ATOMIC PHYSICS LAWS SUMMARY

PRINCIPLE / LAW	CORE EQUATION	DESCRIPTION
Planck's Relation	`E = hf`	Relates the energy of a photon to its frequency using Planck's constant.
Bohr Radius	`râ‚™ = nÂ²aâ‚€`	Defines the discrete orbital radii of an electron in a hydrogen-like atom.
De Broglie Wavelength	`Î» = h / p`	Proposes that all matter exhibits wave-like properties inversely proportional to momentum.
Heisenberg Uncertainty	`Î”x Î”p â‰¥ Ä§ / 2`	States the fundamental limit to the precision with which pairs of physical properties can be known.
Pauli Exclusion Principle	`Ïˆ(1,2) = -Ïˆ(2,1)`	No two fermions can occupy the same quantum state simultaneously within a system.
SchrÃ¶dinger Equation	`Ä¤Ïˆ = EÏˆ`	Describes how the quantum state of a physical system changes over time.

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Photoelectric Effect	`Kâ‚˜â‚â‚“ = hf - Î¦`	The maximum kinetic energy of emitted electrons depends on incident light frequency and work function.