ST1-001

Spectroscopic Studies of TP6F PI Switched by Hole-Injection

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Metal/poly (4,4'-aminotriphen-ylene hexafluoroisopropylidenediphthalimide) (TP6F PI)/metal structure exhibited an electrically volatile phase transition with high (OFF) or low (ON) resistive states when voltage between electrodes swept. Here, we demonstrate a noble set-up in which holes are injected by photoelectron emission process during the voltage sweep instead of direct charge carrier injection via metal electrode, which enables direct investigation into changed electronic structures of TP6F PI both in ON and OFF states using photoemission spectroscopy methods. In the I-V measurement, TP6F PI shows a non-volatile behavior. In spectroscopic results, this non-volatile behavior is leaded from the structural modification of the O=C double bond in phthalimide of TP6F PI by hole injection.

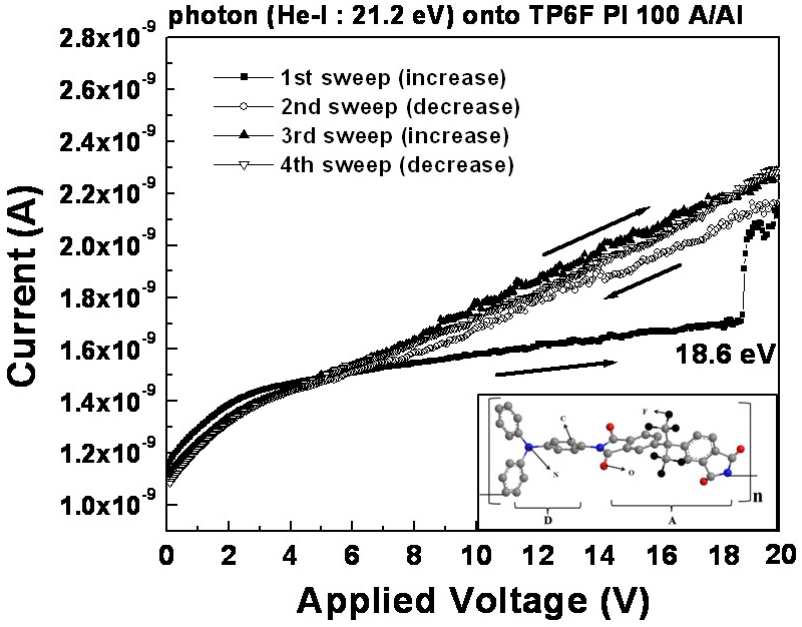

그림 1.

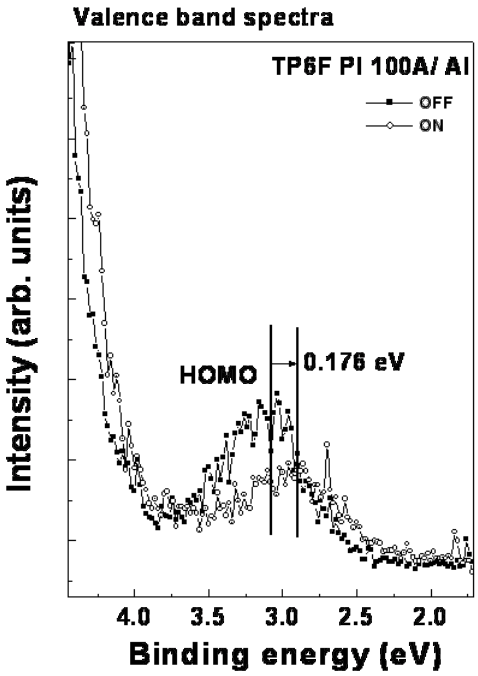

그림 2.

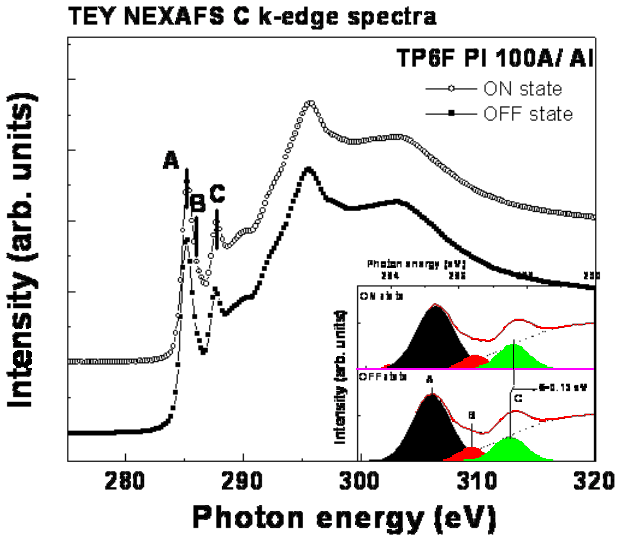

그림 3.

Keywords: polyimide, TP6F PI, electrically bi-stable switching, photoemission spectroscopy