*A Crack in Nuclear Mirror Symmetry*

**Daniel Hoff**

*Department of Physics and Applied Physics
University of Massachusetts Lowell, USA*

*E-mail: Daniel\_Hoff@uml.edu*

Symmetries are ubiquitous in nature, and the observation of symmetry breaking often leads to new insights in physics. Within nuclear physics, it is possible to consider neutrons and protons as isospin projections of a single fermion. Nuclear states can then be characterized by a total isospin (or isobaric spin *T*) and this quantity is largely conserved in reactions and decays. A mirror symmetry emerges from this formalism; nuclei with exchanged numbers of neutrons and protons, or mirror nuclei, should have an identical set of states, including their ground state. Despite knowing that isospin symmetry is not perfect, it has proved to be rather robust across the chart of nuclides. In this talk, I will show evidence for mirror-symmetry violation in bound nuclear ground states between the mirror partners 73Sr and 73Br. By analyzing the beta-delayed proton emission of 73Sr, a spin assignment of *Jπ* = 5/2− is needed to explain the proton-emission pattern observed from the *T*= 3/2 isobaric-analog state in 73Rb, which is identical to the ground state of 73Sr. Therefore, the ground state of 73Sr must diﬀer from its *Jπ* = 1/2− mirror 73Br.