

360. Title:High-responsivity terahertz detection by on-chip InGaAs/GaAs field-effect-transistor array

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Abstract:Terahertz detection by a one-dimensional dense array of field-effect transistors (FETs) is studied experimentally. Such terahertz detector demonstrates greatly enhanced responsivity without using supplementary antenna elements because a short-period grating formed by metal contact fingers of densely ordered transistors in the array serves as an effective antenna coupling incident terahertz radiation to the transistor channels. Asymmetrical position of the gate contact in each FET in the array enables strong photovoltaic response.