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## Project 8: R&D for a next-generationneutrino mass experiment

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Project 8 is a next-generation direct neutrino mass experiment measuring the spectral endpoint region of tritium beta decays. The energy of the beta decay electrons is measured using Cyclotron Radiation Emission Spectroscopy (CRES) which has been demonstrated by the Project 8 collaboration with krypton or molecular tritium confined in a section of a microwave guide. To reach the target sensitivity of 40 meV, major technological development is necessary. Building up on the milestones achieved so far, I will present the next developmental phases of Project 8: In Phase III, atomic tritium will be produced and trapped magnetically, and cyclotron radiation emission spectroscopy (CRES) will be demonstrated in free space which allows larger detection volumes. The knowledge gained from Phase III will enable the design and operation of a large-volume atomic tritium experiment, sensitive to the entire mass range allowed by the inverse neutrino mass hierarchy.

Primary author: REIMANN, René (Johannes Gutenberg-Universität Mainz)
Presenter: REIMANN, René (Johannes Gutenberg-Universität Mainz)
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