

Nanooptics and nanophotonics

Holographic recording media based on electrons donor oligomers

для голографической интерферометрии

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Development of new materials possessing photoconductivity within the visible and near IR ranges of spectrum seems to be very important problem for their practical application in photoelectric converters of solar energy, in light emitters, in modulators and switches of light beams, in devices for optical information recording and processing [1,2]. For optical holographic recording by photothermoplastic technique reversible holographic media based on oligomers with hole type of conductivity are used. New carbazole containing radial tetra substituted silans and germans are described in the present work.

One can conclude from the results of carried out investigations that information characteristics of the recording media depend not only on the ratio between ionization potential of donor and electron affinity of acceptor but on the shape of molecule for which donor-acceptor interaction of oligomer-sensitizer becomes easier and rheological properties of the film become better. Besides, in the media based on radial oligomers “memory” effect was observed under preliminary illumination with light. This effect can be employed for holographic recording with several expositions. “Memory” effect can be attributed to presence of energetic traps which ones are formed by end carbazole groups. Results of the investigations are practically used for development of new information media.

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2. Bulavko G.V., Davidenko N.A., Ishchenko A.A., Studzinskii S.L., Shkavro A.G. Peculiarities of the Photovoltaic properties of films based on photoconducting polymer and organic dye in samples with free surfaces and between electric contacts // Tech. Phys. Lett.-2015.-41, N2.-P. 191–194.