

# LECTURE 13/36

## — PRE QUANTUM MECHANICS

EM WAVES

BLACKBODY RADIATION

PHOTOELECTRIC EFFECT

HYDROGEN SPECTRA

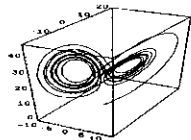
BACKGROUND: OXToby CH 15

READING: CHEMICAL BONDS by HB GREY  
CH. 1 — pgs 1-20

PS # 4. — GREY CH 1

PROBLEMS 4, 5, 8, 9, 13, 17, 18, 19

DUE OCTOBER 18



1885 Balmer series

1886 Hertz confirmed Maxwell's theory of E&M

1887 Michelson-Morley

1890 Rydberg's formula for Atomic Spectra

1895 Röntgen X-rays

1896 Becquerel radioactivity

1897 J. J. Thomson -> e is a particle (cathodic rays)

1899 Wien Law

1900 Rayleigh - Jeans Classical Blackbody

1900 Max Planck Quantized Blackbody

1905 Einstein Photoelectric Effect

1905 Special Theory of Relativity

1907 Einstein Quantized oscillators of any frequency

P. Debye max frequency

1911 Rutherford atomic model of the nuclear charge + a sphere of electrification

1913 Bohr model

1914 Frank Hertz observation of energies in discrete quanta

1922 Stern-Gerlach Space quantization Spin

1924 Compton effect Scattering of X ray by electrons weakly bound to atoms

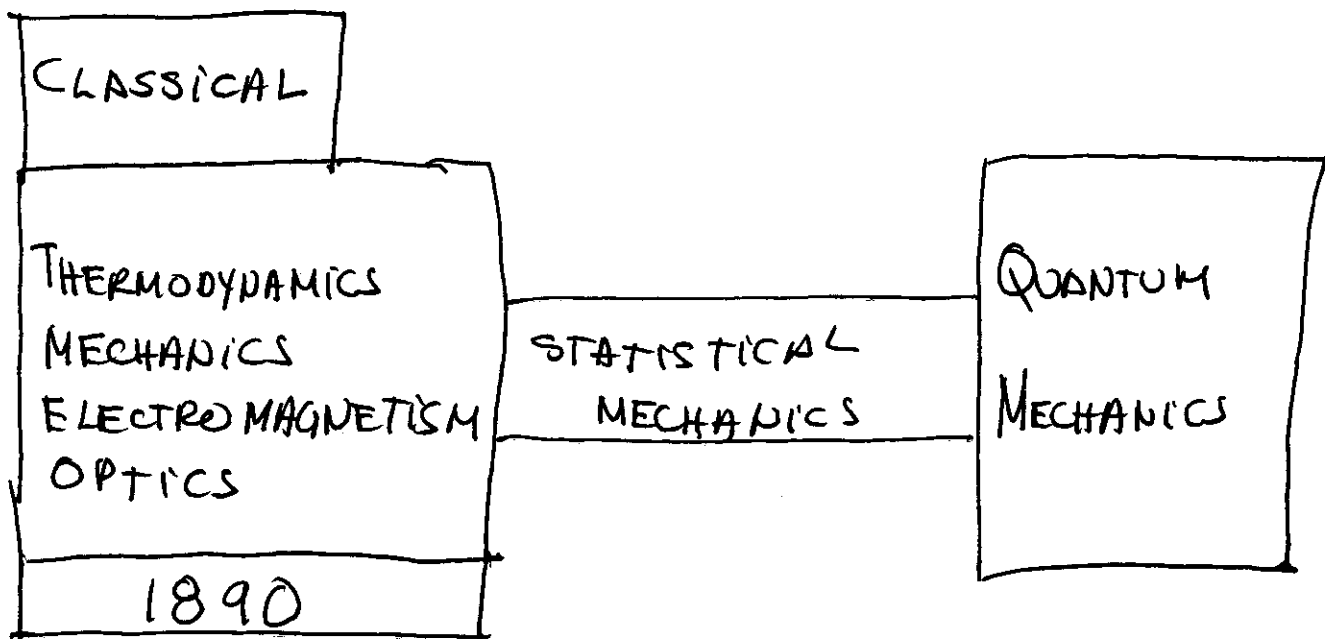
1924 L. de Broglie wavelike behavior of matter

1925 Davisson and Germer diffraction of electrons

1926 Heisenberg Uncertainty Principle

Schrödinger

1927 G.P. Thomson diffraction of electrons by thin films e is a wave



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$$\text{SPEED} \equiv c = \lambda \nu$$

$$c = 2.9979 \times 10^8 \text{ m s}^{-1}$$

$\lambda$  IN METERS

$\nu$  IN  $\text{SEC}^{-1}$

### RYDBERG EQ.

$$\bar{\nu}_H = \frac{1}{\lambda_H} = R_H \left( \frac{1}{n^2} - \frac{1}{m^2} \right)$$

### BOHR MODEL