<u>Historically Significant</u> <u>Experiments</u>

Blackbody Radiation

Ultraviolet Catastrophe (Raleigh, Jeans) Planck's solution Lesson: Energy is not continuous but is quantized Planck's constant h was introduced

Photoelectric effect

Hertz (1886) Einstein's solution (1905) Lesson: Light has a corpuscular/particle character Introduced the concept of a Photon Photon has energy $E=h\nu=hc/\lambda$

Compton effect

Lesson: Light has a corpuscular/particle character and linear momentum $p=h/\lambda$

DeBroglie Wavelength

Lesson: Particles have a wavelength $\lambda = h/p$ Davisson, Germer *Atomic spectra are not continuous* <u>(line spectra)</u>

Balmer Rydberg Explained by Bohr theory Lesson: Angular momentum of electron in atom is quantized In multiples of *h*

Heisenberg Uncertainty Principle

Lesson: Cannot know the location of a particle with absolute precision $\Delta x \Delta p > h/2\pi$