

New Laser Methods to Access Symmetrical Vibrational States of Acetylene

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Symmetrical vibrational states in the ground electronic state cannot be accessed by one-photon absorption from the ground vibrational state. Raman spectroscopy and one-photon absorption from an asymmetrical excited vibrational state are possible techniques but become unfeasible for highly excited symmetrical vibrations. I shall discuss laser-induced dispersed vibration-rotation fluorescence within the ground electronic state [1-3], continuous wave infrared stimulated emission pumping [4] and double resonance absorption with cavity ring-down spectroscopy [5] to probe symmetrical vibrations of acetylene. The latest development in locking the double resonance laser/laser type beams to stabilized optical frequency combs is also described.

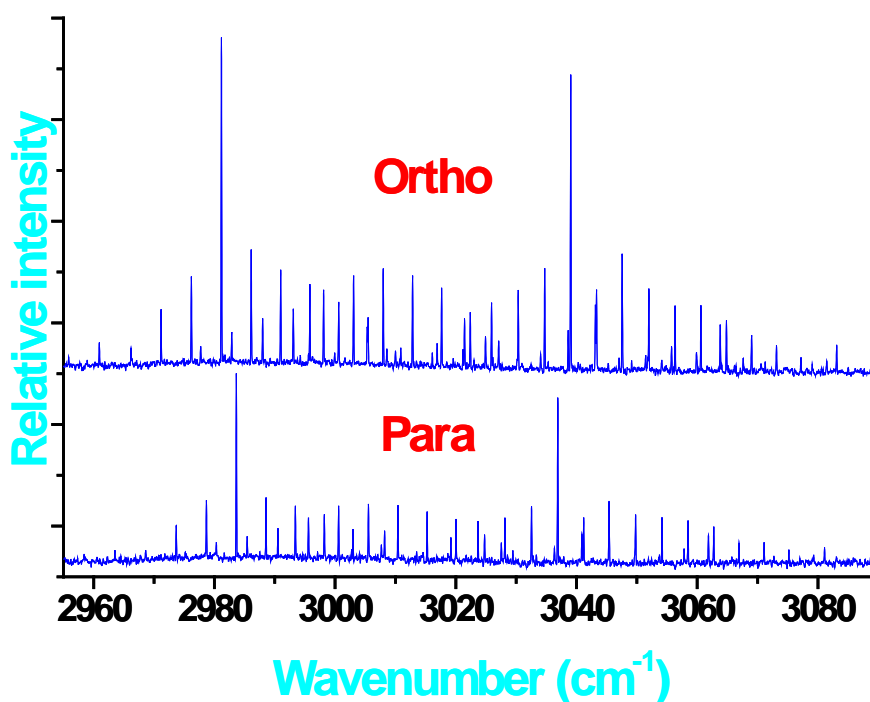


Figure 1: Laser induced dispersed fluorescence spectrum of acetylene

References

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