



## Near-infrared nonlinearity of a multicomponent tellurium oxide glass at 800 and 1,064 nm

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Auteur	Oliveira, Tâmara A [1], Manzani, Danilo [2], Falcao-Filho, Edilson L [3], Messaddeq, Younes [4], Boudebs, Georges [5], Fedus, Kamil [6], de Araújo, Cid B [7]
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Résumé en anglais	We report on the nonlinear (NL) optical properties of glassy TeO <sub>2</sub> -GeO <sub>2</sub> -K <sub>2</sub> O-Bi <sub>2</sub> O <sub>3</sub> at $\lambda = 800$ nm and $\lambda = 1,064$ nm. Using the Kerr gate technique with a laser delivering 150 fs pulses at 800 nm, we demonstrated the fast NL response of the samples. The modulus of the NL refractive index, $n_2$ , at 800 nm was $\sim 10-15$ cm <sup>2</sup> /W. The Z-scan technique was used to determine $n_2 \approx +10-15$ cm <sup>2</sup> /W, at 1,064 nm with pulses of 17 ps. The two-photon absorption coefficient, $\alpha_2$ , was smaller than the minimum that we can measure ( $< 0.003$ cm/GW). The figure of merit $n_2/\alpha_2 \lambda$ was calculated and indicates that this glass composition has large potential to be used for all-optical switching.
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua6613">http://okina.univ-angers.fr/publications/ua6613</a> [8]
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- [1] [http://okina.univ-angers.fr/publications?f\[author\]=10454](http://okina.univ-angers.fr/publications?f[author]=10454)
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- [5] <http://okina.univ-angers.fr/g.bou/publications>
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- [7] [http://okina.univ-angers.fr/publications?f\[author\]=8609](http://okina.univ-angers.fr/publications?f[author]=8609)
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