208. Title: BINARY DIFFRACTIVE SMALL LENS ARRAY FOR THZ IMAGING SYSTEM

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Abstract: In this paper, a binary diffractive small lens array (SLA), based on binary optical ideas, is introduced and designed for THz imaging. Compared with common refractive SLA, the designed binary diffractive SLA is easier to fabricate and has more design freedom. A hybrid numerical method, combining geometrical optics/physical optics (GO/PO) and two-dimension finite-difference time-domain (2D-FDTD), is adopted to design and analyze the THz imaging system, which is composed of an optimized objective lens and binary diffractive SLA. The numerical results show that, in the conditions of lower bandwidth requirements, the seven-step diffractive SLA can be considered a good substitute for the common refractive SLA. The numerical method has also been verified by the relative experimental results.