Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Terahertz Radiation Produced in Mid-IR Laser-driven Electron Acceleration[1] ELA ROCKAFELLOW, DANIEL WOODBURY, ROBERT SCHWARTZ, HOWARD MILCHBERG, University of Maryland, College Park — Strong long wavelength infrared (LWIR) and terahertz (THz) radiation sources have become an increasing topic of interest for applications such as nonlinear optics and spectroscopy. Laser wakefield acceleration provides a new source of high field LWIR/THz, since the overlap of the drive laser and refractive index profile of the excited plasma wave leads to a frequency downshift of the high energy drive pulse. Mid-IR lasers start with a lower frequency and can therefore achieve more efficient conversion to long wavelengths into the THz range. This poster will present Particle-In-Cell (PIC) simulations that provide insight into THz yield by analyzing the output frequency spectrum of the electric field in mid-IR laser driven electron acceleration, as well as preliminary experimental results.

[1]

Ela Rockafellow
University of Maryland, College Park

Date submitted: 29 Jun 2020 Electronic form version 1.4