

PROCEEDINGS OF SPIE

High Power Lasers for Fusion Research V

**Abdul A. S. Awwal
Constantin L. Haefner**
Editors

**5–6 February 2019
San Francisco, California, United States**

Sponsored by
SPIE

Cosponsored by
Livermore Lab Foundation (United States)

Published by
SPIE

Volume 10898

Proceedings of SPIE 0277-786X, V. 10898

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 *High Power Lasers for Fusion Research V*, edited by Abdul A. S. Awwal, Constantin L. Haefner, Proceedings of SPIE Vol. 10898 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510624382

ISBN: 9781510624399 (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 © 2019, 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/19/\$18.00.

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

SPIDigitalLibrary.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

v *Authors*
vii *Conference Committee*

SESSION 1 STATUS OF BIG LASERS

- 10898 02 **LMJ status: fifth bundle commissioning and PW class laser coupling (Invited Paper)** [10898-1]
- 10898 03 **Recent development of the Orion Laser Facility and future perspectives (Invited Paper)**
[10898-2]
- 10898 04 **Tunable UV upgrade on OMEGA EP** [10898-3]
- 10898 05 **A change of paradigm for visual defects specification in high power lasers** [10898-4]
- 10898 07 **Key issues of damage resistance of final optics for ICF high power laser facility** [10898-6]

SESSION 2 LASER SUBSYSTEMS/MODELLING

- 10898 08 **Implementation of static wavefront correctors in Orion's long pulse beamlines** [10898-7]
- 10898 09 **Wide aperture high resolution stacked-actuator deformable mirror for high power laser beam correction** [10898-8]

SESSION 3 LASER MEASUREMENTS/ANALYSIS

- 10898 0F **In-tank, on-shot characterization of the OMEGA laser system focal spot** [10898-15]
- 10898 0G **Comparison of on-shot, in-tank, and equivalent-target-plane measurements of the OMEGA laser system focal spot** [10898-14]

SESSION 4 MODERN ENERGETIC DPSSL LASER TECHNOLOGY

- 10898 0I **Using convolutional neural networks to classify static x-ray imager diagnostic data at the National Ignition Facility** [10898-17]
- 10898 0M **Thermal effects in a high repetition rate 88 W average power OPCPA system at 800 nm**
[10898-31]

POSTER SESSION

- 10898 ON **High-efficiency, large-aperture fifth-harmonic generation of 211-nm pulses in ammonium dihydrogen phosphate crystals for fusion diagnostics** [10898-22]
- 10898 OO **Co-timing UV and IR laser pulses on the OMEGA EP laser system** [10898-23]
- 10898 OQ **Deconvolution uncertainty for power sensors at the National Ignition Facility** [10898-25]
- 10898 OT **Broadband amplification in Nd³⁺ phosphate glass: single effective oscillator model and beyond** [10898-28]
- 10898 OU **Longitudinally excited CO₂ laser with a spike pulse width of 100 ns to 300 ns** [10898-29]