

Plenary Talk PV I Mon 11:00 HS1+HS2
Status and perspectives of double beta decay searches — ●KAI
ZUBER — Inst. f. Kern- und Teilchenphysik, TU Dresden, Dresden

Double beta decay is a very rare nuclear decay characterised by a change of 2 units the ordering number Z while leaving the mass number A constant. It can basically occur in two modes, with the emission of two electrons and two anti-neutrinos or the emission of two electrons only. The neutrinoless double beta decay of nuclei is not allowed

in the Standard Model and is of outstanding importance for neutrino physics. It can only occur if a neutrino is its own antiparticle and if it has a non-vanishing rest mass.

After a general introduction into double beta decay, the talk focusses on the current experimental searches and results and their implications for particle physics. An outlook towards future projects and the involved challenges is given. This includes a discussion on nuclear matrix elements and possible supporting experimental activities.