

Things You Should Know

Chapter 3: Rotational Spectroscopy

Be able to define the following terms (using words, equation, or figures):

Moment of inertia	Rotational Constant
Centrifugal Distortion	Principal axis

Concepts and Exercises:

1. Be able to calculate the moments of inertia for linear or planer molecules.
2. Be able to classify molecules into rotational types.
3. Know the rotational selection rules for linear and symmetric top molecules.
4. Know the other requirements for rotational spectra (permanent dipole moment).
5. Understand the pattern of energy levels for both linear and symmetric top molecules in the rigid rotor approximation. Know the basic appearance of the spectrum and be able to calculate r_e for a linear molecule.
6. Be able to do all the exercises.