

## Search for Double Beta Plus Decays with NuDoubt++

*Tuesday 26 August 2025 16:20 (20 minutes)*

Double beta plus decay is a rare nuclear disintegration process. Difficulties in its measurement arise from suppressed decay probabilities, experimentally challenging decay signatures and low natural abundances of suitable candidate nuclei. In this presentation, we propose NuDoubt++, a new detector concept to overcome these challenges. It is based on the first-time combination of hybrid and opaque scintillation detector technology paired with novel light read-out techniques. This approach is particularly suitable detecting positron (beta plus) signatures. We expect to discover two-neutrino double beta plus decay modes within 1 tonne-week exposure and are able to probe neutrinoless double beta plus decays at several orders of magnitude improved significance compared to current experimental limits.

### Collaboration you are representing

NuDoubt++ collaboration

**Author:** SCHOPPMANN, Stefan (JGU Mainz)

**Presenter:** SCHOPPMANN, Stefan (JGU Mainz)

**Session Classification:** Neutrino Physics and Astrophysics

**Track Classification:** Neutrino Physics and Astrophysics