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Identification of high spin states in ^{134}I from ^{252}Cf fission S.H. LIU, J.H. HAMILTON, A.V. RAMAYYA, J.K. HWANG, Y.X. LUO, Vanderbilt University, J.O. RASMUSSEN, Lawrence Berkeley National Laboratory, S.J. ZHU, Tsinghua University — High spin states in ^{134}I have been identified for the first time based on measurements of prompt gamma rays from the spontaneous fission of ^{252}Cf at Gammasphere. Five excited levels with five deexciting transitions have been observed. The mass number was assigned based on the intensity of transitions in the complementary Rh fragments. It is likely that the observed yrast cascade of ^{134}I is built on the 316.3 keV 8^- isomeric state with a configuration of $\pi(1g_{7/2})$ $\nu(1h_{11/2})^{-1}$ based on the systematics of the ground states and isomeric states in ^{132}I, ^{136}I, ^{132}Sb and ^{136}Cs. Angular correlations for the first two transitions in ^{134}I and for high spin states in ^{133,135,136}I were performed, but were not sufficient to firmly assign the spins and parities in ^{134}I. A. Covello and his collaborators have prepared a paper on shell model calculations for ^{134}I. Their results are 0 (8^-), 1022 (10^-), 1674 (11^-), 1905 (12^-), 2439 (13^-), and 3142 keV (14^-) energies, which are in good agreement with all the level energies reported here. Details of this work will be presented. Work supported by the U.S. Department of Energy under Grants and Contract Nos. DE-FG05-88ER40407 and DE-AC03-76SF00098.

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