

PROCEEDINGS OF SPIE

Organic and Hybrid Light Emitting Materials and Devices XXVIII

**Ji-Seon Kim
Tae-Woo Lee
Franky So**
Editors

**18–21 August 2024
San Diego, California, United States**

Sponsored by
SPIE

Cosponsored by
1-Material Inc. (Canada)

Published by
SPIE

Volume 13122

Proceedings of SPIE 0277-786X, V. 13122

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

Organic and Hybrid Light Emitting Materials and Devices XXVIII, edited by Ji-Seon Kim,
Tae-Woo Lee, Franky So, Proc. of SPIE Vol. 13122, 1312201 · © 2024
SPIE · 0277-786X · doi: 10.1117/12.3052818

Proc. of SPIE Vol. 13122 1312201-1

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 SPIDigitalLibrary.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 and Hybrid Light Emitting Materials and Devices XXVIII*, edited by Ji-Seon Kim, Tae-Woo Lee, Franky So, Proc. of SPIE 13122, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510679047
ISBN: 9781510679054 (electronic)

Published by
SPIE
P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time)
SPIE.org
Copyright © 2024 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

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

SPIE. DIGITAL LIBRARY
SPIDigitalLibrary.org

Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE 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 seven-digit CID article numbering system structured as follows:

- The first five 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 *Conference Committee*

ORGANIC LIGHT-EMITTING MATERIALS AND DEVICES II

13122 0V **Inverted singlet–triplet materials for organic light-emitting diodes** [13122-26]

ORGANIC LIGHT-EMITTING MATERIALS AND DEVICES IV

13122 15 **Blue organic light-emitting diode operated by extremely low driving voltage (Invited Paper)** [13122-36]

ORGANIC, INORGANIC LIGHT EMITTING MATERIALS AND DEVICES

13122 18 **Homoleptic iridium(III) carbene complexes as efficient blue OLED phosphors? (Invited Paper)** [13122-38]

PHOTOPHYSICS OF PEROVSKITE LIGHT EMITTING MATERIALS

13122 1C **Photon recycling effect in perovskite LEDs and solar cells (Invited Paper)** [13122-41]

Conference Committee

Symposium Chairs

Zakya H. Kafafi, Lehigh University (United States)
Ifor D. W. Samuel, University of St. Andrews (United Kingdom)
Thuc-Quyen Nguyen, University of California, Santa Barbara
(United States)

Conference Chairs

Ji-Seon Kim, Imperial College London (United Kingdom)
Tae-Woo Lee, Seoul National University (Korea, Republic of)
Franky So, North Carolina State University (United States)

Conference Program Committee

Chantal Andraud, Ecole Normale Supérieure de Lyon (France)
Hugo A. Bronstein, University of Cambridge (United Kingdom)
Paul L. Burn, The University of Queensland (Australia)
Moon Kee Choi, Ulsan National Institute of Science and Technology
(Korea, Republic of)
Malte C. Gather, University of St. Andrews (United Kingdom)
Xiwen Gong, University of Michigan (United States)
Russell J. Holmes, University of Minnesota, Twin Cities (United States)
Hironori Kaji, Kyoto University (Japan)
Yun-Hi Kim, Gyeongsang National University (Korea, Republic of)
Jeong-Hwan Lee, Inha University (Korea, Republic of)
Jongwook Park, Kyung Hee University (Korea, Republic of)
Linda A. Peteanu, Carnegie Mellon University (United States)
Lina Quan, Virginia Polytechnic Institute and State University
(United States)
Barry P. Rand, Princeton University (United States)
Ifor D. W. Samuel, University of St. Andrews (United Kingdom)
Sihong Wang, The University of Chicago (United States)
Ken-Tsung Wong, National Taiwan University (Taiwan)
Seunghyup Yoo, KAIST (Korea, Republic of)

