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KATRIN with TRISTAN detectors

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The Karlsruhe Tritium Neutrino (KATRIN) experiment was designed to measure the absolute neutrino mass scale based on a high-precision measurement of the tritium β -decay spectrum, close to its endpoint. Its unprecedented tritium source luminosity and spectroscopic quality makes it a unique instrument to also search for physics beyond the Standard Model (BSM). Most notably, a keV-scale sterile neutrino would manifest with a characteristic signature several keV away from the endpoint. This poster summarizes the physics potential of such a search, the technical challenges to optimize the beamline for it and the status of the advanced preparations to start in 2026.

Summary

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