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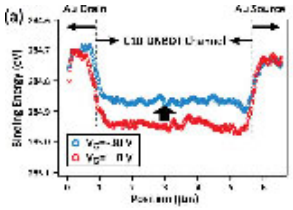
*Applied Physics Letters*: New Article Acceptance Criteria

## Editor's Picks



Chemical potential shift in organic field-effect transistors identified by soft X-ray operando nano-spectroscopy

http://dx.doi.org/10.1063/1.4922902
A chemical potential shift in an organic field effect transistor (OFET) during operation has been revealed by soft X-ray operando nano-spectroscopy analysis performed using a three-dimensional nanoscale electron-spectroscopy chemical analysis system. OFETs were fabricated using ultrathin (3 ML or 12 nm) single-crystalline C10-DNBDT-NW films on SiO2 (200 nm)/Si substrates with a backgate electrode and top source/drain Au electrodes, and C 1s line profiles under biasing at the backgate and drain electrodes were measured. When applying −30 V to the backgate, there is C 1s core level shift of 0.1 eV; this shift can be attributed to a chemical potential shift corresponding to band bending by the field effect, resulting in p-type doping.

Strong photoluminescence of the porous silicon with HfO2-filled microcavities

http://dx.doi.org/10.1063/1.4922879
Greatly enhanced blue emission was observed at room temperature in the single-crystal silicon with HfO2 filled into its microcavities. The broad blue