

Low-Voltage and Stable Organic Memory Transistors with Polymeric Multi-Gate-Insulating Layers

이철연, 서주역, 송명훈, 김화정, 김영규[†]

경북대학교

(ykimm@knu.ac.kr[†])

Organic memory devices (OMDs) have been extensively studied because of their potential for flexible electronic devices and systems, since the successful launching of organic light-emitting devices (OLEDs). Very recently, the market trend is changing toward flexible electronics so that the need for organic memory devices is increasing more and more. Of various types of OMDs, transistor-type OMDs (TOMDs) have attracted keen interest due to their advantage of both memory and control (driving) functions in a single device structure. In principle, TOMDs are operated by the current hysteresis, which can be made typically in gate insulating layers or additional sophisticated structures such as ferroelectric or high-dielectric polymers, metal nanoparticle/polymer floating gates, polymer energy well structures, etc. In this presentation, we will demonstrate our new approaches for high stability TOMDs, which can be operated at low voltages, by introducing brand-new concept of polymeric multi-gate-insulating layers.