

ADVANCED FUNCTIONAL MATERIALS



ORGANIC ELECTRONICS

On page 3367 A. Fischer and co-workers investigate the brightness inhomogeneity of organic light-emitting diodes (OLEDs) under Joule self-heating. The presence of S-shaped negative differential resistance is revealed unambiguously by 4-wire crossbar measurements. In specific voltage regimes, the voltage and current distribution in the OLED produces regions where a declining voltage propagates laterally through the device. As a consequence, brightness inhomogeneities are amplified, producing even regions where current and luminance diminish in an upwards sweep of the applied external voltage.