Solution-Processed Organic Semiconductors and their Applications

K. Meerholz, University of Cologne, Germany

Organic light emitting diodes (OLEDs) based on electroluminescent conjugated polymers are considered as a promising alternative for display and lighting applications, mainly due to their better compatibility with low-cost production techniques and large substrates. A challenge is multiple-layer deposition to improve the efficiency of the devices and, as a result, their lifetime.

This lecture introduces recent trends in the field of OLED with an emphasis on solution-processed devices. We have in the past developed photochemically crosslinkable semiconductors for fabrication of complex multilayer OLED [1] with a potential for eventually becoming organic lasers [2] and RGB-pixelation. [3,4] Recently, we also introduced organic memories (OMEM) with multi-bit storage capacity.[5,6]