Abstract Submitted
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Environmental gamma radiation in the KATRIN Spectrometer Hall[1] LUKE KIPPENBROCK, University of Washington, KATRIN COLLABORATION — The KATRIN (KArlsruhe TRItium Neutrino) experiment, presently undergoing final assembly in Germany, will use tritium β-decay to probe the electron antineutrino mass down to a sensitivity of 0.2 eV/c^2 (90% confidence level). The experimental apparatus has been designed to limit the effect of known and predicted backgrounds near the beta endpoint energy. However, recent commissioning measurements with the main spectrometer have shown that an elusive background source still remains. In this talk, the interaction of environmental gamma radiation inside the KATRIN main spectrometer is studied as a potential background creation mechanism. Geant4 simulations of the gamma flux, derived from concrete radioassay measurements, are compared with detector background rates collected under multiple gamma radiation conditions.

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