Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Simulation of the Project 8 Phase III Free Space CRES Demonstrator[1] PENNY SLOCUM, Wright Laboratory, Yale University, PROJECT 8 COLLABORATION — The Project 8 collaboration endeavors to measure the electron-weighted neutrino mass to within 40 meV using Cyclotron Radiation Emission Spectroscopy (CRES). The upcoming Phase III of Project 8 will provide the first demonstration of CRES in free space. Electrons near the endpoint of tritium beta decay with energy 18.6 keV will be trapped magnetically and surrounded by an array of antennas detecting their cyclotron radiation. A numerical simulation approach has been developed to compute the response of the antenna array to radiation from the trapped electrons. Motivation for the approach and its implications for the experiment design will be discussed.

[1]This work is supported by the US DOE Office of Nuclear Physics, the US NSF, the PRISMA+ Cluster of Excellence at the University of Mainz, and internal investments at all institutions.

Penny Slocum
Wright Laboratory, Yale University

Date submitted: 07 Jan 2021 Electronic form version 1.4