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Search for keV-scale sterile neutrinos with KATRIN/TRISTAN

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Sterile neutrinos are a natural extension of the Standard Model of particle physics. If their mass is in the keV range, they are a viable dark matter candidate. One way to search for sterile neutrinos in a laboratory-based experiment is via tritium beta decay, where they would manifest themselves as a characteristic spectral distortion. The direct neutrino mass experiment, KATRIN, provides high luminosity gaseous tritium source. Equipped with a novel multi-pixel silicon drift detector system (named TRISTAN), the KATRIN experiment has the possibility to search for a keV-scale sterile neutrino signal. This presentation will give an overview of the TRISTAN project, including the status of the detector development and new sensitivity studies.

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