

O. O. Ptashchenko<sup>1</sup>, F. O. Ptashchenko<sup>2</sup>, V. R. Gilmudinova<sup>1</sup>

## EFFECT OF WATER VAPORS ON THE TIME-RESOLVED SURFACE CURRENT INDUCED BY AMMONIA MOLECULES ADSORPTION IN GaAs P-N JUNCTIONS

<sup>1</sup>I. I. Mechnikov National University of Odessa, Dvoryanska St., 2, Odessa, 65026, Ukraine

<sup>2</sup>National University "Odessa Maritime Academy", Odessa, Didrikhsona St., 8, Odessa, 65029, Ukraine

Supplement to the article published in Photoelectronics. – 2016. – № 25. – P. 126–131.

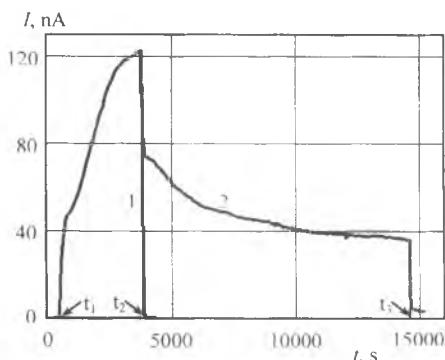


Fig. 1. Time-dependence of the current due to atmosphere changing: 1 – dry air  $\rightarrow (t_1)$   $\text{NH}_3 + \text{H}_2\text{O}$  vapors  $\rightarrow (t_2)$  dry air; 2 – dry air  $\rightarrow (t_1)$   $\text{NH}_3 + \text{H}_2\text{O}$  vapors  $\rightarrow (t_2)$   $\text{H}_2\text{O}$  vapors  $\rightarrow (t_3)$  dry air.

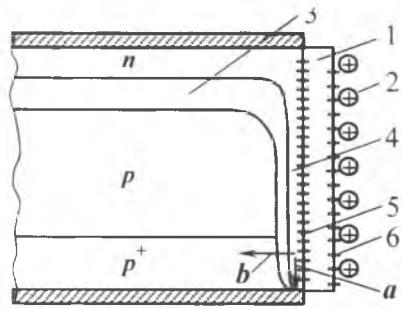


Fig. 3. Schematic of a  $p$ - $n$  structure, placed in a donor gas: 1 – oxide layer; 2 – ions; 3 – depletion layer; 4 – conducting channel; 5 – surface (fast) centers; 6 – states on the oxide surface (slow centers). Arrows: a – direction of the electron movement along the channel; b – tunneling from the channel into the  $p^+$  region.

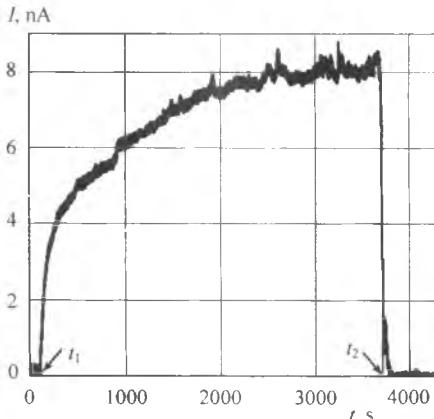


Fig. 2. Time-dependence of the current due to the ambient atmosphere changing: dry air  $\rightarrow (t_1)$   $\text{H}_2\text{O}$  vapors  $\rightarrow (t_2)$  dry air.

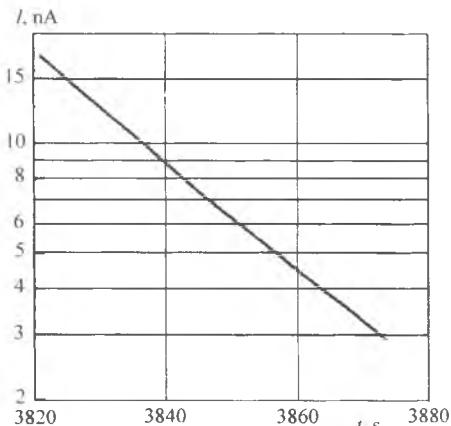


Fig. 4a. The "fast" exponential component of the curve 2 decay section in Fig. 1.

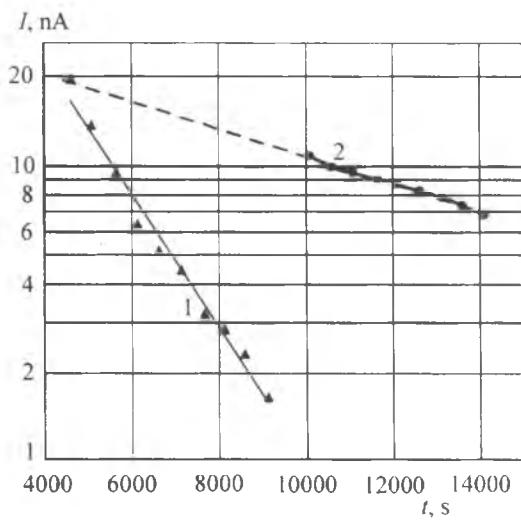


Fig. 4b. Two "slow" exponential components of the curve 2 decay section in Fig. 1.