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Title:Ultrabroadband coherent electric field from far infrared to 200 THz using air plasma induced by 10 fs pulses
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Abstract:We generated an ultrabroadband infrared pulse ranging from far infrared to 200 THz through a plasma by focusing a hollow-fiber compressed intense 10-fs pulse and its second harmonic in air. We coherently detected the signal up to 100 THz with electro-optic sampling and clarified its drastic dependence on the orientation of the second harmonic crystal in a range of 100-200 THz with an HgCdTe detector. From these, we confirmed the whole frequency components originated from the AC biased plasma and were phase locked. This result opens the possibility of a pump-probe spectroscopy which covers the whole infrared range. © 2012 American Institute of Physics.
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