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**Understanding the totally symmetric intramolecular vibrations in  $\kappa$ -phase organic superconductors** J.T. HARALDSEN, R. WESOLOWSKI, J. CAO, J.L. MUSFELDT, University of Tennessee, I. OLEJNICZAK, Polish Academy of Sciences, J. CHOI, University of Tennessee, Y.J. WANG, Florida State University, J.A. SCHLUETER, Argonne National Laboratory — We report magneto-infrared measurements of three quasi- isostructural  $\kappa$ -phase organic molecular solids:  $\kappa$ -(ET)<sub>2</sub>Cu[N(CN)<sub>2</sub>]Br ( $T_c$ =11.6 K),  $\kappa$ -(ET)<sub>2</sub>Cu(SCN)<sub>2</sub> ( $T_c$ =10.4 K), and the non-superconducting  $\kappa$ -(ET)<sub>2</sub>Cu[N(CN)<sub>2</sub>]Cl analog. Our results support the contributing role of electron-molecular vibrational coupling in the pairing mechanism of layered organic superconductors, and we identify the most important totally symmetric modes in  $\kappa$ -(ET)<sub>2</sub>Cu[N(CN)<sub>2</sub>]Br within the non-planar molecular building block picture.

J.T. Haraldsen  
University of Tennessee

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