

# The Neutrino Has No Own Antiparticle

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Abstract: showing the neutrino has no own antiparticle and the basis

## Main viewpoints and conclusions:

The idea of the antiparticle came about in 1928 when British physicist Paul Dirac developed what became known as the Dirac equation; Dirac predicted that, almost every particle has an antimatter counterpart: a particle with the same mass but opposite charge, among other qualities. <sup>[1]</sup>

In 1937, Italian physicist Ettore Majorana had developed another theory: neutrinos and antineutrinos are actually the same thing. The Majorana equation described neutrinos that, if they happened to have mass after all, could turn into antineutrinos and then back into neutrinos again. <sup>[1]</sup>

For the difference between a particle and its antiparticle just with opposite charge, <sup>[1][2]</sup> and the neutrino has neither positive charges nor negative charges, then we get the antineutrino of a neutrino has neither positive charges nor negative charges – also is an electrically neutral particle, it shows there no exist a kind of particles which with the same mass, opposite charge, among other qualities suitable for and to match with the neutrino.

So, the neutrino is the kind of electrically neutral particles that has no own antiparticle (antimatter counterpart).

## References

[1] *Is the neutrino its own antiparticle?*

<http://www.symmetrismagazine.org/article/is-the-neutrino-its-own-antiparticle>

[2] *Antiparticle*

<https://en.wikipedia.org/wiki/Antiparticle>