

# Confinement of Optical Limiting of Onion-Like Carbon by Laser Induced Optical Bleaching in *N,N*-dimethylformamide

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Onion-like carbon (OLC) produced via annealing of explosive nanodiamond (ND) are perspective for the development of optical limiting materials [1]. Here we have studied the interaction of laser irradiation ( $\lambda = 1064$  nm) with OLC suspension in *N,N*-dimethylformamide. It has been found that the OLC structures exhibit strong optical limiting action if one use defocused laser irradiation while usage of focused laser radiation results in the optical bleaching of OLC suspension. Thus at high power laser irradiation the effect of bleaching overcomes the optical limiting of OLC. The results are discussed in terms of photoinduced electron transfer reaction of curved OLC shells with H-donor DMF molecules. This reaction can be used for surface functionalization of OLC.

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