdaNN forces. However, from the experimental side, a large value of binding energy difference has been found for the A=4 isospin doublet, 4LambdaH - 4LambdaHe, in experiments based on emulsion techniques in the seventies. The same experiments gave also indications about the binding energy difference in A=7, 8, 10, 12 isomultiplets which did not show a substantial breaking effect.

In the last few years, several magnetic spectrometers provided high precision results in the field of Hypernuclear Physics. In particular, the accurate determination of the Lambda-binding energy for A=7, 10, 12, 16 systems contributed to stimulate considerably the discussion about the Charge Symmetry Breaking effect in Lambda-hypernuclei isomultiplets. Also for the A=4 isospin doublet, very precise measurements of 4LambdaH ground state binding energy and
of 4LambdaHe first excited state energy have been obtained.

This contribution aims at making an overview on Charge Symmetry
Breaking in s- and p-shell Lambda-hypernuclei, focusing on recent experimental results and analyses.

## Selected session

Nuclear Structure, Spectroscopy and Dynamics

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