

351. Title:Real-time terahertz near-field microscope

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Abstract:We report a terahertz near-field microscope with a high dynamic range that can capture images of a $370 \times 740 \mu\text{m}^2$ area at 35 frames per second. We achieve high spatial resolution ($14 \mu\text{m}$ corresponding to $\lambda/30$ for a center frequency at 0.7 THz) on a large area by combining two novel techniques: terahertz generation by tilted-pulse-front excitation and electro-optic balanced imaging detection using a thin crystal. To demonstrate the microscope capability, we reveal the field enhancement at the gap position of a dipole antenna after the irradiation of a terahertz pulse.