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Calibration and optimization of the Project 8 Phase II apparatus toward a tritium beta decay spectrum measurement MATHIEU GUIGUE, Pacific Northwest National Laboratory, PROJECT 8 COLLABORATION — The Project 8 collaboration aims to measure the absolute neutrino mass scale using a Cyclotron Radiation Emission Spectroscopy technique on the beta decays of tritium. With the recent developments achieved in the Phase II of the experiment such as a molecular tritium gas handling system and a larger effective decay volume, we will be able to measure the differential-energy spectrum of tritium beta decays for the very first time and be sensitive to extract the tritium endpoint value on an eV or sub-eV scale. The measured frequency of monoenergetic electrons emitted by gaseous metastable Krypton 83 atoms can be used as an energy calibration and to optimize the instrument configuration for the tritium measurement. Here we present the status of this calibration procedure and the tritium data-taking plan.

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