Optogenetics and Optical Manipulation 2023

Samarendra K. Mohanty Anna W. Roe Shy Shoham Editors

28–29 January 2023 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 12366

Proceedings of SPIE, 1605-7422, V. 12366 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 Optogenetics and Optical Manipulation 2023, edited by Samarendra K. Mohanty, Anna W. Roe, Shy Shoham, Proc. of SPIE 12366, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422 ISSN: 2410-9045 (electronic)

ISBN: 9781510658370 ISBN: 9781510658387 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2023 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.



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

CIRCUITS

12366 02 Simultaneous monitoring of the effects of optogenetic stimulation of monkey S2 cortex using functional MRI and MRI thermometry [12366-32]

TOOL DEVELOPMENT I

- 12366 03 **Two-photon imaging of GABAergic and non-GABAergic neuronal calcium activity induced by** infrared neural stimulation in awake mouse cortex [12366-2]
- 12366 04 Drug delivery and optical neuromodulation using a structured polymer optical fiber with ultra-high NA [12366-4]
- 12366 05 Infrared neural stimulation and electrophysiology in a soft fiber-based neural interface [12366-6]

CLINICAL APPLICATIONS

12366 06 Toward an optical cochlear implant (Invited Paper) [12366-7]

TOOL DEVELOPMENT II

12366 07 In vivo optogenetic stimulation using Parylene photonic waveguides for light delivery [12366-14]

POSTER SESSION

- 12366 08Optimization of optogenetic control of Drosophila cardiac function using ChRmine opsin
[12366-22]12366 09An integrated setup for in-vitro optogenetic experiments using AI to localize stimulation
 - 2366 09 An integrated setup for in-vitro optogenetic experiments using AI to localize stimulation [12366-23]