

Abstract Submitted
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Polarization effects on RF emission from ultrashort laser pulse generated plasma JENNIFER ELLE, ALEX ENGLÉSBE, RYAN PHILLIPS, TRAVIS GARRETT, ADRIAN LUCERO, ANDREAS SCHMITT-SODY, Air Force Research Lab - Kirtland — Ultrashort pulse laser generated plasma has long been studied as a source of THz frequency electromagnetic emission. Recent work has shown that multiple centimeter long plasma columns formed by focusing an ultrashort pulse laser in air is also a source of broadband radio frequency (RF) emission. In order to better understand the current source of the electromagnetic pulse, we present a comparative study of RF generation for incident linearly and circularly polarized laser light. Circular polarization, which generates a slightly hotter electron population than linearly polarized light, is shown to increase the RF signal. Experimental results are compared to a temperature dependent electron diffusion model with multiphoton ionization.

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