TRANSITION MOMENT TILTING: THE CONFORMATIONAL DEPENDENCE OF THE $S_1 \leftarrow S_0$ ELECTRONIC TRANSITION MOMENT IN SOME ALKYL BENZENES [a]

DAVID R. BORST, PAUL W. JOIREMAN, and DAVID W. PRATT, *Department of Chemistry, University of Pittsburgh, Pittsburgh PA 15260*; EVAN G. ROBERTSON and JOHN P. SIMONS, *Physical and Theoretical Chemistry Laboratory, Oxford University, Oxford, UK.*

The high resolution $S_1 \leftarrow S_0$ electronic spectrum of ethyl, n-propyl, and n-butylbenzene have been recorded in a molecular beam. Propyl and butylbenzene exhibit multiple electronic origins with different hybrid band characters as a result of conformational isomerism of the attached flexible chain. The measured rotational constants permit the unambigious assignments of the different origins to specific conformers. Comparison of experiment to the predicted band types based on inertial effects alone show that the electronic structure of the aromatic ring is influenced by the conformation of the attached group.

[a] Work supported by NSF and PRF.