# Colloqui della Classe di Scienze

Anno Accademico 2020/2021

**Scuola Normale Superiore**
**Piazza dei Cavalieri, 7 - PISA**

**22 SETTEMBRE 2021**
ore 15.00

## MARCO PALLAVICINI

Università di Genova

### *Seeking the true nature of neutrinos: was Ettore Majorana right ?*

ABSTRACT:
After almost 100 years since its birth, the neutrino is still the less understood particle of the Standard Model, the established theory of particles and fields. Neutrinos are the most abundant massive particles of the universe (as far as we know) and they are emitted copiously by stars, nuclear reactors, particle accelerators, the Earth and even the human body, but despite many recent discoveries they remain very mysterious in several aspects. The so called Neutrino-less Double Beta decay, a very rare radioactive decay of some nuclei, may, despite its name, offer the opportunity to uncover the main mystery about neutrinos, clarifying whether they behave like the other spin ½ particles of the Standard Model or, uniquely, they behave as predicted by Ettore Majorana in the middle 30s, when the brilliant Italian theoretician developed a theory of neutrinos as a possible alternative to that developed by Paul Dirac's. While it is clear that charged particles must follow Dirac theory, the Majorana option is still perfectly valid for neutral particles such as neutrinos.
The seminar will go through the properties of the neutrino from a historical perspective, and finally will describe how neutrino-less double beta decay may teach us whether Ettore was right or wrong.

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Info: Area Ricerca e Didattica - classi@sns.it

Il seminario si terrà in modalità telematica Join Zoom Meeting
***link*** *per collegarsi all'evento*