91. Title: Anomalous transmission of terahertz waves in arrays of double-ring resonators induced by a 400 nm pump pulse

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Source: APPLIED PHYSICS LETTERS

Volume:98

Issue:19

Pages: 191112

Publication year: 2011

Document type:Journal article (JA)

Abstract: In this letter, we describe detailed femtosecond-pump-terahertz-probe studies of the electromagnetic response of arrays of double-ring and complementary double-ring resonators. A surprising result is that an increase in the terahertz transmission is observed when a double-ring structure is excited by a 400 nm pump pulse. To explain this anomalous transmission, we propose a mechanism in which the photogenerated carriers play two competing roles. In other cases, for instance, when the wavelength of the pump pulse is 800 nm or in the case of a complementary double-ring structure, the normal transmission can also be understood in terms of this mechanism.