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CHEMICAL TECHNIQUES OF INFLUENCE ON THE PROPERTIES OF PHOTOACTIVE MEDIA BASED ON AZOBENZENE POLYCOMPLEXES

The possibilities of changes of the physical properties of polymeric composites based on azobenzene by means of chemical modifications of the polycomplexes structure and composition are investigated. The main emphasis was made on the possibilities of adjustment of characteristics of electrooptical effect observed in these composites. Among the methods of chemical modification introduction of metallic ions into the composites structure, change of dipole moment of the azobenzene fragment, change of length of the "spacer" connecting azobenzene fragment to main polymeric chain, introduction of the organic dyes in the azobenzene polymeric composites are considered. Introduction of the metallic ions into the composites structure as well as change of the dipole moment of the azobenzene groups allow to adjust character of interaction of the composites with polarized light resulting in different magnitudes of light scattering and depolarization in the investigated samples. Present results demonstrate possibilities of changes of the value of observed electrooptical effect, its sign and spectral characteristics. The last makes it possible to use for practical purposes the light sources with different wavelength. Demonstrated flexibility of the properties of the investigated media is important for their practical applications as information or optically active media. Dependencies of the parameter of observed electrooptical effect in the samples of investigated polymeric composites on the state of light polarization open perspectives for their using as active media for polarization holography.

Keywords: azobenzene, polymeric composite, electrooptical effect, polarization.