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Half-Lives of the Neutron-Rich $N \approx 82$ Isotopes $^{128-130}$Cd and ^{131}In RYAN DUNLOP, University of Guelph, GRIFFIN COLLABORATION — Half-lives of $N = 82$ nuclei below doubly-magic ^{132}Sn are key input parameters for calculations of any astrophysical r-process scenario and play an important role in the formation and shape of the second r-process abundance peak. Shell-model calculations of neutron-rich nuclei near the $N = 82$ neutron shell closure that are not yet experimentally accessible have been performed by adjusting the quenching of the Gamow-Teller (GT) operator to reproduce the ^{130}Cd half-life. The calculated half-lives of other nuclei in the region are known to be systematically too long. Recently, a shorter half-life for ^{130}Cd was measured that resolves this discrepancy by scaling the GT quenching by a constant factor for all of the nuclei in the region. However, the reduced quenching of the GT operator creates a new discrepancy in the calculated half-life of ^{131}In. The measurement of ^{131}In is complicated due to the presence of three known β-decaying states with roughly the same half-life, making photopeak gating an ideal method to measure each of these half-lives. In this talk, the half-lives of $^{128-130}$Cd and ^{131}In, as well as the spectroscopy of ^{131}Sn, measured using the GRIFFIN γ-ray spectrometer at TRIUMF will be presented.

Ryan Dunlop
University of Guelph

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