

SOME ELECTRICAL AND PHOTOELECTRICAL  
PROPERTIES OF PEPC AND 3,6-di-Br-PEPC  
BASED FILMS WITH V<sub>2</sub>O<sub>5</sub> NANOPARTICLES

*L.I. Fenenko, M.F. Guba<sup>1</sup>, P.S. Smertenko,  
L.M. Grebinska<sup>1</sup>, S.V. Svechnikov*

V.E. Lashkarev Institute of Semiconductor Physics,  
Nat. Acad. Sci. of Ukraine  
(45, Nauky Prosp., Kyiv 03028, Ukraine),  
<sup>1</sup>L.V. Pisarzhevskii Institute of Physical Chemistry,  
Nat. Acad. Sci. of Ukraine  
(31, Nauky Prosp., Kyiv 03039, Ukraine)

S u m m a r y

The peculiarities of a charge flow in the “sandwich”-type ITO/composite/In structures based on polyepoxypropylcarbazole (PEPC) and 3,6-di-Br-PEPC polymer composite films with nanosized V<sub>2</sub>O<sub>5</sub> have been studied. The increase of the V<sub>2</sub>O<sub>5</sub> concentration in polymer was found to affect nonmonotonously the current-voltage characteristics (CVC), except the case of 3,6-di-Br-PEPC at the applied “+” bias. The maximum photosensitivity was demonstrated by the structures of PEPC with V<sub>2</sub>O<sub>5</sub> minimum concentration (33.82 wt.%) and 3,6-di-Br-PEPC with a dopant maximum concentration (42.67 wt.%) at a negative potential applied to In. The differential slope of curves  $\alpha$  is not definitely dependent on V<sub>2</sub>O<sub>5</sub>, polarity, or illumination;  $\alpha$  is not constant varying by the voltage increase from 1 to 2.5 V for every special case. Some plots of CVC curves were found to have  $\alpha=1.25$ , which is, evidently, proper for polymers and non-ordered structures.