PROCEEDINGS OF SPIE

Organic Light Emitting Materials and Devices XIX

Franky So Editor

9–11 August 2015 San Diego, California, United States

Sponsored and Published by SPIE

Volume 9566

Proceedings of SPIE 0277-786X, V. 9566

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings: Author(s), "Title of Paper," in Organic Light Emitting Materials and Devices XIX, edited by Franky So, Proceedings of SPIE Vol. 9566 (SPIE, Bellingham, WA, 2015) Six-digit Article CID Number.

ISSN: 0277-786X ISSN: 1996-756X (electronic) ISBN: 9781628417326

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445 SPIE.org

Copyright © 2015, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/15/\$18.00.

Printed in the United States of America Vm7 i ffUb 5 ggc WJUhy gž to Wži bXYf "JW bgy Zfca GD-9.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: Proceedings of SPIE follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a six-digit CID article numbering system structured as follows:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering

system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

V	Authors
	, (0111013

vii Conference Committee

NOVEL MATERIALS II

9566 09 X-ray absorption spectroscopy: towards more reliable models in material sciences (Invited Paper) [9566-8]

NOVEL MATERIALS III

- 9566 OB Organic light-emitting diodes: multiscale charge transport simulation and fabrication of new thermally activated delayed fluorescence (TADF) materials (Invited Paper) [9566-10]
- 9566 0C N-type organic luminescent materials based on siloles with aggregation-enhanced emission (Invited Paper) [9566-11]

NOVEL PROCESSING (INCLUDING SOLUTION PROCESSING)

9566 0J R2R processed flexible OLEDs for lighting [9566-18]

ORGANIC LASERS

- 9566 0QSolution-processable, photo-stable, low-threshold, and broadly tunable thin film organic
lasers based on novel high-performing laser dyes (Invited Paper) [9566-22]
- 9566 OT Photonic lattices in organic microcavities: Bloch states and control of lasing (Organic Photonics + Electronics Best Student Paper Award) [9566-24]

DEVICE PHYSICS AND MECHANISMS I

9566 0X Analysis of self-heating and trapping in organic semiconductor devices [9566-28]

NOVEL DEVICES II

9566 1A OLEDs: light-emitting thin film thermistors revealing advanced self-heating effects (Organic Photonics + Electronics Best Student Paper Award) (Invited Paper) [9566-38]

WOLED AND LIGHT EXTRACTION

9566 1F	Fabrication of a three-dimensional nanoporous polymer film as a diffuser for microcavity OLEDs (Invited Paper) [9566-43]
9566 1G	Anisotropy in OLEDs (Invited Paper) [9566-44]
9566 1H	Extracting and shaping the light of OLED devices [9566-45]
	POSTER SESSION
9566 1N	Inkjet printing of photopolymerizable small molecules for OLED applications [9566-53]
9566 1P	Reduced concentration quenching in a TADF-type copper(I)-emitter [9566-57]
9566 1R	Dependence of light outcoupling in organic light-emitting devices on ITO thickness and roughness [9566-61]
9566 1S	High performance inverted top-emitting organic light-emitting diodes with enhanced intrinsic quantum yield [9566-62]
9566 1X	To enhancement illuminance efficiency of OLED by thin film included microparticle [9566-67]
9566 1Z	Study on cadmium sulphide nanoparticles on blue and green light emitting polymers [9566-69]
9566 21	A comparison of the effect of joule heating vs thermal annealing on the morphology of typical hole transport layers in organic light emitting devices [9566-71]
9566 29	Thermally activated delayed fluorescence evidence in non-bonding transition electron donor-acceptor molecules [9566-80]
9566 2E	Highly enhanced phosphorescent organic light-emitting diodes with cesium fluoride doped electron injection layer [9566-85]
9566 2F	Numerical characteristics of the intensity distribution for a white organic light-emitting diode [9566-86]
9566 2N	Long-lived and highly efficient green and blue phosphorescent emitters and device architectures for OLED displays [9566-96]