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Cross-Shell Excitations and High Spins in 41K and 41Ca[1] ELIZABETH RUBINO, REBEKA LUBNA, SAMUEL TABOR, VANDANA TRIPATHI, MARIA ANASTASIOU, BENJAMIN ASHER, LAGY BABY, JONATHAN BARON, DAVID CAUSSYN, DAVID CLARKE, JESUS PERELLO, KONSTANTINOS KRAVVARIS, NABIN RIJAL, KALISA VILLAFANA, ALEXANDER VOLYA, Florida State Univ, JAMES ALLMOND, Oak Ridge National Laboratory — The work to be presented here investigates the nuclear structure of 41K and 41Ca, both of which have one or more nucleons in the fp-shell in their ground state congurations. These nuclei play a signicant role in exploring the N = 20 shell gap. This work was carried out using fusion-evaporation reactions at Florida State Universitys Jon D. Fox Superconducting Linear Accelerator Laboratory: 26Mg(18O,3n)41K and 26Mg(18O,p2n)41Ca. The 18O beam energy was 50 MeV and the target (26Mg) consisted of two foils that were approximately 400 microns thick each. The data analysis resulted in the determination of a number of new energy levels and transitions along with newly proposed spins and parities. This information will be used to aid in rening a shell model interaction for cross-shell nuclei.

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