

## Double-beta decay and neutrino physics

*Monday, 17 December 2007 15:40 (30 minutes)*

In the last decade many spectacular advances have been performed in neutrino physics. Still, crucial questions remain open, in particular the knowledge of the Dirac versus Majorana nature of neutrinos. The most feasible way of knowing the answer to this issue is through the observation of a nuclear process called neutrinoless double-beta decay.

Its search presents serious experimental and theoretical challenges, in particular, the precise knowledge of the nuclear matrix elements determining the half-lives.

In this talk, we will review the status in this field and emphasize the difficulties as well as the crucial role played by nuclear physics.

We will discuss that beta-decay, muon capture and charge-exchange studies offer important constraints to the neutrinoless half-life predictions.

We will conclude discussing the interest of neutrino-nucleus interaction studies.

**Primary author:** VOLPE, Christina (IPN, Orsay)

**Presenter:** Dr VOLPE, Christina (IPN Orsay)

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