THE $S_1 \leftarrow S_0$ FLUORESCENCE EXCITATION SPECTRA OF ANISOLE AND STYRENE USING HIGH RESOLUTION TECHNIQUES

JASON W. RIBBLETT and DAVID W. PRATT, *Department of Chemistry, University of Pittsburgh, PA 15260*.

Anisole (methoxybenzene) and styrene (vinylbenzene) are similar chemical species. However, their electronic structures are very different. In this report, we describe the rotationally resolved fluorescence excitation spectra of the $S_1 \leftarrow S_0$ origin bands of anisole and styrene. Both spectra are similar in overall appearance. However, a detailed analysis of the two spectra shows that the $S_1 \leftarrow S_0$ optical transition moments have quite different orientations in the respective molecular frames. The results will be interpreted in the framework of a state-mixing model for the S_1 states of the two molecules.