GLASS-METAL NANOCOMPOSITE MODIFICATION BY FEMTOSECOND LASER IRRADIATION

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Modification on silver nanoparticles (AgNP's) is of interest for various nonlinear optics applications and optical data storage. Femtosecond laser modification allows elongation of spherical AgNP's [1]; these elongated particles possess intrinsic anisotropy [2], which results in dichroism [3]. Here we present the study of transmissivity and reflectivity of glass-metal nanocomposites (GMN) [4] irradiated with 330 fs laser pulses at 515 nm wavelength; the GMN was fabricated using technique based on ion-exchange [5]. The laser processing of the NP results in the dichroism exhibited in optical spectra of transmission and reflection. At higher energies we observed the increase of transmittance and decrease of reflectance, which is attributed to dissolution of NP into the glass lattice.

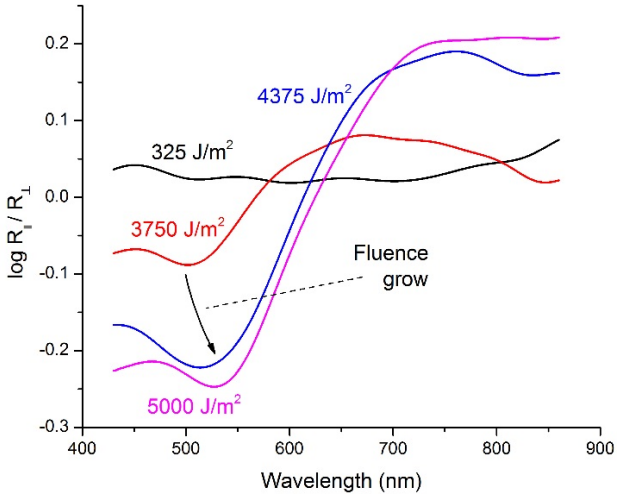

Fig. 1: Differential reflectivity of the modified GMN, irradiated with various femtosecond laser fluences.

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