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Background from the inter-spectrometer Penning trap in the KATRIN experiment[1] LUKE KIPPENBROCK, University of Washington, KATRIN COLLABORATION — The Karlsruhe Tritium Neutrino (KATRIN) experiment plans to make a determination of the effective electron anti-neutrino mass using tritium β-decay. During tandem high-voltage operation of the spectrometers that analyze the β-particle energy, a Penning trap is formed, which naturally leads to the production of background electrons that are indistinguishable from the signal β-particles. In this talk, the background-generation mechanism is discussed, and simulations of the trap are also presented. Focus is given to analyzing the results of commissioning measurements with the Penning trap and testing the effectiveness of one of the proposed methods to mitigate the trap during tritium operation.

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