

Abstract Submitted
for the SES21 Meeting of
The American Physical Society

Exploring the Level Structure of ^{59}Co ¹ SAMUEL AJAYI, VANDANA TRIPATHI, ELIZABETH RUBINO, REBEKA LUBNA, CALEB BENETTI, SAMUEL TABOR, Florida State University, YUTAKA UTSUNO, Advanced Science Research Center, Japan Atomic Energy Agency, NORITAKA SHIMIZU, Center for Nuclear Study, University of Tokyo, JAMES ALLMOND, Oak Ridge National Laboratory, USA — Fusion evaporation reaction induced by a beam of 43MeV ^{14}C on a ^{48}Ti target has been used to populate the high spin levels in ^{59}Co . Emitted γ rays were detected using the FSU clover array which consists of 6 high purity germanium clover detectors (with BGO shields for Compton suppression) and a few single crystal detectors all placed at 3 different angles. The directional correlation from oriented states (DCO ratio) was measured using ratios of intensities from detectors at 90° and 135° . The polarization was also measured, which in addition to the DCO ratio was used to determine the spin and parity of the new energy levels in the ^{59}Co . Previously known spins in the ^{59}Co were confirmed and their parity was assigned. Level scheme of the ^{59}Co has been extended to 11139keV with $J^\pi = 31/2+$. The result was compared with the theoretical shell model calculations within the fp-g_{9/2} shells valence space and was found to agree up to the single particle excitation. Using same beam on ^{50}Ti target. preliminary results of ^{61}Co are also presented here. This work was supported by the U.S. National Science Foundation under grant number Phy-2012522.

¹This work was supported by the U.S. National Science Foundation under grant number Phy-2012522.

Samuel Ajayi
Florida State University

Date submitted: 28 Sep 2021

Electronic form version 1.4