

# A New Explanation for the Formation of the Electron Cloud in Different Elements

Gh. Saleh

*Saleh Research Centre, Amsterdam, Netherlands*

When we consider an atom, we observe that it consists of a central structure (the nucleus) surrounded by electrons that orbit around it. An intriguing aspect of this system is that the electron moves in all directions around the nucleus, making it appear to exist simultaneously in every direction.

In essence, the electron's motion is such that, although it is a single particle (as in the case of a hydrogen atom), its presence can be detected in all directions. This is because the path of its motion forms a spherical surface around the nucleus.



To simplify, the trajectory of an electron can be described as a closed curved orbit around the nucleus. On its own, the electron cannot be present everywhere at the same time. However, the nucleus's rotation, combined with the interactive and cohesive forces between the electron and the nucleus, creates a dynamic relationship. This interaction causes the nucleus's rotation to influence the electron's trajectory, effectively broadening its presence. As a result, while the electron follows its primary orbit, it also appears to occupy other regions, giving rise to the perception of an electron cloud.

## References:

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