

# Everything About Quantum in the Year of Quantum

*Gh. Saleh*

*Saleh Research Centre, Netherlands*

If we observe the universe around us, the first thing we notice is the Earth—rotating on its axis at a tremendous speed and orbiting the Sun at an even greater one—speeds so steady and constant that we don't even feel them.

During the day, we see the brilliant, radiant Sun. At night, although the Sun is hidden, the bright Moon takes its place, and the sky glows with the distant light of stars, made even more beautiful by the moonlight.

If we focus on the tiniest particles around us, we first encounter water and air molecules. Smaller than these are atoms, and smaller still are subatomic particles such as electrons. Beyond them lie particles of light—photons—which exist both day and night.

In considering the smallest particles in the universe, we begin with molecules and atoms, then move to electrons, and finally to photons. Photons are the smallest independent particles in terms of mass, size, and other physical properties.

If we wish to define a fundamental unit of energy, photons are an ideal choice. As established in previous discussions, they possess a constant speed, a defined (and extremely small) mass, and unique physical characteristics.

In essence, photons are the tangible form of the smallest packets of energy in the universe— independent, free, and always present. As the saying goes, sometimes the answer is right in front of our eyes; we simply need to look closer. Under the right conditions, photons can be regarded as the foundation of quantum energy.

## **Properties of the Photon:**

- Constant mass
- Constant total speed

According to the foundational definition, quantum signifies "small and discrete packets". This definition of energy in the universe aligns with the classical idea that everything is composed of smaller components. For instance, molecules are composed of atoms, like atoms are made up of protons, neutrons, and electrons. Similarly, photons are discrete packets that form part of larger entities such as electrons, protons, and neutrons.

The photon can be defined as the smallest, lightest, and fastest packet that traverses the universe, existing in all galaxies and circulating throughout the cosmos. The standard quantum energy is essentially the photon, whose energy is calculated using Planck's relation ( $E = h\theta$ ). It is important to note that the energy of a quantum packet is highly variable and depends on its frequency. For example, considering a frequency range from 300 THz to 900 THz, the energy quanta in this narrow band of the electromagnetic spectrum can vary significantly.

To define a standard unit, it must be constant. In the SI system, the unit of length is one meter, which is a fixed measure, and the unit of mass is one kilogram, also a fixed measure. Therefore, to define a standard quantum of energy, we must introduce a unit with a constant value.

If we now seek to define the true classical concept of a quantum, it refers to the smallest



indivisible packet of energy. One of the most accurate representations of such a quantum packet is the photon—an entity that is extremely small, lightest, and travels at the highest possible speed. Photons are ubiquitous, essential for life, and thus serve as the most fitting candidates for representing a quantum of energy. Their constant speed and energy characteristics make them ideal for defining a base unit of energy.

Since we want to define a fixed, fundamental unit of quantum energy, the most appropriate approach would be to consider the photon's constant mass multiplied by the square of its constant speed. As established in earlier works, the actual speed of a photon is 3.3 C. Therefore, the corresponding relationships can be expressed as follows:

$$E_Q = \frac{1}{2} m_p (3.3 C)^2$$

$$E_Q = \frac{1}{2} (1.64 \times 10^{-36}) (3.3 \times 3 \times 10^8)^2$$

$$E_Q = s_Q = 8 \times 10^{-19} J$$

## References:

- [1] Saleh, Gh. "5 Evidences that Shows the Speed of Photon Is 3.3 C." Saleh Theory, 19 Jul. 2025, <https://saleh-theory.com/article/5-evidences-that-shows-the-speed-of-photon-is-33-c>
- [2] Saleh, Gh. "A New Definition for the Theory of Everything Based on Quanta of Energy." Saleh Theory, 04 Jul. 2025, <https://saleh-theory.com/article/a-new-definition-for-the-theory-of-everything-based-on-quanta-of-energy>
- [3] Saleh, Gh. "Introducing Photon as the Basis and Foundation of Quantum Energy." Saleh Theory, 31 May. 2025, <https://saleh-theory.com/article/introducing-photon-as-the-basis-and-foundation-of-quantum-energy>
- [4] Saleh, Gh. "New Proof of Photon Velocity ( $V_T = 3.3 C$ ) Utilising Mathematical Equations, Physical Laws and the Experiments of MIT and Michigan University in the Universe 2025 Part A." Saleh Theory, 26 Apr. 2025, <https://www.saleh-theory.com/article/a-new-proof-of-photon-velocity-vs-sub-33-c-utilising-mathematical-equations-physical-laws-and-the-experiments-of-mit-and-michigan-university-in-the-universe-2025-part-a>
- [5] Saleh, Gh. "New Proof of Photon Velocity ( $V_T = 3.3 C$ ) Utilising Ever-True Planck Energy Equation and Kinetic Energy Equation in the Universe 2025 Part B." Saleh Theory, 03 May 2025, <https://www.saleh-theory.com/article/a-new-proof-of-photon-velocity-vs-sub-33-c-utilising-ever-true-planck-energy-equation-and-kinetic-energy-equation-in-the-universe-2025-part-b>
- [6] Saleh, Gh. "New Proof of Photon Velocity ( $V_T = 3.3 C$ ) Utilising the Young's Double-Slit Experiment and the Motional Model of Emitted Photons from Electrons in the Universe 2025 Part C." Saleh Theory, 03 May 2025, <https://www.saleh-theory.com/article/a-new-proof-of-photon-velocity-vs-sub-33-c-utilising-the-youngs-double-slit-experiment-and-the-motional-model-of-emitted-photons-from-electrons-in-the-universe-2025-part-c>
- [7] Saleh, Gh. "New Discoveries in Quantum and the Theory of Everything (2025)." Saleh Theory, 15 Dec. 2024, <https://www.saleh-theory.com/article/new-discoveries-in-quantum-and-the-theory-of-everything-2025>
- [8] Saleh, Gh. "A New Calculation of the Speed of Objects in Nested Paths in the Universe." *APS April Meeting Abstracts*. Vol. 2024. 2024.



- [9] Saleh, Gh. "A Clear and Simple Definition of Quantum in the Year of Quantum." Saleh Theory, 02 Sep. 2024, <https://saleh-theory.com/article/a-clear-and-simple-definition-of-quantum-in-the-year-of-quantum>
- [10] Saleh, Gh. "New Discoveries About the Speed of Electromagnetic Waves 2024 Part C" Saleh Theory, 06 Nov. 2023, <https://www.saleh-theory.com/article/new-discoveries-about-the-speed-of-electromagnetic-waves-2024-part-c>
- [11] [Saleh, Gh, et al. "The possibility of presenting the photon as a basis for quantum energy." \*APS Meeting Abstracts\*. 2021.](#)

