**Nanoscale physics**

**Peculiarities of electron transport in SiOx films obtained by ion-plasma sputtering**

**Bratus O.L.1, Evtukh A.A.1, Ilchenko V.V.2**

*1V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine,*

*Kyiv, Ukraine.E-mail:* [*o.l.bratus@gmail.com*](mailto:o.l.bratus@gmail.com)

*2Taras Shevchenko Kyiv National University, Institute of High Technologies,*

*Kyiv, Ukraine.*

The temperature dependence of the conductivity of the material opens the prospect of its wide use as a sensor, especially when it comes to highly integrated material of modern electronics, silicon and its oxides.

The SiOx films were deposited on a *p-*type silicon wafer by using the ion-plasma sputtering (IPS) method. The current-voltage characteristics were measured in wide temperature range of 80-350 K.

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| The value of the electrical conductivity of the film increases with the growth of measurement temperature (6 orders) (Fig. 1). Such high influence of the temperature points out on perspective for application SiOx films in sensors of temperature. At low temperatures there are clear minima of the current, which were shifting in the direction of zero voltage with increasing temperature of measurement.  A model was proposed to explain the features of electronic transport through SiOx films, which is based on a different concentration of energy |  |
| Fig. 1. Typical I-V characteristics ofSiOхfilm measured in temperature range from 80 К tо 350 К. Arrow shows the direction of temperature growth. |

states (traps) in the band gap of SiOx films near the Fermi level.

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