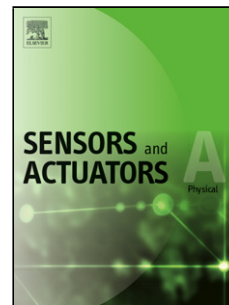


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Investigation of VTP:PC₇₁BM organic composite as highly responsive organic photodetector

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Highlights:

- Effect of different ratios of new composite blend, VTP:PC₇₁BM on the optical study are studied.
- A newly composite blend of VTP:PC₇₁BM has been successfully fabricated and utilized as an organic photodetector (OPD)
- The detector exhibits good photocurrent-illumination linearity, fast response-recovery time, and high consistency towards the rapid change of light intensities.

Abstract

In this work, we report the use of vanadyl 3,10,17,24-tetra-tert-butyl-1,8,15,22-tetrakis(dimethylamino)-29H,31H-phthalocyanine (VTP) in the fabrication of organic photodetector that aimed to be more responsive in the lower region of visible light. The thin active layer of the photodetector has been developed from the vanadyl 3,10,17,24-tetra-tert-butyl-1,8,15,22-tetrakis(dimethylamino)-29H,31H-phthalocyanine (VTP):[6,6]-phenyl C71 butyric acid methyl ester (PC₇₁BM) blend solution. The combination of VTP and PC₇₁BM has significantly enhanced the absorption of visible light especially below 650 nm for the ITO/PEDOT:PSS/VTP:PC₇₁BM/Al photodetector. The detector showed good

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