

PROCEEDINGS OF SPIE

Fiber Lasers XVI: Technology and Systems

Adrian L. Carter

Liang Dong

Editors

4–7 February 2019

San Francisco, California, United States

Sponsored by
SPIE

Cosponsored by
NKT Photonics A/S (Denmark)

Published by
SPIE

Volume 10897

Proceedings of SPIE 0277-786X, V. 10897

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

Fiber Lasers XVI: Technology and Systems, edited by Adrian L. Carter, Liang Dong, Proc. of SPIE
Vol. 10897, 1089701 · © 2019 SPIE · CCC code: 0277-786X/19/\$18 · doi: 10.1117/12.2531320

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 *Fiber Lasers XVI: Technology and Systems*, edited by Adrian L. Carter, Liang Dong, Proceedings of SPIE Vol. 10897 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)

ISBN: 9781510624368
ISBN: 9781510624375 (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.



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

ix Authors
xiii Conference Committee

MODAL INSTABILITIES IN HIGH POWER FIBER LASERS

- 10897 02 **Observation of transverse-mode instabilities in a thulium-doped fiber amplifier (Invited Paper)** [10897-1]
- 10897 03 **The impact of pump-power noise on transverse mode instabilities (Invited Paper)** [10897-2]
- 10897 04 **Origin and evolution of phase-shifts in high-power fiber laser systems: detailed insights into TMI** [10897-3]
- 10897 06 **Guidance properties and phase shift of a 9-core fiber amplifier for high power operation in presence of consistent thermal load** [10897-5]

THULIUM LASERS I

- 10897 08 **kW pulsed nanosecond TDFL with direct modulation** [10897-7]
- 10897 09 **Thulium doped silica fiber laser operating in single-longitudinal-mode at a wavelength above 2 μm** [10897-8]

kW-CLASS FIBER LASERS AND AMPLIFIERS I

- 10897 0C **Full non-destructive characterization of doped optical fiber preforms** [10897-11]
- 10897 0D **Multi-kW performance analysis of Yb-doped monolithic single-mode amplifier and oscillator setup** [10897-12]
- 10897 0E **Highly efficient dual-grating 3-channel spectral beam combining of narrow-linewidth monolithic cw Yb-doped fiber amplifiers up to 5.5 kW** [10897-13]
- 10897 0F **Improvement of the manufacturing process chain of sintered active XLMA fibers and their preforms for use in high power, high efficiency fiber resonators** [10897-14]
- 10897 0G **VAD technology for laser fibers** [10897-15]

THULIUM LASERS II

- 10897 0H **High-power ultrafast Tm-doped fiber lasers for the generation of mid-infrared radiation in the molecular fingerprint region (Invited Paper)** [10897-16]
- 10897 0I **High power frequency comb delivered by a Tm-doped fiber laser** [10897-17]
- 10897 0J **High power Q-switched Tm³⁺, Ho³⁺-codoped 2μm fiber laser and application for direct OPO pumping** [10897-18]
- 10897 0K **25W, 2μm broadband polarization-maintaining hybrid Ho- and Tm-doped fiber amplifier** [10897-19]

EYE-SAFE FIBER LASERS AND AMPLIFIERS

- 10897 0N **High power, ultra-high spectral purity, broadly wavelength tunable cascaded Raman fiber laser** [10897-22]
- 10897 0P **Numerical investigation of high efficiency random fiber lasers at 1.5 μm** [10897-24]

MID-INFRARED FIBER LASERS AND AMPLIFIERS

- 10897 0R **Electronically tunable mid-infrared mode-locked dysprosium fiber laser with over 330nm tunability (Invited Paper)** [10897-26]
- 10897 0S **High-power all-fiber-integrated super-continuum source from 1.57 to 12 microns (Invited Paper)** [10897-27]
- 10897 0U **Scaling power and bandwidth of mid-infrared supercontinuum source based on a GeO₂ doped silica fiber** [10897-29]

NOVEL FIBER DESIGN AND MATERIALS

- 10897 0V **Diffraction-limited Yb-doped double-clad all-solid photonic bandgap fiber laser at 976 nm (Invited Paper)** [10897-30]
- 10897 0W **Single-mode propagation with 205μm mode-field diameter in a passive large pitch fiber** [10897-31]
- 10897 0X **More than 100W, 18cm Yb-doped phosphate fiber amplifier** [10897-32]
- 10897 0Y **Ultralow loss hollow-core conjoined-tube negative-curvature fiber (Invited Paper)** [10897-33]
- 10897 0Z **Single-mode high-anomalous-dispersion Yb-doped hybrid fiber amplifier** [10897-34]

- 10897 10 **Solar-pumped fiber laser with all-inorganic cesium lead halide perovskite quantum dots** [10897-35]
- 10897 11 **Dual-wavelength, cascaded cavities bismuth-doped fiber laser in 1.7 μ m wavelength range** [10897-36]

kW-CLASS FIBER LASERS AND AMPLIFIERS II

- 10897 12 **Dynamic analysis of materials processing with 5-kW single-mode fiber laser** [10897-37]
- 10897 13 **Investigation of fiber Bragg gratings for high-power multi-mode XLMA-based fiber lasers** [10897-38]
- 10897 17 **Extraction of more than 10 kW from a single ytterbium-doped MM-fiber** [10897-42]

COHERENT COMBINATION OF FIBER LASERS

- 10897 19 **3.5kW coherently combined ultrafast fiber laser (Invited Paper)** [10897-43]
- 10897 1A **Coherent beam combination of pulses emitted by a 16-core ytterbium-doped fiber (Invited Paper)** [10897-44]
- 10897 1B **High-power electro-optically controlled divided-pulse amplification (Best Student Paper Award)** [10897-45]
- 10897 1C **Pulse destacking and restacking for coherent combination of amplified pulses using spatial offset and intensity splitting** [10897-46]

ULTRAFAST FIBER LASERS AND AMPLIFIERS I

- 10897 1E **Tm:fiber CPA driven nonlinear pulse compression stage delivering multi-GW, sub-10 fs pulses at 20 W of average power (Invited Paper)** [10897-48]

ULTRAFAST FIBER LASERS AND AMPLIFIERS II

- 10897 1I **Fiber-laser driven THz source based on air-plasma (Invited Paper)** [10897-52]
- 10897 1J **3.5nJ femtosecond pulses at 792 nm generated by frequency doubling of an all-PM fiber high energy 48 fs laser** [10897-53]
- 10897 1L **Photonic crystal fiber technology for monolithic single-mode large-mode-area all-solid amplifier** [10897-55]

NONLINEAR FIBER OPTICS I

- 10897 1O **High power single frequency, linearly polarized DFB Raman fiber laser operating at 1178 nm** [10897-58]
- 10897 1Q **Stand-off FTIR spectroscopy utilizing a long-wave infrared supercontinuum source** [10897-60]
- 10897 1S **Non-destructive detection of acrylamide in potato fries with high-power supercontinuum lasers** [10897-62]

NONLINEAR FIBER OPTICS II

- 10897 1U **Actively stabilized low-noise Brillouin fiber ring laser for Brillouin sensing** [10897-64]
- 10897 1V **Continuously linewidth tunable, polarisation maintaining narrow linewidth fiber laser** [10897-65]
- 10897 1W **Tunable CW all-fiber optical parametric oscillator based on the cascaded single-mode-multimode-single-mode fiber structures** [10897-66]

ERBIUM DOPED FIBER LASERS AND AMPLIFIERS

- 10897 1X **High-peak-power highly efficient combined Er/Er-Yb fiber amplifier** [10897-67]
- 10897 1Y **Harmonic noise-like square pulses of a passively mode-locked Er/Yb double clad fiber laser in a figure-eight configuration** [10897-68]
- 10897 1Z **Nonlinear polarization evolution based Er-doped ultrafast laser in polarization maintaining fibers** [10897-69]
- 10897 20 **Study of dual-wavelength quasi-mode-locked regimes in a strict polarization-controlled Er-fiber ring laser** [10897-70]

HIGH PEAK POWER/HIGH ENERGY FIBER AMPLIFIERS

- 10897 22 **Characterization of the monolithic fiber amplifier engineering prototype for the next generation of gravitational wave detectors** [10897-72]
- 10897 23 **High power picosecond 1064-nm fiber laser with tunable pulse width** [10897-73]
- 10897 25 **Large-mode-area double clad ytterbium-doped tapered fiber with circular birefringence** [10897-75]

POSTER SESSION

- 10897 26 **Optical frequency comb generation using femtosecond fiber laser and two types of optical fibers** [10897-76]
- 10897 27 **Stress induced refractive index changes in preforms and laser fibers** [10897-77]
- 10897 28 **Narrow-linewidth all-solid large-mode-area photonic crystal fiber amplifier** [10897-78]
- 10897 2A **Experimental investigation of Q-switched mode-locking pulse emission based on in-fiber acousto-optic modulator** [10897-80]
- 10897 2B **Beam analysis with improved precision using enhanced SPGD algorithm for up-to-6-mode fiber laser** [10897-81]
- 10897 2C **Polarization-maintaining (PM) nonlinear-amplifying-loop-mirror (NALM) mode-locked fiber laser utilizing a 3×3 coupler** [10897-82]
- 10897 2D **Ring erbium doped fiber laser cavity for multi-wavelength generation based on inline modal fiber interferer** [10897-83]
- 10897 2E **Multi-wavelength ring fiber laser cavity based on loop modal fiber optic interferometer** [10897-84]
- 10897 2G **Group velocity locked vector soliton and polarization rotation vector soliton generation in a birefringence enhanced fiber laser** [10897-86]
- 10897 2H **Highly stable fiber lasers for satellite-based gravitational measurements** [10897-88]
- 10897 2L **Gain clamping by predictive model pump control in MOPA fiber laser** [10897-92]
- 10897 2M **Fibre Raman laser generated clusters of femtosecond pulses at 1270 nm** [10897-93]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

- Aalos, V., 27
Ackermann, M., 17
Akbulut, Mehmetcan, 0X
Aleshkina, Svetlana S., 0Z
Alkeskjold, Thomas T., 1L, 28
Álvarez-Tamayo, R. I., 1Y
Amezcuá-Correa, Rodrigo, 1E
Antonio-Lopez, Jose, 1E
Aparanji, Santosh, 1V
Armas-Rivera, I., 20
Baer, P., 0F
Balaswamy, V., 0N
Bang, Ole, 0U
Barbosa, H., 2L
Bastianini, Filippo, 1U
Bello-Jiménez, M., 1Y, 2A, 2E
Benkenstein, Tino, 0E
Berendt, M. Ole, 2L
Betz, P., 2H
Bierlich, Jörg, 0W
Bode, Nina, 22
Boden, B., 17
Boivin, Mathieu, 29
Boivinet, S., 1J
Bolognini, Gabriele, 1U
Bondu, Magalie, 1L, 28
Boulet, J., 1J
Bowen, Patrick, 0U
Brabant, T., 0F
Bravo-Huerta, E., 1Y
Bu, Xiangbao, 1Z
Bubnov, Mikhail M., 0Z, 1X
Buldt, Joachim, 1B, 1I
Butler, Thomas P., 0I
Cadier, Benoît, 0J
Camarillo-Avilés, A., 2A
Cebeć, P., 2H
Chamorovskiy, Yuri, 25
Chavez-Pirson, Arturo, 0X
Chen, Lawrence R., 11
Cheng, Zhaochen, 1Z
Cho, Hyungsu, 0G
Choi, Kyuhong, 2B
Choudhury, Vishal, 1V
Christensen, Simon L., 1L, 28
Cucinotta, Annamaria, 06
Dahl, K., 2H
Dalloz, Nicolas, 0J
Delacruz-Mendoza, E., 2D, 2E
Delavaux, Jean-Marc, 08, 0K
Demory, Brandon, 0S, 1S
Desbiens, Louis, 29
DeWilde, Carl A., 0S, 1Q, 1S
Dianov, Evgeny M., 11
Ding, Chao, 10
Ding, Wei, 0Y
Dong, Jonathan A., 0V
Dong, Liang, 0V
Durán-Sánchez, M., 1Y, 20, 2A
Eberhardt, Ramona, 0D, 0E
Ehrhardt, Sascha, 0E
Eichhorn, Marc, 0J
Endo, Masamori, 10
Estudillo-Ayala, J. M., 2D, 2E
Faykus, Max, 0V
Fedotov, Andrei, 25
Fermann, Martin E., 1C
Filippov, Valery, 25
Firstov, Sergei V., 11
Fischer, Marc, 0I
Fitzau, O., 0F, 13, 2H
Freeman, Michael J., 0S, 1Q, 1S
Fu, Shijie, 09, 1W
Gaida, Christian, 02, 0H, 0I, 1E
Gao, Shou-Fei, 0Y
Garcia-Mina, D. F., 2D
Gastelum-Barrios, A., 2E
Gebhardt, Martin, 02, 0H, 0I, 1E
Gervaziev, Mikhail, 2M
Gerz, Daniel, 0I
Giesberts, M., 0F, 13, 2H
Gu, Guancheng, 0V
Gumenyuk, Regina, 25
Guo, Kaiwen, 0S, 1Q, 1S
Guryanov, Alexei N., 0Z, 1X
Haariumpert, Nicoletta, 0W
Han, Jaewan, 0G
Harra, J., 27
Hauge, Jakob M., 1L, 28
Haus, J. W., 2D
Hawkins, Thomas W., 0V
Hernández-Arriaga, M. V., 20
Hernández-Escobar, E., 2A
Herrera-Piad, L. A., 2E
Heuermann, Tobias, 02, 0H, 0I, 1E
Hildenbrand-Dhollande, Anne, 0J
Hoffmann, H.-D., 0F, 13, 2H
Holzwarth, Ronald, 0I

- Hong, Yi-Feng, 0Y
 Hupel, Christian, 0W, 1A
 Husu, H., 27
 Hwang, Chanho, 0G
 Ibarra-Escamilla, B., 1Y, 20, 2A
 Ifarraguerri, Agustin I., 1Q
 Ihlainen, H., 27
 Ikoma, S., 12
 Islam, Mohammed N., 0S, 1Q, 1S
 Ivanenko, Aleksey, 2M
 Iyoda, Mitsuhiro, 10
 Jackson, S. D., 0R
 Jain, Deepak, 0U
 Jakobsen, Christian, 1L
 Jaouën, Yves, 08
 Jauregui, Cesar, 02, 03, 04, 0W, 1E, 11
 Jauregui-Vazquez, D., 2D, 2E
 Johansen, Mette M., 1L
 Jun, Changsu, 2B
 Jung, Changhyun, 0G
 Jung, Markus, 0E
 Kalichevsky-Dong, Monica T., 0V
 Karpov, Vladimir, 1O
 Kashiwagi, M., 12
 Kashyap, Raman, 1O
 Khudyakov, M. M., 1X
 Kieleck, Christelle, 0J
 Kiiveri, P., 27
 Kim, Daeyoung, 0G
 Kim, Dohyun, 2C
 Kim, Jaesun, 0G
 Kim, Jungwon, 2C
 Kimmelma, O., 27
 Klein, S., 0F, 13
 Klenke, Arno, 19, 1A, 1B
 Kobtsev, Sergey, 2M
 Kokhanovsky, Alexey, 2M
 Kolosovskii, Alexander, 25
 Koponen, J., 27
 Kösters, A., 17
 Kotov, Leonid, 0X
 Kovalchuk, E., 2H
 Kracht, Dietmar, 22
 Krämer, Ria G., 0D
 Krause, V., 0F, 13, 17
 Kuka, G., 0F
 Kusaka, H., 12
 Kuzin, E. A., 1Y, 20
 Lægsgaard, Jesper, 1L, 28
 Lange, R., 17
 Langner, A., 0F
 Lee, Bong-Wan, 2C
 Lee, Junho, 0G
 Lee, Kevin F., 1C
 Leitenstorfer, Alfred, 0I
 Li, Wensong, 0V
 Likhachev, Mikhail E., 0Z, 1X
 Lilienfein, Nikolai, 0I
 Limpert, Jens, 02, 03, 04, 0H, 0I, 0W, 19, 1A, 1B, 1E,
 11
- Lipatov, Denis S., 0Z, 1X
 Liu, Feng, 10
 López-Estopier, R., 2A
 Loranger, Sébastien, 1O
 Ludewigt, Klaus, 0E
 Luo, Xing, 2G
 Machinet, G., 1J
 Majewski, M. R., 0R
 Maksymiuk, Lukasz, 0S, 1Q, 1S
 Marini, Diego, 1U
 Martinez, Ramon A., 0S, 1Q, 1S
 Masuda, Taizo, 10
 Matniyaz, Turghun, 0V
 Matzdorf, Christian, 0D
 Maynard, Robert L., 0S, 1Q
 Meah, Shawn Z., 0S, 1S
 Melo, M., 2L
 Michieletto, Mattia, 1L
 Molardi, Carlo, 06
 Möller, Friedrich, 0D
 Moon, Dae Seung, 0G
 Morales Villagomez, L. M., 2D, 2E
 Morin, P., 1J
 Moselund, Peter M., 0U
 Moser, F., 0F
 Mueller, Michael, 19, 1A, 1B, 11
 Nemova, Galina, 11
 Netz, D., 17
 Neumann, Jörg, 22
 Nguyen, Hoa Phuoc Trung, 2G
 Nold, Johannes, 0W
 Nolte, Stefan, 0D
 Noronen, Teppo, 25
 Novotny, S., 27
 Odnoblyudov, Maxim, 25
 Ohishi, Yasutake, 2G
 Oppermann, Patrick, 22
 Ouh, Chihwan, 0G
 Overmeyer, Ludger, 22
 Pallangal, Shahul H., 06
 Papior, Sidsel R., 1L, 28
 Park, Eric D., 23
 Park, Gaye, 0G
 Parsons, Joshua, 0V
 Paul, J., 27
 Pedersen, Jens E., 28
 Peng, Zhigang, 1Z
 Perne, C., 17
 Peters, A., 2H
 Peyghambarian, N., 0X
 Plass, J., 0F
 Plötner, Marco, 0D, 0E
 Poli, Federica, 06
 Pottiez, O., 2A
 Prakash, Roopa, 1V
 Pupeza, Ioachim, 0H, 0I
 Pyka, S. Amairi, 2H
 Qiao, Jinghao, 11
 Raghuraman, Sidharthan, 0U
 Ramachandran, Siddharth, 0N

- Rehmann, G., 0F, 13, 17
 Ren, Luju, 1S
 Rissanen, Joonas, 25
 Robin, Thierry, 0J
 Rodriguez-Morales, L. A., 20
 Rodriguez-Saona, Luis, 1S
 Rojas Laguna, R., 2D, 2E
 Romano, Clément, 08, 0K
 Rosa, Lorenzo, 06
 Rossi, Leonardo, 1U
 Rothhardt, Jan, 1E
 Roy, Vincent, 29
 S., Harshitha, 0N
 Safarzadeh, F., 17
 Saini, Than Singh, 2G
 Salganskii, Mikhail Yu., 0Z
 Sanjuan, J., 2H
 Santiago-Hernández, H., 1Y, 20
 Sasaki, Kiyoto, 10
 Schiemangk, M., 2H
 Schönfeld, D., 0F
 Schötz, G., 0F
 Schreiber, Thomas, 0D, 0E, 1A
 Schulzgen, Axel, 1E
 Selee, Bradley, 0V
 Selleri, Stefano, 06
 Senatorov, Andrei K., 0Z
 Shen, Qing, 10
 Sheng, Quan, 09, 0P, 1W
 Shestaev, Evgeny, 0I, 19
 Shi, Chaodu, 09, 1W
 Shi, Guannan, 09
 Shi, Wei, 09, 0P, 1W
 Sierra-Hernandez, J. M., 2D, 2E
 Smirnov, Sergey, 2M
 Stark, Lars Henning, 1A, 1B, 1I
 Steinke, Michael, 22
 Steinkopff, Albrecht, 0W, 19
 Stihler, Christoph, 03, 04
 Streckner, Maximilian, 0D, 0E
 Stuhr, Uwe, 0E
 Stutzki, Fabian, 02, 0D, 0E, 0W, 1A
 Sulzer, Philipp, 0I
 Supradeepa, V. R., 0N, 1V
 Suzuki, Takenobu, 2G
 Taillon, Yves, 29
 Takubo, Y., 12
 Tan, Fangzhou, 1Z
 Tang, Zhao, 1W
 Tench, Robert E., 08, 0K
 Terry, Fred L., 0S, 1Q, 1S
 Thies, Fabian, 22
 Tian, Wenyan, 23
 Traub, M., 13
 Triches, Marco, 1L
 Tsuji, K., 26
 Tuan, Tong Hoang, 2G
 Tünnermann, Andreas, 03, 04, 0D, 0E, 0W, 19, 1A,
 1B
 Uchiyama, K., 12
 Uehara, T., 26
 Umeda, Y., 12
 Vidal, S., 1J
 Vikram, B. S., 1V
 Vincetti, Luca, 06
 Vivona, Marilena, 0C
 Voloshin, Victor, 25
 Vorobev, Igor, 25
 Walbaum, Till, 0D, 0E
 Wang, Pu, 0Y, 1Z
 Wang, Ying-Ying, 0Y
 Wang, Ziyao, 02
 Weber, H., 17
 Weirich, Johannes, 1L
 Wellmann, Felix, 22
 Wicht, A., 2H
 Willke, Benno, 22
 Witte, U., 17
 Woodward, R. I., 0R
 Xie, Zhaoxin, 0P
 Yao, Jianquan, 09, 0P, 1W
 Yasumatsu, Yuta, 10
 Yehouessi, J. P., 1J
 Yoo, Seongwoo, 0U
 Zeitner, Uwe, 0E
 Zervas, Michalis N., 0C
 Zhai, Tianqu, 0S, 1Q, 1S
 Zhang, Yaohong, 10
 Zong, Jie, 0X

Conference Committee

Symposium Chairs

Xianfan Xu, Purdue University (United States)
Beat Neuenschwander, Berner Fachhochschule Technik und Informatik
(Switzerland)

Symposium Co-chairs

Koji Sugioka, RIKEN (Japan)
Reinhart Poprawe, Fraunhofer-Institut für Lasertechnik (Germany)

Program Track Chairs

Kunihiro Washio, Paradigm Laser Research Ltd. (Japan)
John Ballato, Clemson University (United States)

Conference Chair

Adrian L. Carter, Coherent | Nufern (Australia)

Conference Co-chair

Liang Dong, Clemson University (United States)

Conference Program Committee

Thomas Tanggaard Alkeskjold, NKT Photonics A/S (Denmark)
Fabio Di Teodoro, Raytheon Company (United States)
Mark Dubinskii, U.S. Army Research Laboratory (United States)
Heike Ebendorff-Heidepriem, The University of Adelaide (Australia)
Ingmar Hartl, Deutsches Elektronen-Synchrotron (Germany)
Clifford Headley III, OFS Fitel LLC (United States)
Stuart D. Jackson, Macquarie University (Australia)
Cesar Jauregui-Misas, Friedrich-Schiller-Universität Jena (Germany)
Clémence Jollivet, Coherent | Nufern (United States)
Peter F. Moulton, MIT Lincoln Laboratory (United States)
Martin H. Muendel, Lumentum (United States)
Craig A. Robin, U.S. Army Space and Missile Defense Command
(United States)
Lawrence Shah, Luminar Technologies, Inc. (United States)
L. Brandon Shaw, U.S. Naval Research Laboratory (United States)
Wei Shi, Tianjin University (China)
Akira Shirakawa, The University of Electro-Communications (Japan)
Paul Steinvurzel, The Aerospace Corporation (United States)
Ji Wang, Corning Incorporated (United States)

Pu Wang, Beijing University of Technology (China)
Lihmei Yang, Laser-Femto (United States)
Yoann Zaouter, Amplitude Systèmes (France)
Michalis N. Zervas, Optoelectronics Research Centre
(United Kingdom)
Pu Zhou, National University of Defense Technology (China)

Session Chairs

- 1 Modal Instabilities in High Power Fiber Lasers
Michalis N. Zervas, Optoelectronics Research Centre
(United Kingdom)
- 2 Thulium Lasers I
Clémence Jollivet, Coherent | Nufern (United States)
- 3 kW-Class Fiber Lasers and Amplifiers I
Liang Dong, Clemson University (United States)
- 4 Thulium Lasers II
Peter F. Moulton, MIT Lincoln Laboratory (United States)
- 5 Eye-Safe Fiber Lasers and Amplifiers
Wei Shi, Tianjin University (China)
- 6 Mid-Infrared Fiber Lasers and Amplifiers
Lawrence Shah, Luminar Technologies, Inc. (United States)
- 7 Novel Fiber Design and Materials
Cesar Jauregui-Misas, Friedrich-Schiller-Universität Jena (Germany)
- 8 kW-Class Fiber Lasers and Amplifiers II
Craig A. Robin, U.S. Army Space and Missile Defense Command
(United States)
- 9 Coherent Combination of Fiber Lasers
Ingmar Hartl, Deutsches Elektronen-Synchrotron (Germany)
- 10 Ultrafast Fiber Lasers and Amplifiers I
Yoann Zaouter, Amplitude Systèmes (France)
- 11 Ultrafast Fiber Lasers and Amplifiers II
Clifford Headley III, OFS Fitel, LLC (United States)
- 12 Nonlinear Fiber Optics I
L. Brandon Shaw, U.S. Naval Research Laboratory (United States)

- 13 Nonlinear Fiber Optics II
Fabio Di Teodoro, Raytheon Company (United States)
- 14 Erbium Doped Fiber Lasers and Amplifiers
Mark Dubinskii, U.S. Army Research Laboratory (United States)
- 15 High Peak Power/High Energy Fiber Amplifiers
Martin H. Muendel, Lumentum (United States)

