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# Recent experiments probing isospin symmetry

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The formal concept of isospin has been introduced to explain the apparent exchange symmetry between neutrons and protons [1]. However, if the nuclear force were the same for protons and neutrons properties such as masses and excitation energies would depend only on the mass number A. Hence, in the absence of isospin-non-conserving effects, two isobaric analog states would be completely degenerate. Naturally, this is never the case since the Coulomb force will lift this degeneracy, but a large degree of symmetry is expected to remain in the underlying wave functions.

In recent years, many theoretical [2–4] and experimental [5–21] efforts have been devoted to study the origin of these isospin asymmetries. Isospin-symmetry-breaking probes include Triplet Energy Differences (TED) [5–11] and Mirror Energy Differences (MED) [12–20], where differences in excitation energies between isobaric analog states are analysed in all three $T_z$ = −1, 0, 1 members of a T = 1 triplet for the former, and in mirror pairs for the latter. These studies have shown that electromagnetic effects within the shell model alone cannot explain these energy differences, suggesting other effective isospin-non-conserving (INC) interactions are missing from current models.

In this talk, the outcome of recent experiments intended to improve our understanding of isospin-symmetry breaking effects will also be presented, including the first observation of γ-rays between states in $^{94}$Ag.

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## session

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