

フレキシブルデバイスの生体医療エレクトロニクス応用

Flexible devices for biomedical electronics

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We report recent progress of ultraflexible organic devices such as organic thin film transistors (OTFTs), organic photovoltaic cells (OPVs), and organic light-emitting diodes (OLEDs) that are manufactured on ultrathin plastic film with the thickness of 1 μm [1-6]. Ultraflexible organic transistor integrated circuits (ICs) exhibit extraordinary robustness in spite of being superthin. The electrical properties and mechanical performance of the transistor ICs were practically unchanged even when squeezed to a bending radius of 5 μm , dipped in physiological saline, or stretched to up to double their original size. These organic transistor ICs have been utilized to develop a flexible touch sensor system. Then, we have demonstrated OPV and OLED on 1 μm thick PEN. Moreover, the issues and the future prospect of flexible organic devices will be addressed. We will also describe our recent research activities to apply ultraflexible and stretchable electronic systems for biomedical applications.

References

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