



# Measurement of the third order optical nonlinearities of graphene quantum dots in water at 355 nm, 532 nm and 1064 nm

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| Titre                 | Measurement of the third order optical nonlinearities of graphene quantum dots in water at 355 nm, 532 nm and 1064 nm  |
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| Auteur                | Wang, Hongzhen [1], Ciret, Charles [2], Cassagne, Christophe [3], Boudebs, Georges [4]   |
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| Résumé en anglais     | <p>The nonlinear responses of the suspension of graphene quantum dots (GQDs) in water are investigated at 355 nm, 532 nm and 1064 nm in the picosecond regime. The third-order nonlinear (NL) refractive index and the NL absorption coefficients are determined. We found that only under UV illumination is the NL response large. Furthermore, the NL refractive index and the saturable absorption are estimated for a single nanoparticle constituting the GQDs through a simple model. The obtained value of the Kerr coefficient is in the order of magnitude of that found in bulk materials and three orders of magnitude lower with an opposite sign than that found for the monolayer graphene.</p> |
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## Liens

[1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=24253>

[2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29981>

[3] <http://okina.univ-angers.fr/c.cassagne/publications>

[4] <http://okina.univ-angers.fr/g.bou/publications>

[5] <http://okina.univ-angers.fr/publications/ua18620>

[6] <http://dx.doi.org/10.1364/OME.9.000339>

[7] <https://www.osapublishing.org/ome/abstract.cfm?uri=ome-9-2-339>

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