

PROCEEDINGS OF SPIE

Optical Materials in Defence Systems Technology IV

James G. Grote
François Kajzar
Mikael Lindgren
Editors

17–18 September 2007
Florence, Italy

Sponsored by
SPIE Europe

Cooperating Organisations

EMRSDTC—The Electro-Magnetic Remote Sensing Defence Technology Centre
(United Kingdom)

EOARD—European Office of Aerospace Research & Development (United Kingdom)

FOI—Swedish Defence Research Agency (Sweden)

Luminex Corporation (USA)

SIOF—Società Italiana di Ottica e Fotonica (Italy)

dstl—Defence Science and Technology Laboratory (United Kingdom)

Published by
SPIE

Volume 6740

Proceedings of SPIE, 0277-786X, v. 6740

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

The papers included 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. The papers published in these proceedings 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 this book:

Author(s), "Title of Paper," in *Optical Materials in Defence Systems Technology IV*, edited by James G. Grote, François Kajzar, Mikael Lindgren, Proceedings of SPIE Vol. 6740 (SPIE, Bellingham, WA, 2007) Article CID Number.

ISSN 0277-786X
ISBN 9780819468987

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 © 2007, 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/07/\$18.00.

Printed in the United States of America.

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


SPIEDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four 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. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID number.

Contents

v *Conference Committee*

NLO MATERIALS AND APPLICATIONS IN DEFENCE

- 6740 03 **New electrooptic polymer configurations for high frequency modulators and digital signal processing applications (Keynote Paper)** [6740-02]
H. R. Fetterman, B.-J. Seo, B. J. Bortnik, Y.-C. Hung, S. Kim, Univ. of California at Los Angeles (USA)
- 6740 07 **Model kinetics of surface relief gratings formation in organic thin films: experimental and Monte Carlo studies (Invited Paper)** [6740-06]
G. Pawlik, W. Kordas, A. C. Mitus, Wroclaw Univ. of Technology (Poland); B. Sahraoui, R. Czaplicki, F. Kajzar, Lab. POMA, CNRS, Univ. d'Angers (France)
- 6740 09 **Walk-off correction in biaxial crystals** [6740-09]
H-C. Lee, H. E. Meissner, Onyx Optics, Inc. (USA)
- 6740 0B **Space-and-time current spectroscopy of wide-gap semiconductors** [6740-12]
I. Sokolov, M. Bryushinin, A.F. Ioffe Physical Technical Institute (Russia)

PHOTONIC MATERIALS FOR SECURITY AND DEFENCE

- 6740 0G **Tunable wavelength surface quantum cascade lasers for chemical sensors in the 3–6 μm spectral region** [6740-18]
A. Christou, C. C. Zhang, M. Linnick, Univ. of Maryland, College Park (USA)
- 6740 0H **Fabrication of InAs photodiodes with reduced surface leakage current** [6740-20]
A. R. J. Marshall, C. H. Tan, J. P. R. David, J. S. Ng, M. Hopkinson, The Univ. of Sheffield (United Kingdom)
- 6740 0I **Thick low-loss orientation-patterned gallium arsenide (OP-GaAs) samples for mid-infrared laser sources** [6740-22]
D. Faye, E. Lallier, A. Grisard, B. Gérard, Thales Research & Technology (France); C. Kieleck, A. Hirth, Institut Franco-Allemand de Recherches de Saint-Louis (USA)
- 6740 0J **The effects of monolayer thickness and sheet doping density on dark current and noise current in quantum dot infrared photodetectors** [6740-23]
C. H. Tan, S. C. L. T. Mun, P. Vines, J. P. R. David, M. Hopkinson, L. Wilson, P. Aivaliotis, The Univ. of Sheffield (United Kingdom)
- 6740 0K **Simulation of a small Si plate oxidation in a cwCO₂ laser light** [6740-24]
S. Balint, A. M. Balint, R. Szabo, West Univ. of Timisoara (Romania)

POSTER SESSION

- 6740 OM **Photo-physical properties and OPL of some new longer thiophenyl-containing arylalkynyl Pt(II) compounds** [6740-25]
E. Glimsdal, Norwegian Univ. of Science and Technology (Norway); M. Carlsson, B. Eliasson, Umeå Univ. (Sweden); R. Westlund, Royal Institute of Technology, KTH Fibre and Polymer Technology (Sweden); M. Lindgren, Norwegian Univ. of Science and Technology (Norway)
- 6740 ON **Al_{2-x}Me_x(WO₄)₃ single crystal, Me = Sc, Y, Ga and In, as a new tunable laser media** [6740-26]
D. Ivanova, V. Nikolov, P. Peshev, Institute of General and Inorganic Chemistry (Bulgaria)

Author Index

Conference Committee

Symposium Chair

David H. Titterton, Defence Science and Technology Laboratory
(United Kingdom)

Symposium Cochair

Stefania De Vito, Galileo Avionica SpA (Italy)

Conference Chairs

James G. Grote, Air Force Research Laboratory (USA)
François Kajzar, Laboratoire POMA, CNRS, Université d'Angers (France)
Mikael Lindgren, Norwegian University of Science and Technology
(Norway)

Conference Cochair

Giovanna Cecchi, National Research Council of Italy (Italy)

Session Chairs

- 1 NLO Materials and Applications in Defence
James G. Grote, Air Force Research Laboratory (USA)
- 2 Biopolymer Photonics
James G. Grote, Air Force Research Laboratory (USA)
- 3 Photonic Materials for Security and Defence
Roberto Zamboni, Istituto per lo Studio dei Materiali Nanostrutturati,
CNR (Italy)

