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First Neutrino Mass Limit from the Project 8 Experiment

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The goal of the Project 8 experiment is to measure the absolute neutrino mass using tritium beta decay and Cyclotron Radiation Emission Spectroscopy (CRES) with a design sensitivity to the neutrino mass of 40 meV. CRES is a method for performing precision electron spectroscopy that was first demonstrated by Project 8. In the work presented here, we performed the first measurement of the tritium beta-spectrum endpoint using CRES, and we used that background-free spectrum to place a limit on the absolute neutrino mass. This new measurement provides critical information on the techniques necessary to extend the reach of Project 8 towards its design goal such as determining the detection efficiency and measuring the instrumental resolution. In this talk I will present the recent results from Project 8 and discuss the important advances made in performing a CRES experiment with low background and high resolution.

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Submitted on behalf of a Collaboration?

Yes

Primary author: Dr OBLATH, Noah (Pacific Northwest National Laboratory)

Presenter: Dr OBLATH, Noah (Pacific Northwest National Laboratory)

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