Annotation to the bachelor's work

"Contact resistance in field-effect transistors based on thiophene-phenylene oligomers"

student of 426th group Yakushkin L.E.

Scientific adviser: Ph.D. Trukhanov V.A.

In this paper, were studied the properties of organic semiconductors used in the manufacture of organic electronics devices: field-effect transistors, photo cells, light-emitting diodes, etc. Transistors were made based on several organic materials and some of their electrical properties were investigated. The values of mobility of the order of 10^{-2} $cm^2/(V \cdot s)$ were obtained. It has been experimentally confirmed that hole transport is observed in the substance CH_3-PTTP-CH_3, and electron transport is observed in CF_3-PTTP-CF_3.

For some manufactured transistors, current-voltage characteristics were used to estimate the contact resistance at the metal-semiconductor interface. It is shown that for the substance CF_3-PTTP-CF_3 with ytterbium electrodes, the injection of electrons into the active layer is worse than in case of calcium electrodes.

Transistors based on the new substance CF3-BPFB-CF3 were manufactured and investigated. Electronic conduction was detected in this substance. The values of electron mobility of the order of 10^{-4} $cm^2/(V \cdot s)$ are obtained.