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P1.29: Assembly and characterization of the first TRISTAN detector modules

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The nature of dark matter is one of the big open questions in physics. As a minimal extension to the standard model of particle physics, the so-called sterile neutrinos in the keV mass range pose a viable candidate for it. The signature of such a sterile neutrinos could be seen in a high precision spectroscopy measurement of the tritium beta decay. To perform this measurement the TRISTAN silicon drift detector (SDD) system with almost 1500 independent pixels is currently being developed as an upgrade for the KATRIN experiment. It will be capable of measuring electrons with a targeted energy resolution of 300 eV (FWHM) at 20 keV for count rates of up to 100 kcps per pixel.
In this presentation the current status of the project, as well as the first characterization measurements of the monolithic 166 pixel SDD modules will be shown.

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