

Physics of Atoms \Rightarrow

QUANTUM-WAVE MECHANICS

via ③ Surprises:

(A) Discrete frequencies of Atomic

Spectra \Leftrightarrow

e^- levels can at certain discrete energies

(B) Planck's Distribution of wave lengths in Hot Black Body Radiation

\Leftrightarrow photon's $E = hf$, & $h =$ Planck's constant (NEW).

(C) The Photo-Electric Effect \Leftrightarrow

Lights $hf = E_{e^-}^{MAX}$

$E_{e^-}^{MAX}$ depends upon f , not Intensity, of light.

NONE of these fits into the
CLASSICAL PHYSICS pre-1890.