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Magnetoelectric Coupling through the Spin Flop Transition in Ni3TeO6 MICHAEL YOKOSUK, AMAL AL-WAHISH, Univ of Tennessee, Knoxville, SERGEY ARTYUKHIN, Rutgers University, Italian Institute of Technology, KENNETH O'NEAL, DIPANJAN MAZUMDAR, PENG CHEN, Univ of Tennessee, Knoxville, JUNJIE YANG, Pohang University of Science and Technology, YOON SEOK OH, Rutgers University, STEPHEN MCGILL, National High Magnetic Field Laboratory, Florida State University, KRISTJAN HAULE, Rutgers University, SANG-WOOK CHEONG, Rutgers University, Pohang University of Science and Technology, DAVID VANDERBILT, Rutgers University, JANICE MUSFELDT, Univ of Tennessee, Knoxville — We combined high field optical spectroscopy and first principles calculations to analyze the electronic structure of Ni3TeO6 across the 53 K and 9 T magnetic transitions, both of which are accompanied by large changes in electric polarization. The color properties are sensitive to magnetic order due to field-induced changes in the crystal field environment, with those around Ni1 and Ni2 most affected. These findings advance the understanding of magnetoelectric coupling in materials in which magnetic 3d centers coexist with nonmagnetic heavy chalcogenide cations.

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