

Abstract Submitted
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Recent research on the structure of ^{31}Si ¹ PEI-LUAN TAI, LEANNE HAMILTON, PETER BENDER, SAMUEL TABOR, VANDANA TRIPATHI, CALEM HOFFMAN, Physics Department Florida State University, RODERICK CLARK, PAUL FALLON, AUGUSTO MACCHIAVELLI, S. PASCHALIS, M. PETRI, Lawrence Berkeley National Laboratory, MICHAEL CARPENTER, ROBERT JANSSENS, T. LAURITSEN, E.A. MCCUTCHAN, D. SEWERYNIAK, S. ZHU, C. CHIARA, Argonne National Laboratory, X. CHEN, W. REVIOL, D. SARANTITES, Chemistry Department, Washington University — ^{31}Si was produced through the ^{18}O (^{18}O , αn) reaction at the beam energy of 25 MeV, which preferentially populates the high spin states. The α particles were detected in Microball and the multiple γ -ray coincidences were detected by Gammashpere. Event by event kinematic correction of the ^{31}Si recoil energies and angles using information from Microball on the energies and angles of the α evaporations led to a better Doppler correction, which allowed us to discover 5 more new states and 15 new transitions in addition to the 11 more states and 22 γ transitions found before kinematic correction compared to earlier works. A strong competition is seen between negative-parity “intruder” states and positive-parity pure s-d states. Shell model calculations agree relatively well with both groups of states.

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