

# **On the dominance of symplectic symmetry in atomic nuclei, and its roots in an effective field theory**

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## **Abstract**

A brief review of the important role symmetries played in our gaining a deeper understanding nuclear structure will be presented. And then we will consider the special role the symplectic symmetry plays in exposing a "dominance of deformation" as found via enhanced  $B(E2)$  rates across the Chart of the Nuclides. And additionally, we will show how the No-Core Symplectic Shell Model (NCSpM) emerges very naturally from an Symplectic Effective Field Theory. Examples will be used to illustrate excitation spectra, strongly enhanced  $B(E2)$  transition rates, and nuclear radii for various light and medium-mass nuclei.