

# Nonlinear optics of carbon nanostructures: graphenes, nano-diamonds, carbon-dots and carbon-onions

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During the last years, the nonlinear optical properties of various carbon allotropes such as fullerenes, carbon nanotubes, graphenes and derivatives, nanodiamonds, carbon-dots and other carbon-based nanostructures have greatly attracted the attention of the scientific community. [1–4] This research interest has been boosted by the very interesting physics exhibited by these nano-entities and also by the various potential applications envisaged for these systems, in photonic and optoelectronic technologies, ranging from optical limiters and optical data storage to optical computing, solar cells and several others. [5–9] In this work we will present results from our recent research activities concerning the systematic study of the nonlinear optical response of different carbon allotropes under nanosecond and picosecond laser excitation. In particular, the nonlinear optical response of some organophilic and hydrophilic C-dots, some nano-diamonds and nano-onions carbon based nanostructures and of graphene oxide and fluoride derivatives will be presented and will be compared between them and with other literature reports. [11-15]

## References

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