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# Advances in neutrinoless double beta decay

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Neutrinoless double beta decay searches play a major role in determining properties of neutrinos as well as nuclei. The double-beta decay with neutrinos is one of the rarest process in the world. It has been observed in only a few nuclei so far. The even rarer process of neutrinoless double-beta decay will have a major impact on the current Standard

model. It would show that neutrinos are their own anti-particles and processes with neutrinos can violate the lepton number conservation. Beside this, the half life of these decays is directly connected to the nuclear matrix elements of the participating nuclei. Therefore, neutrinoless double-beta decay searches are an independent probe of nuclear theory beside accelerator based experiments.

This talk will give an introduction about the physics of neutrinoless double beta-decays. The impact of nuclear theory on our understanding of this process and the results will be discussed. An overview on the efforts made by various collaborations all over the world to measure this process will be presented.

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## Summary

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