

Abstract Submitted  
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**Detailed spectroscopy of  $^{219}\text{Th}$** <sup>1</sup> W. REVIOL, D.G. SARANTITES, C.J. CHIARA, O.L. PECHENAYA, M. MONTERO, Washington University, M.P. CARPENTER, R.V.F. JANSSENS, T.L. KHOO, T. LAURITSEN, C.J. LISTER, D. SEWERYNIAK, S. ZHU, Argonne National Laboratory — The previously unexplored nucleus  $^{219}\text{Th}$  has been studied, using the  $^{198}\text{Pt}(^{26}\text{Mg},5n)$   $E_{\text{lab}}=128$  MeV (ATLAS) fusion-evaporation reaction and the Gammasphere + HERCULES detector combination. The level scheme constructed from evaporation-residue selected  $\gamma$ -ray coincidence data has the following features: The ground state E2 sequence [neutron  $(g_{9/2})^3$ ] shows a vibrational-like behavior. Another positive-parity E2 sequence is present and concurs with the picture of weak coupling of an  $h_{11/2}$  neutron to the  $^{218}\text{Th}$  core. Among the set of negative-parity states is a short E2 sequence that forms, together with the  $h_{11/2}$  sequence, an octupole-type band. The discussion will focus on the latter band structure. A trend for parity doublets in odd-mass Th nuclei will be presented.

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