



Poster session 1 - Monday 4 July

P1.057 Project 8: Towards a neutrino mass limit using the cyclotron radiation from tritium beta decays

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Cyclotron Radiation Emission Spectroscopy, a frequency-based method for determining the energy of relativistic electrons, has recently been demonstrated by the Project 8 collaboration. Applying this technique to the tritium endpoint provides a new avenue for measuring the absolute mass scale of the neutrino. The proof of principle was done in a small waveguide detector using gaseous krypton-83m as a source of monoenergetic electrons. As the next step towards a neutrino mass measurement, we are upgrading the existing detector to operate using a molecular tritium source, and to have enhanced radiofrequency properties. These upgrades are the next research and development steps needed to design a larger scale experiment that will approach the existing neutrino mass limits. Here we discuss the design changes and the expected physics reach of the second phase of the Project 8 experiment.