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Spectral photosensitization of optical anisotropy in poly(vinyl cinnamate) solid films

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We observed possibilities and properties of sensitized photo induced optical anisotropy formation in amorphous poly (vynyl-cinnamate) films (PVCi) and its derivant poly (vynyl-4-methoxy-cinnamate) (PVMCi) under polarized light, including the one which is not absorbed by the supermolecules of the polymeric material. The effect of the induced optical anisotropy involves transferring the energy of electronic excitation from the donor molecules (Michler's ketone or 2-benzoyl-methylene-3, methyl- β -naphthosol) to the scavenger's molecules - PVCi or PVMCi) and photo-topochemical ring formation of cinnamate units in polymeric supermolecules. The discovered photo-induced anisotropy in solid PVCi and PVMCi films provides sensitized photo orientation of low-molecular thermotropic liquid crystals.

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