

Abstract Submitted  
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**Two- and three-photon absorption of germanium in the mid-infrared**<sup>1</sup> DONGMIN SEO, LEONARD FELDMAN, NORMAN TOLK, PHILIP COHEN — We have studied the nonlinear optical response of crystalline germanium using high-power infrared picosecond laser pulses at wavelengths ranging from 2.8  $\mu\text{m}$  to 5.2  $\mu\text{m}$ . Transmittance as a function of fluence at 2.8  $\mu\text{m}$  and 4.4  $\mu\text{m}$  were fitted by using two- and three-photon absorption, respectively. Data at 3.2, 3.6, and 4.0  $\mu\text{m}$ , however, required consideration of simultaneous two- and three-photon absorptions in order to fit the experimental data. Transmittance as a function of wavelength further supports the onset of the two- and three-photon absorption at appropriate wavelengths.

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