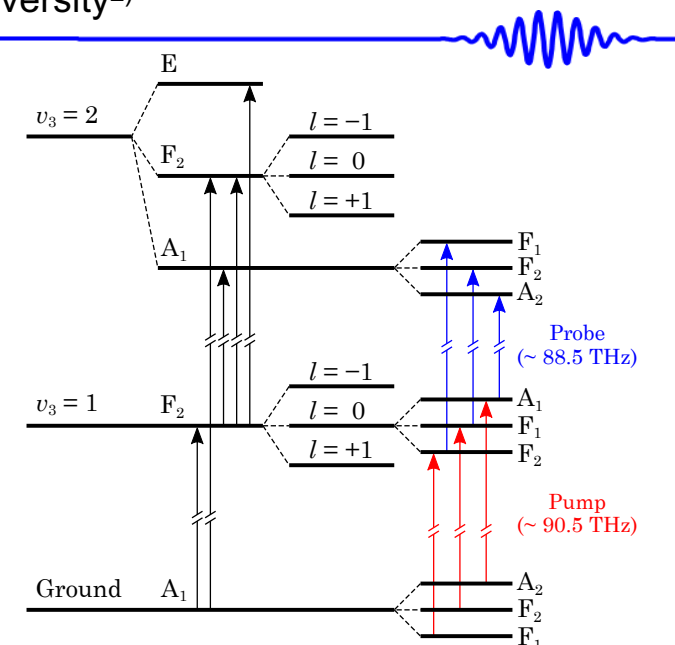


# P4835: PRECISE FREQUENCY MEASUREMENTS OF THE $2\nu_3A_1-\nu_3$ BAND TRANSITIONS OF METHANE WITH COMB-REFERENCED INFRARED-INFRARED DOUBLE-RESONANCE

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- Infrared-infrared double resonance of methane  
Pump: the  $\nu_3$  band, Probe: the  $2\nu_3A_1 - \nu_3$  band  
Sub-Doppler resolution
- Two comb-referenced DFG sources for pump and probe
- Ten transition frequencies of the  $2\nu_3A_1 - \nu_3$  band are determined with an uncertainty of 10 kHz and a relative uncertainty of  $10^{-10}$ .
- Preliminary analysis shows significant interactions between the  $\nu_3=2$   $A_1$  state and the closely lying vibrational states.



|                     |                     |
|---------------------|---------------------|
| Q(3) A <sub>1</sub> | 88 449 013.267 (10) |
| Q(3) F <sub>1</sub> | 88 455 587.133 (10) |
| Q(3) F <sub>2</sub> | 88 460 336.047 (10) |

in MHz