Diploma thesis abstract

«Depolarization ratio of Raman scattering in intermolecular charge-transfer complex on basis of polyphenylenevinylene»

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Poly[2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene]/2,4,7-trinitrofluorenone(MEH-PPV/TNF) donor–acceptor solutions have been studied by polarization spectroscopy Raman scattering. Raman spectra for MEH-PPV, MEH-PPV/TNF were reported. Depolarization ratio of the Raman mode 1585 cm^{-1} for investigated samples were reported. Method, which allowed to measure depolarization ratio within 1%, has been worked up. The shift (~5 sm^{-1}) of the line Raman corresponding to the phenylene group of polymer symmetrical stretched-or-contracted oscillation in MEH-PPV/TNF in relation to its position in Raman spectrum of solution of MEH-PPV has been revealed. The change of depolarization ratio for its line has been revealed.

The shift of this line position in Raman spectra of solutions was interpreted as result of interaction between donor and acceptor in electronic ground state that was forming charge-transfer (CT) complex. The model, which install connection between change depolarization ratio and component of Raman tensor, has been worked up.

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