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Directing broadband THz using ionizing two-color laser pulses with tilted-intensity fronts LUKE JOHNSON, THOMAS ANTONSEN, JOHN PALASTRO, KI-YONG KIM, JARED WAHLSTRAND, University of Maryland — The ionization of molecular nitrogen by an ultrashort pulse and its second harmonic results in a low frequency photocurrent that drives coherent, broadband THz radiation [1]. The emission angle of the THz is determined by an optical Cherenkov process [2]. To direct this emission, while maintaining the overall yield, we propose tilting the intensity front of the ionizing pulse. We will present simulations demonstrating the influence of the tilt angle on the THz energy, spectrum, and emission angle and compare this to experimentally observed asymmetries in THz radiation patterns.

[1] K. Y. Kim, Phys. Plasmas 16, 056706 (2009).

[2] L. A. Johnson, et al., Phys. Rev. A 88, 063804 (2013)

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