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**TT-P071**

## **Electrical characteristics of flexible organic thin film transistor with passivation layer during mechanical bending**

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In this work, electrical characteristics of pentacene-based organic thin film transistors (OTFTs) with and without the passivation layers were investigated during mechanical bending. Flexible pentacene-based OTFTs were fabricated on flexible polyimide substrate with poly-4-vinyl phenol (PVP) dielectric as a gate dielectric layer. For evaluation of electrical stabilities of OTFTs with passivation layers, the devices were passivated by the solution-processed, evaporated, and plasma-deposited organic layers and then their characteristics were measured during mechanical bending. For analysis of electrical properties during mechanical bending, current on/off ratio ( $I_{on}/I_{off}$ ), leakage current, and hysteresis of OTFTs were analyzed during mechanical bending with various bending radii in dynamic and static mode. Effect of passivation layers of electrical behaviors of flexible OTFTs will be discussed in detail.

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## **Manufacture of 2-dimensional photonic-crystals using holographic technique**

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In this study, we made the  $As_{40}Ge_{10}Se_{15}S_{35}/Ag$  thin film and then we measured the holographic diffraction efficiency. Amorphous chalcogenide thin films exhibit a number of photo-induced phenomena. Using these optical properties, holography lithography method is used to form such photonic crystals. He-Ne laser (operating at 632.8 nm) was used for photonic crystal formation. At first, we formed one-dimensional photonic crystal and then we formed two-dimensional photonic crystal by changing incidence angle. We confirmed the two-dimensional photonic crystal and found out the most suitable incidence angle.