

The genesis of the neutrino concept

Wednesday, 19 June 2024 15:00 (1 hour)

The first proposal of the neutrino idea is about to turn a century old. In this lecture, we recall the fundamental advances that occurred soon after, in the era of modelling the atomic nucleus. We discuss the subsequent modifications and developments of the neutrino concept, which shaped modern thinking and prepared for observational advances. We retrace a journey through history, organised in six stages, focusing in particular on the initial ones:

1. Early 1930s. Pauli's neutrino and its significance.
2. Fermi 1933-34: The first beta-ray and neutrino theory. Conceptual and formal foundations, implications. Electron capture.
3. Majorana 1937: The modern understanding of fermions. A new concept of neutrino.
4. From muons to families. The numbers of leptons. Nature of weak interactions and the neutrino. The standard model and its failure.
5. Pontecorvo & Sakata's winning approach to neutrino mass.
6. The part that remains to be written: How to observe the absolute mass of the neutrino? What is its nature?

Poster prize

Given name

Surname

First affiliation

Second affiliation

Institutional email

Gender

Collaboration (if any)

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