

Abstract Submitted  
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**Track and event reconstruction for Project 8.**<sup>1</sup> YU-HAO SUN, Case Western Reserve University, PROJECT 8 COLLABORATION — Project 8 is an experiment planning to measure the neutrino mass by the tritium endpoint approach. Near the endpoint of the beta spectrum of tritium, the spectrum is distorted by the neutrino mass. Project 8 is developing the CRES (Cyclotron Radiation Emission Spectroscopy) technique for determining the electron energy spectrum by measuring the frequencies of cyclotron radiation from single electrons in a magnetic trap. The signals of electrons show up as tracks on frequency-time spectrograms. Electrons may scatter from a molecule, lose energy, and start a new track. Head to tail grouping of electron tracks constructs events. Initial energies of electrons are calculated from start frequencies of events. In this talk, track and event reconstruction, especially in phase II of project 8, will be described. In this phase, the first measurement of a continuous electron energy spectrum from tritium beta decay will be made using the CRES technique. The track and event reconstruction has been implemented to ensure zero background false event in 100 days of data taking with 90% confidence, while maintaining precision and efficiency.

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Yu-Hao Sun  
Case Western Reserve University

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