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Title:Terahertz wavefronts measured using the Hartmann sensor principle

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Abstract:We demonstrate for the first time that the Hartmann wavefront sensor (HWS) principle can be applied for characterizing the wavefronts of terahertz (THz) electromagnetic radiation. The THz Hartmann wavefront sensor consists of a metallic plate with an array of holes and a twodimensional scanable pyro-electric detector. The THz radiation with different wavefronts was generated by a far-infrared gas laser operated at 2.5 THz in combination with a number of objects that result in known wavefronts. To measure the wavefront, a beam passing through an array of holes generates intensity spots, for which the positions of the individual spot centroids are measured and compared with reference positions. The reconstructed wavefronts are in good agreement with the model expectations. © 2012 Optical Society of America.

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