EXPERIMENTAL MANIFESTATIONS OF THE JAHN-TELLER EFFECT

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Molecules in orbitally degenerate states are subject to a number of effects that typical molecules are not. One such effect is Jahn-Teller coupling, which is the coupling between the vibrational and electronic angular momenta. This talk will review how Jahn-Teller coupling is manifested in the spectroscopy of molecules in degenerate electronic states. Both the vibronic and rovibronic structure of these states will be covered, with particular emphasis on the additional complications that occur when spin-orbit coupling is significant. The electronic spectra of the methoxy radicals (CH_3O, CH_3S, CF_3O, and CF_3S) and of the Cp radical (C_5H_5) will be used to illustrate how the Jahn-Teller effect can be observed experimentally. Lastly, it will be shown how recently developed *ab initio* methods can be used to aid in the interpretation of the experimental spectra of Jahn-Teller molecules.