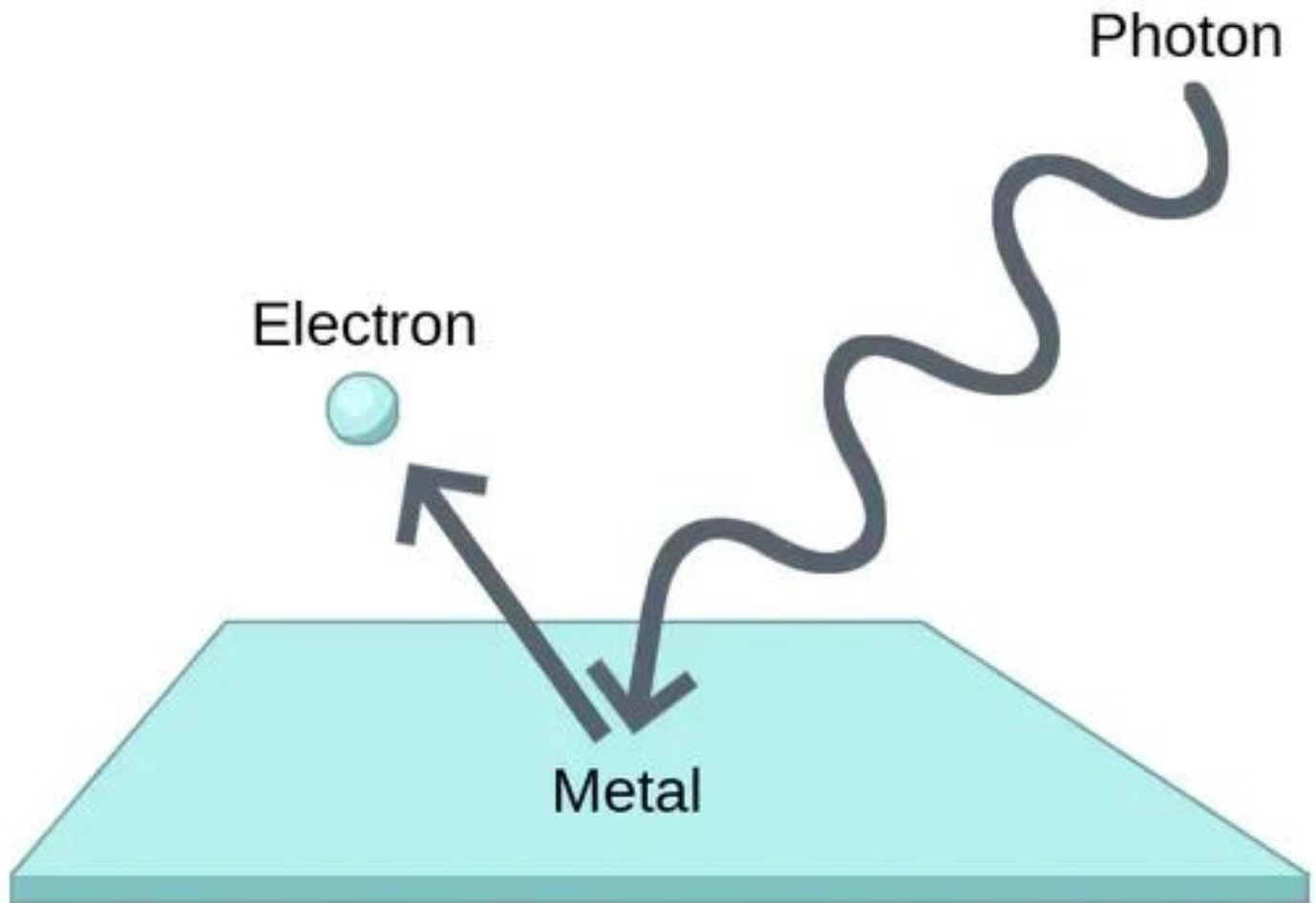


What is Photoelectric Effect?

September 10, 2024 • vajiramandravi.com



About Photoelectric Effect:

- It is a phenomenon where **electrons** are **emitted from a material's surface** when it is **exposed to light** of sufficient frequency.
 - **When light photons hit** the surface of **a material**, usually a metal, they **transfer their energy to** the **electrons**. If this energy is sufficient, the **electrons are emitted from the material**.
 - The **energy must be greater than** the **electron's binding energy**, known as the **work function**, for the electron to be ejected from the material's surface.
 - The **excess energy** from the photon, after overcoming the work function, is **converted into** the **kinetic energy of the ejected electron**.
- **A material** that can **exhibit this phenomenon** is **said to be photo emissive**, and the **ejected electrons** are **called photoelectrons**.
- The effect was **discovered in 1887** by the German physicist **Heinrich Rudolf Hertz**.

- The photoelectric effect is **pivotal in understanding** the **quantum nature of light**, as it reveals that light possesses both wave-like and particle-like properties.
 - This duality is a **cornerstone of quantum mechanics**, illustrating how light can exhibit behaviors characteristic of both waves and discrete particles.
 - The discovery and understanding of the photoelectric effect have profound implications in various scientific and technological fields, including the **development of photovoltaic cells and advanced imaging technologies**.
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Q1: What is a photovoltaic cell?

A photovoltaic (PV) cell, commonly called a solar cell, is a non mechanical device that converts sunlight directly into electricity. Some PV cells can convert artificial light into electricity.

Source: [Superfast studies of photoelectric effect reveal the secrets of matter](#)

Source: <https://vajiramandravi.com/current-affairs/photoelectric-effect/>

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