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Testing molecular effects for tritium-based neutrino mass measurements[1] DIANA PARNO, LAURA BODINE, R.G. HAMISH ROBERTSON, University of Washington — The upcoming KATRIN experiment will use the kinematics of tritium beta decay to probe the neutrino mass. The tritium source is molecular, however, and one of KATRIN's largest expected systematic uncertainties arises from the population of molecular final states following beta decay. To study this uncertainty, the Tritium Recoil-Ion Mass Spectrometer will measure the dissociation probability of the daughter molecule following beta decay, addressing a discrepancy between modern, high-precision theoretical calculations and two mass spectrometry measurements from the 1950s. We will describe the novel measurement technique and the commissioning of the experiment.

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