

PROCEEDINGS OF SPIE

Physical Chemistry of Semiconductor Materials and Interfaces XIX

**Christian Nielsen
Daniel Congreve
Andrew J. Musser**
Editors

**24 August – 4 September 2020
Online Only, United States**

Sponsored and Published by
SPIE

Volume 11464

Proceedings of SPIE 0277-786X, V. 11464

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

Physical Chemistry of Semiconductor Materials and Interfaces IX, edited by Christian Nielsen,
Daniel Congreve, Andrew J. Musser, Proc. of SPIE Vol. 11464, 1146401 · © 2020
SPIE · CCC code: 0277-786X/20/\$21 · doi: 10.1117/12.2576432

Proc. of SPIE Vol. 11464 1146401-1

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 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 *Physical Chemistry of Semiconductor Materials and Interfaces XIX*, edited by Christian Nielsen, Daniel Congreve, Andrew J. Musser, Proceedings of SPIE Vol. 11464 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510637344

ISBN: 9781510637351 (electronic)

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 © 2020, 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 \$21.00 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/20/\$21.00.

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**
SPIEDigitalLibrary.org

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 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

TMDC MATERIALS AND INTERFACES

- 11464 04 **Strain engineering photonic properties in monolayer semiconductors through mechanically-reconfigurable wrinkling (Invited Paper)** [11464-3]

PEROVSKITE MATERIALS AND SPECTROSCOPY

- 11464 0G **High stability of perovskite CsPbBr₃ quantum dots-based white light-emitting diodes** [11464-15]
- 11464 0J **Diffusion and photon recycling in halide perovskite thin films: insights from experiment and theory** [11464-18]
- 11464 0K **Understanding perovskite nanocrystal growth using in situ transient absorption spectroscopy (Invited Paper)** [11464-19]

CONTROLLING PROPERTIES WITH LIGHT-MATTER INTERACTIONS

- 11464 0O **Polariton chemistry: controlling organic photophysical processes with strong light-matter coupling (Invited Paper)** [11464-23]

NANOSCOPIC MATERIALS AND INTERFACES

- 11464 0R **Quantitative electrochemical control over optical gain in colloidal quantum-dot and quantum-well solids (Invited Paper)** [11464-26]
- 11464 0U **Hybrid nanomaterials for artificial photosynthesis** [11464-29]

2D PEROVSKITE SPECTROSCOPY

- 11464 0Y **Narrow and broadband light emission in layered organic lead halide perovskites: interplay between weak electron-lattice interactions and defect-related effects (Invited Paper)** [11464-33]

UPCONVERSION AND DOWNCONVERSION

11464 16 **Sensitization of silicon by singlet exciton fission in tetracene** [11464-41]