

"Nanooptics and nanophotonics"

Effect of the counterion of cationic polymethine dyes on photovoltaic characteristics of bulk heterojunction solar cells based on them

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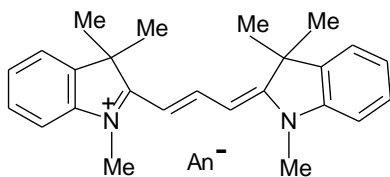
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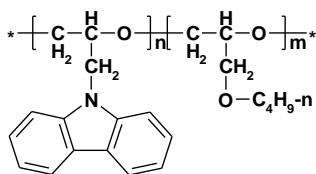
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Polymethine dyes through a wide range of spectral, photophysical and photochemical properties are promising for use in photovoltaic devices [1, 2].

Photovoltaic devices with structure Glass/ITO/GCBE-PD/Al have been prepared. All prepared devices to optimize of nanomorphology of photoactive layer have been thermally annealed.



PD An = I, ClO₄, PF₆, BF₄



GCBE

Spectral and photovoltaic characteristics of the devices have been obtained and analyzed. The effect of counterions nature on these parameters has been established and investigated in details. Nonempirical quantum chemical model of charge carrier photogeneration and their transport has also been proposed.

1. Bulavko G.V., Davidenko N. A., Davidenko I.I., Ishchenko A.A., Mokrinskaya E.V., Pavlov V.A., Studzinsky S.L., Tonkopieva L.S., Chuprina N.G. Photovoltaic characteristics of films composites based on glycidylcarbazole cooligomer with symmetrical cationic polymethine dyes // Theoret Experim Chem.-2013.-**49**, N 4.-P. 219-223.
2. Ishchenko A.A. Structure and spectral-luminescent properties of polymethine dyes // Rus Chem Rev.-1991.-**60**, N 8.-P. 865-884.