SYOO 4 Organic Optoelectronics and Photonics II

Zeit: Montag 16:30–17:15 Raum: TU HE101

Hauptvortrag SYOO 4.1 Mo 16:30 TU HE101

Light-emitting Organic Semiconductors: Materials and Devices

— •Ifor D. W. Samuel — Organic Semiconductor Centre, School of Physics and Astronomy, University of St Andrews, St Andrews, KY16 9NA, Scotland

The rapid progress in light-emitting organic semiconductors has led to a range of devices including organic light emitting diodes, lasers, and optical amplifiers. This talk will highlight recent developments in each of these fields, including highly efficient solution-processed LEDs, broadband optical amplifiers and simple fabrication of lasers. The highly efficient LEDs have external quantum efficiencies up to 16%, using dendrimers as the light-emitting material. Time-resolved luminescence measurements have been used to deduce exciton diffusion rates, and the results are related to device performance and material structure. The optical amplifiers use polymers and are optically pumped. They give gains of 30-45 dB over a bandwidth of 50 THz in the red region of the spectrum, giving compatibility with polymer optical fibre.