



Z-scan determination and ab-initio computations on third-order optical nonlinearities of a styrylquinolinium dye

Submitted by Bouchta Sahraoui on Tue, 05/26/2015 - 12:04

Titre	Z-scan determination and ab-initio computations on third-order optical nonlinearities of a styrylquinolinium dye
Type de publication	Communication
Type	Communication avec actes dans un congrès
Année	2014
Langue	Anglais
Date du colloque	06-10/07/2014
Titre du colloque	16th International Conference on Transparent Optical Networks (ICTON)
Pagination	1-4
Auteur	Karakas, Asli [1], Sofiani, Z. [2], Ceylan, Y. [3], Taser, M. [4], Bakalska, R. [5], Todorova, M. [6], Sahraoui, Bouchta [7]
Pays	Autriche
Editeur	IEEE
Ville	Graz

Résumé en anglais

In order to elucidate the third-order nonlinear optical (NLO) phenomena of the styrylquinolinium dye (1), the nonlinear absorption parameter (β) and third-order susceptibility ($\chi^{(3)}$) have been measured using the Z-scan measurements. The one-photon absorption (OPA) and two-photon absorption (TPA) characterizations have been determined by configuration interaction (CI) and time-dependent Hartree-Fock (TDHF) methods, respectively. The averaged (isotropic) second hyperpolarizability ($\langle\gamma\rangle$) allows the determination of the third-order optical response. The ab-initio calculation on $\langle\gamma\rangle$ with non-zero value reveals that the title dye has relatively good third-order NLO properties. The calculated results of 1 on OPA wavelength, TPA cross-section ($\delta(\omega)$) and third-order susceptibility are in reasonable agreement with its experimental data.

URL de la notice	http://okina.univ-angers.fr/publications/ua11845 [8]
DOI	10.1109/ICTON.2014.6876645 [9]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=20813](http://okina.univ-angers.fr/publications?f[author]=20813)
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=2566](http://okina.univ-angers.fr/publications?f[author]=2566)
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=20798](http://okina.univ-angers.fr/publications?f[author]=20798)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=20818](http://okina.univ-angers.fr/publications?f[author]=20818)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=20893](http://okina.univ-angers.fr/publications?f[author]=20893)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=20892](http://okina.univ-angers.fr/publications?f[author]=20892)
- [7] <http://okina.univ-angers.fr/bouchta.sahraoui/publications>

[8] <http://okina.univ-angers.fr/publications/ua11845>

[9] <http://dx.doi.org/10.1109/ICTON.2014.6876645>

Publié sur *Okina* (<http://okina.univ-angers.fr>)