Abstract Submitted
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Exploring the higher spin state structure of ^{31}Si by γ-ray spectroscopy[1] PEI-LUAN TAI, SAMUEL TABOR, PETER BENDER, L. HAMILTON, V. TRIPATHI, C. HOFFMAN, Florida State University, R.M. CLARK, P. FALLON, A. O. MACCHIAVELLI, S. PASCHALIS, M. PETRI, Lawrence Berkeley National Laboratory, M.P. CARPENTER, R.V.F. JANSSENS, T. LAURITSEN, E. A. MACCUTCHAN, D. SEWERYNIAK, S. ZHU, C. CHIARA, Argonne National Laboratory, X. CHEN, W. REVIOL, D.G. SARANTITES, Washington University — We present a comprehensive γ-ray spectroscopic study to the higher spin structure of ^{31}Si. ^{31}Si was produced through the ^{18}O(^{18}O,αn) reaction at the beam energy of 25 MeV at Argonne National Laboratory, which preferentially populates the higher spin states. The particle-γ-γ coincidence technique was used to build the energy level scheme. The Microball detector was used for selecting the reaction channel, and the multiple γ-ray coincidences were detected by GAMMASPHERE. The ^{31}Si recoil energies and angles were kinematically reconstructed event-by-event, leading to a better Doppler correction and allowing us to discover 25 new states and 49 newly-observed γ transitions in total. 15 γ-decaying states above the neutron separation energy at 6587 keV were identified.

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