



## Physics Division Seminar

**Jack Henderson**

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### **Isobaric Analogue State Inversion in Mirror Nuclei**

Host: Ben Kay

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**Monday, April 13, 2020 – 3:30 PM - Via BlueJeans**

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Please join us for the next Physics Division Seminar via BlueJeans. On Monday (4/13/20) slightly before 3:30 pm go to the meeting URL: <https://bluejeans.com/494035704>

Once logged in, you'll be given the option to use your computer for audio, or your phone for audio. Follow the instructions.

**Abstract:** Isospin is an approximate symmetry in atomic nuclei, arising from the rather similar properties of protons and neutrons. Perhaps the clearest manifestation of isospin within nuclei is in the near-identical structure of excited states in mirror nuclei: nuclei with inverted numbers of protons and neutrons. Isospin symmetry, and therefore mirror-symmetry, is broken by electromagnetic interactions and the difference in the masses of the up and down quarks. A recent study presented evidence that the ground-state spin and parity of  $^{73}\text{Sr}$  is different from that of its mirror,  $^{73}\text{Br}$ , due to an inversion of the ground- and first-excited states, separated by only 27 keV in the  $^{73}\text{Br}$  system. Here, I employ the abundance of experimental data in less-exotic nuclear systems to demonstrate that the proposed inversion of state-ordering is consistent with expected isospin-symmetry breaking behaviour and does not require the invoking of additional breaking effects.