

Quantum Mechanics

Introduction

CML100

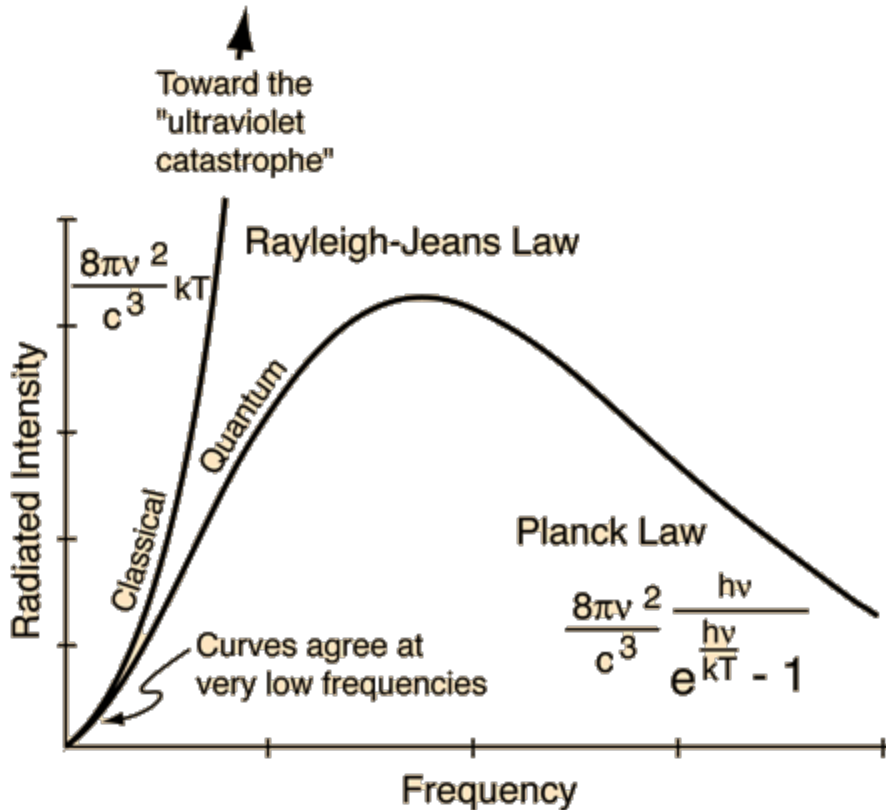
Physical Chemistry

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Suggested Books

- **Atkin' Physical Chemistry**; *Authors- Peter Atkins and Julio de Paula (Text Book)*
- **Physical Chemistry: A Molecular Approach**; Authors: Donald A. McQuarrie and John D. Simon

Black Body radiation



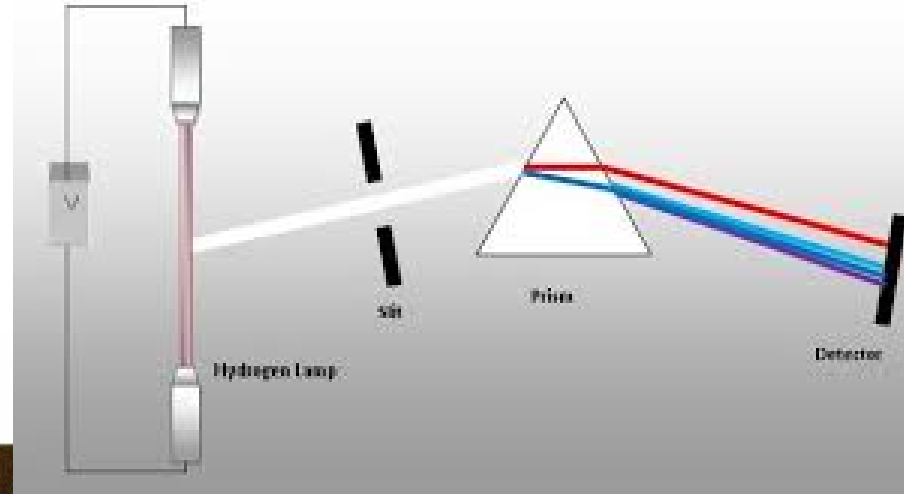
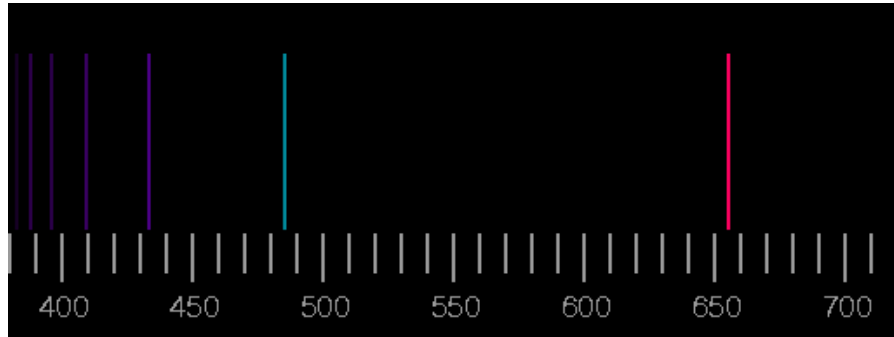
$$\rho(\nu, T) d\nu = \frac{8\pi\nu^2}{c^3} \tilde{E}_{osc} d\nu$$

$$\tilde{E}_{osc} = kT \text{ (Rayleigh - Jeans)}$$

$$\tilde{E}_{osc} = \frac{h\nu}{e^{\frac{h\nu}{kT}} - 1} \text{ (Planck)}$$

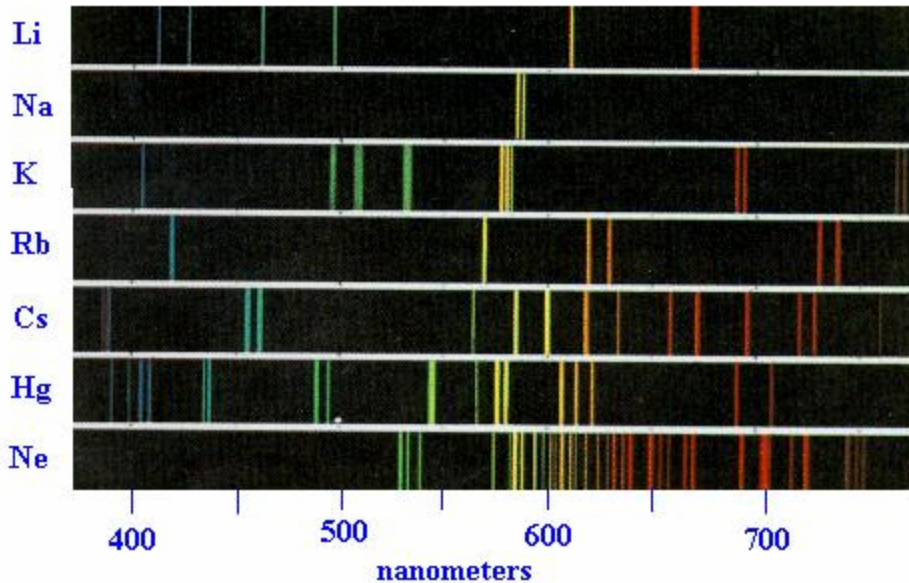
- Energy is exchanged in quanta: $E = nh\nu$

Atomic Spectra



Black Body and Line Spectra

Black Body



$$\tilde{\nu} \text{ (cm}^{-1}\text{)} = R_H \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$