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Measuring molecular dissociation in tritium beta decay: validating theory used in neutrino mass experiments[1] LAURA BODINE, DIANA PARNO, R.G. HAMISH ROBERTSON, University of Washington — The next generation of tritium-based neutrino mass experiments (KATRIN, Project 8) requires a comprehensive understanding of the distribution of molecular states excited in the decay. Recent ab initio calculations predict a dissociation probability that disagrees with two experiments from the 1950s. Further study is needed to resolve the discrepancy and validate the calculations. The Tritium Recoil-Ion Mass Spectrometer is designed to measure the molecular tritium branching ratio to the bound molecular ion $^3HeT^+$ using a time-of-flight spectrometer.

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