
OLED TRANSPORT

Thursday, May 24 / 10:40 am - 12:00 pm / Ballroom B

Chair:

Chin (Fred) H. Chen, National Chiao Tung University, Hsinchu, Taiwan, ROC

Co-Chair: Yasunori Kijima, Sony Corp., Kanagawa, Japan

47.1: Invited Paper: Injection and Transport in POLED (10:40) Materials and Devices

*D. Bradley
Imperial College London, London, U.K.*

Recent work on the injection and transport properties of polymer-OLED materials and devices will be reported. New fabrication procedures, novel interlayer lithography, vapor-phase polymerization, stamp-based patterning/multilayer structure formation, and transport processes within fluorine-based polymers will be presented. Future prospects for hybrid organic/inorganic devices will also be discussed.

47.2: Structural Identification of Chemical Products and Mechanism of Operational Degradation of OLEDs (11:00)

*D. Kondakov, W. Nichols, C. Lenhart
Eastman Kodak Co., Rochester, NY, U.S.A.*

Operational degradation based on changes in chemical compositions of fluorescent and phosphorescent carbazole-derived the OLEDs during operation is proposed. Substantial losses of chemical components, identification of degradation products, and photochemical studies point to the excited-state homolytic bond dissociation followed by radical additions as key mechanism steps.

47.3: Invited Paper: Bipolar Carrier Transport in Organic Small Molecules for OLEDs (11:20)

*S. So, S-C. Tse
Hong Kong Baptist University, Kowloon, Hong Kong*

Charge-transport measurements of two important classes of materials for OLED applications, namely, 9,10-di(2-naphthyl)anthracene (ADN) and naphthylphenylamine compounds (e.g., NPB), will be presented. Both classes of materials are bipolar. The mechanisms of bipolar transport will be examined, and their impact on device fabrication will be addressed.

47.4L: Late-News Paper: High-Efficiency White Organic Light-Emitting Diodes with a Two-Stack Multi-Photon Emission Structure (11:40)

*S. Ishihara, K. Masuda, Y. Sakaki, H. Kotaki, S. Aratani
Hitachi Research Laboratory, Ibaraki, Japan*

A novel white OLED with two vertically stacked emissive units composed of a blue-fluorescent emitter and one that uses green- and red-phosphorescent emitters will be demonstrated. The device achieves low-driving voltage without deterioration in luminous efficiency.

**47.5L:Late-News Paper: Highly Efficient White OLEDs Using
RGB Fluorescent Materials (11:50)**

*H. Kuma, Y. Jinde, M. Kawamura, H. Yamamoto,
T. Arakane, K. Fukuoka
C. Hosokawa
Idemitsu Kosan Co., Ltd., Chiba Japan*

A three-component all-fluorescent WOLED achieved 17 lm/W @10 mA/cm² and $t^{1/2}$ >30,000 hours @1000 cd/m² using new carrier-transport materials with high mobility. A top-emitting 2.2-in. QVGA full-color display was estimated to consume 200 mW (200 cd/m², 100% ON), which is comparable to the state of the art of LCDs.

LUNCH (12:00–2:00)

AUTHOR INTERVIEWS (5:00–6:00)