

The KATRIN Tritium Neutrino experiment: A giant scale for the tiniest particles starts

Health/Science

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Neutrinos are so tiny and inconspicuous that physicists believed for a long time they had no mass. Now, a massive device that scientists say will determine the mass of neutrinos has begun operation in Karlsruhe, Germany.

By Fabian Schmidt for Deutsche Welle, Jun 12, 2018 What is the exact mass of the three known kinds of neutrinos? Any answers? No? Well, don't worry, because nobody knows. Not yet. Electron, muon and tau neutrinos are simply too difficult to grasp for scientists. The ghost particles are electrically neutral, and do not interact with electromagnetic fields, light or matter. But the Karlsruhe Tritium Neutrino Experiment (KATRIN) hopes to shed light on the question of neutrino mass. On Monday, June 11, 2018, a ceremonial inauguration marked the beginning of measuring operations. One part of the device, the electron source, has been operational since October 16, 2016. But the real fun starts now. About 200 researchers from 20 institutions in seven countries are cooperating in the experiments at the Karlsruhe Institute of Technology (KIT). **Invisible particles from outer space** Neutrinos stem, for example, from supernova explosions. Or they have been flying around through the universe since the Big Bang. There are billions of them - coming from outer space and flying right through us, constantly. These elementary particles are so small and light that they can penetrate matter with no resistance. This oblivion to anything standing in their way is what made a famous neutrino experiment by the European Organization for Nuclear Research (CERN) possible. [⋮] <http://p.dw.com/p/2REh8>