

PROCEEDINGS OF SPIE

***Frontiers in Ultrafast Optics:
Biomedical, Scientific, and
Industrial Applications XXIII***

**Peter R. Herman
Roberto Osellame
Adela Ben-Yakar**
Editors

**29–31 January 2023
San Francisco, California, United States**

Sponsored by
SPIE

Co-sponsored by
Amplitude (France)
TRUMPF Inc. (United States)

Published by
SPIE

Volume 12411

Proceedings of SPIE 0277-786X, V. 12411

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 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 *Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XXIII*, edited by Peter R. Herman, Roberto Osellame, Adela Ben-Yakar, Proc. of SPIE 12411, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510659278

ISBN: 9781510659285 (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.

**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*

ULTRAFAST LASER SYSTEMS FOR BIOMEDICAL APPLICATIONS

- 12411 02 **Femtosecond fiber delivery for industrial applications** [12411-2]
- 12411 03 **Soliton-pulse-based, wavelength-tunable femtosecond fiber laser light source for NIR 1650-1900 nm emission** [12411-4]
- 12411 04 **Black marking for medical industry with ultrashort-pulsed lasers at different laser pulse durations** [12411-6]

BIOMEDICAL APPLICATIONS FOR ULTRAFAST LASER SYSTEMS

- 12411 05 **Optimization of laser parameters for ultrashort-laser spinal surgeries** [12411-8]
- 12411 06 **Ultrafast ablation of bone tissue: process optimisation and species dependence (Invited Paper)** [12411-10]

ULTRAFAST LASER-MATTER INTERACTION

- 12411 07 **Sub-femtosecond dynamics in photoionization and photodissociation processes** [12411-15]
- 12411 08 **Pulse contrast enhancement by an aperiodic converter and self-focusing in hybrid Yb-fiber / Nd:glass CPA system** [12411-47]

ULTRAFAST LASER MICRO/NANO-MACHINING

- 12411 09 **Ultra-high-speed high-resolution laser lithography for lithium niobate integrated photonics (Invited Paper)** [12411-19]
- 12411 0A **Time-resolved measurement of stress wave profile during femtosecond laser processing of synthetic silica glass** [12411-23]

BEAM SHAPING FOR LASER MICROMACHINING

12411 0B **Laser glass cutting of complex contours with tailored edges** [12411-30]

LASER WRITING OF STRUCTURAL MODIFICATIONS

12411 0C **Direct writing of conductive and semiconductive structures via the femtosecond laser-induced carbonization of a silicone elastomer** [12411-35]

12411 0D **Laser processing and electrical analysis of embedded graphitic wires in diamond** [12411-36]