

Solution-processed OLEDs for displays

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Abstract

Attributed to high efficiency, ease of mass production, and excellent display quality, organic light-emitting diodes (OLEDs) have been commercialized for smart phones, laptops, and TVs. Currently, the manufacturing of OLEDs highly relies on high-vacuum thermal evaporation, which is highly expensive and complicated process. Alternatively, solution-processed OLEDs own the merits of large-area and low-cost mass production. In this talk, the development of soluble emitters featuring charge transfer characteristics and high electroluminescent efficiency will be showcased. Moreover, the state-of-the-art solution-processed OLEDs, via spin-coating, inkjet printing, and transfer printing, respectively, will be elaborated, including material design and device engineering. Meanwhile, the fundamental photophysics and device physics of the high-performance solution-processed OLEDs will be elucidated and unraveled.

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Short Biosketch

Dr. Guohua Xie obtained his Ph.D. degree from Jilin University (China) in 2011, conducting research on OLED microdisplays. Upon receiving the Alexander von Humboldt Fellowship, from August 2011, Dr. Xie conducted postdoctoral research simultaneously at the Technical University Dresden and Fraunhofer IPMS institute (Germany) within Prof. Karl Leo's group. Afterthat, in 2013, Dr. Xie moved to a second postdoctoral position in Prof. Ifor Samuel's group at the Organic Semiconductor Center of the University of St Andrews (UK).

In January 2015 he joined the College of Chemistry and Molecular Sciences of Wuhan University (China), where he held positions of Associate Professor and later Full Professor. Since February 2023, Prof. Xie has been working at the Institute of Flexible Electronics (IFE, Future Technologies) of Xiamen University (China).

Prof. Xie has co-authored over 280 peer-reviewed publications with an H-index of 59 and over 12,000 citations on his work. He also contributed to 1 book as an Editor and to 3 books with chapters writing. In 2020, Dr. Xie has been admitted as a Fellow of The Royal Society of Chemistry (UK). Currently, he also serves as an academic editor for journals *FlexMat* and *The Innovation Materials*.

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