

T 90: Hauptvorträge (Invited Talks) IV

Time: Friday 9:00–10:30

Location: H-Aula

Invited Talk

T 90.1 Fri 9:00 H-Aula

Probing the neutrino mass scale - first results of the KATRIN experiment — ●KATHRIN VALERIUS — Karlsruhe Institute of Technology, Institute for Nuclear Physics, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen

Precision measurements of the kinematics of weak decays offer a direct and nearly model-independent approach to probe the absolute neutrino mass scale. The Karlsruhe TRITium Neutrino experiment (KATRIN) is searching for the minute imprint of the neutrino mass in the endpoint region of the tritium beta-decay spectrum. KATRIN employs a high-intensity gaseous molecular tritium source and a high-resolution electrostatic filter with magnetic adiabatic collimation to target a neutrino-mass sensitivity of $0.2 \text{ eV}/c^2$, thus improving on previous experiments by an order of magnitude, after five years of data-taking.

This talk presents the results of the first science run of KATRIN in which an initial dataset of a few weeks allows to tighten the direct neutrino mass bound by about a factor of 2 already, yielding a new upper limit of $1.1 \text{ eV}/c^2$ (90% CL). The successful first campaign gives promising perspectives on the long-term data harvest to exploit KATRIN's neutrino mass sensitivity goal and to open up further interesting science channels in the search for physics beyond the Standard

Model.

Invited Talk

T 90.2 Fri 9:45 H-Aula

The European Strategy in Particle Physics — ●URSULA BASSLER — IN2P3 - CNRS, Paris, France

For the 3rd time, the European Strategy of Particle Physics is updated in 2020, after the strategies established in 2006 and 2013. The challenges are important as for the first-time projects at CERN for the period after the exploitation of the LHC are considered. The Strategy update has been launched in 2018, with the community input being collected and presented at an Open Symposium in Grenada in May 2019 and summarized in the Physics Briefing Book published in September 2019. In January 2020, delegates from all CERN member states and major European Laboratories come together for the drafting session of the strategy in Bad Honnef. The resulting document should be adopted by the CERN Council in May 2020 in Budapest.

The presentation will summarize the outcome of the Strategy and discuss the different options and propositions. Some emphasis will also be given to transvers considerations of the field such as, among others, Education and Public Engagement, Early Careers, Diversity, Sustainability and Technology Transfer.