

# PROCEEDINGS OF SPIE

## ***Fiber Lasers XV: Technology and Systems***

**Ingmar Hartl**  
**Adrian L. Carter**  
*Editors*

**29 January – 1 February 2018**  
**San Francisco, California, United States**

*Sponsored by*  
SPIE

*Cosponsored by*  
NKT Photonics A/S (Denmark)  
Laser-Femto, Inc. (United States)

*Published by*  
SPIE

**Volume 10512**

Proceedings of SPIE 0277-786X, V. 10512

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

Fiber Lasers XV: Technology and Systems, edited by Ingmar Hartl, Adrian L. Carter, Proc. of SPIE  
Vol. 10512, 1051201 · © 2018 SPIE · CCC code: 0277-786X/18/\$18 · doi: 10.1117/12.2322690

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](http://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 XV: Technology and Systems*, edited by Ingmar Hartl, Adrian L. Carter, Proceedings of SPIE Vol. 10512 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

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

ISBN: 9781510615090  
ISBN: 9781510615106 (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](http://SPIE.org)

Copyright © 2018, 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](http://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/18/\$18.00.

Printed in the United States of America.

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
xii	Conference Committee

---

**SESSION 1 MODE INSTABILITIES IN HIGH POWER FIBER LASERS I**

---

- 10512 02 **High brightness photonic lantern kW-class amplifier (Invited Paper)** [10512-1]
- 10512 04 **Towards the control of the modal energy transfer in transverse mode instabilities** [10512-3]
- 10512 05 **Power scaling limits in high power fiber amplifiers due to transverse mode instability, thermal lensing, and fiber mechanical reliability** [10512-4]
- 10512 06 **Experimental investigation of the transverse modal instabilities onset in high power fully-aperiodic-large-pitch fiber lasers** [10512-5]
- 10512 07 **Transverse mode instabilities in burst operation of high-power fiber laser systems** [10512-6]

---

**SESSION 2 COHERENT COMBINING OF FIBER LASERS**

---

- 10512 08 **1.8-kW 16-channel ultrafast fiber laser system (Invited Paper)** [10512-7]
- 10512 0B **Towards coherent combination of 61 fiber amplifiers** [10512-10]

---

**SESSION 3 KW FIBER LASERS**

---

- 10512 0C **5-kW single stage all-fiber Yb-doped single-mode fiber laser for materials processing (Invited Paper)** [10512-11]
- 10512 0D **Kilo-Watt high-power Yb fiber laser at 1117 nm** [10512-12]
- 10512 0E **Up to 2.5-kW on non-PM fiber and 2.0-kW linear polarized on PM fiber narrow linewidth CW diffraction-limited fiber amplifiers in all-fiber format** [10512-13]
- 10512 0F **Narrowband transverse-modal-instability (TMI)-free Yb-doped fiber amplifiers for directed energy applications** [10512-14]

---

**SESSION 4 NARROW LINewidth FIBER LASERS**

---

- 10512 0G **High-power single-pass pumped diamond Raman oscillator** [10512-15]

- 10512 0I **Recent progress on monolithic fiber amplifiers for next generation of gravitational wave detectors** [10512-17]  
10512 0J **Ultra-narrow-linewidth Brillouin/erbium fiber laser** [10512-18]

---

**SESSION 5 THULIUM-DOPED FIBER LASERS**

---

- 10512 0O **All-fiber linearly polarized high power 2- $\mu\text{m}$  single mode Tm-fiber laser for plastic processing and Ho-laser pumping applications** [10512-23]  
10512 0P **Experimental investigation on varying spectral bandwidth when amplifying a pulsed superfluorescent 2- $\mu\text{m}$  source in Tm:fiber** [10512-24]  
10512 0Q **20-W 1952-nm tandem hybrid single and double clad TDFA** [10512-25]

---

**SESSION 6 MID-IR FIBER LASERS**

---

- 10512 0S **Towards diode-pumped mid-infrared praseodymium-ytterbium-doped fluoride fiber lasers** [10512-27]  
10512 0T **Q-switched dual-wavelength pumped 3.5- $\mu\text{m}$  erbium-doped mid-Infrared fiber laser** [10512-28]  
10512 0U **Near infrared pumped full gain bandwidth tunable 3 micron dysprosium fiber laser** [10512-29]

---

**SESSION 7 ULTRAFAST FIBER LASERS I**

---

- 10512 0V **Nonlinear pulse compression stage delivering 43-W few-cycle pulses with GW peak-power at 2- $\mu\text{m}$  wavelength (Best Student Paper Award)** [10512-30]  
10512 0W **Temporal contrast enhancement of a femtosecond fiber CPA system by filtering of SPM broadened spectra** [10512-31]  
10512 0X **Photonic crystal fiber technology for compact fiber-delivered high-power ultrafast fiber lasers** [10512-32]  
10512 0Y **Nonlinear compression for generation of high energy ultrashort pulses using an Yb-doped large mode area tapered fiber** [10512-33]

---

**SESSION 8 ULTRAFAST FIBER LASERS II**

---

- 10512 11 **Compact 1 mJ fiber MOPA for space-based laser-ablation resonant ionization mass spectrometry (LARIMS)** [10512-36]  
10512 12 **Photonic crystal fiber technology for high-performance all-fiber monolithic ultrafast fiber amplifiers** [10512-37]

10512 14 **Picosecond 1064-nm fiber laser with tunable pulse width and low timing jitter** [10512-39]

---

**SESSION 9 PULSED FIBER LASERS**

---

10512 15 **Pulsed fibre laser with spatial and temporal control (Invited Paper)** [10512-40]

10512 16 **Cladding-pumped 70-kW-peak-power 2-ns-pulse Er-doped fiber amplifier** [10512-41]

10512 17 **Fully integrated Q-switch for commercial high-power resonator with solitary XLMA-fiber** [10512-42]

10512 18 **Directly q-switched high power resonator based on XLMA-fibers** [10512-43]

10512 19 **High-energy 100-ns single-frequency all-fiber laser at 1064 nm** [10512-44]

---

**SESSION 10 MODE-LOCKED FIBER OSCILLATORS**

---

10512 1A **Stretched-pulse Ho-doped fiber laser mode-locked by graphene based saturable absorber** [10512-45]

10512 1C **Self-optimizing additive pulse mode-locked fiber laser: wavelength tuning and selective operation in continuous-wave or mode-locked regime** [10512-47]

---

**SESSION 11 HIGH-POWER FIBER LASERS**

---

10512 1E **Cladding pumped Yb-doped HOM power amplifier with high gain** [10512-49]

10512 1F **Explanation of stimulated Raman scattering in high power fiber systems** [10512-50]

10512 1G **Demonstration of passively cooled high-power Yb fiber amplifier** [10512-51]

10512 1I **Mitigation of stimulated Raman scattering in high power fiber lasers using transmission gratings** [10512-53]

---

**SESSION 12 NOVEL TECHNIQUES IN FIBER LASERS**

---

10512 1J **Solar-pumped fiber laser with transverse-excitation geometry** [10512-54]

10512 1L **Self-injection linear polarization locking of a fiber laser** [10512-56]

10512 1M **Vernier effect-based multiplication of the Sagnac beating frequency in ring laser gyroscope sensors** [10512-57]

10512 1N **Novel techniques for stabilizing fiber laser frequency combs** [10512-58]

- 10512 1O Toward power scaling in an acetylene mid-infrared hollow-core optical fiber gas laser: effects of pressure, fiber length, and pump power [10512-59]

---

**SESSION 13 NOVEL FIBER DESIGNS AND THEIR APPLICATIONS**

---

- 10512 1P 10W single-mode Nd<sup>+3</sup> fiber laser at 1428 nm [10512-60]
- 10512 1Q Polarization-maintaining performance of large effective area, higher order modes fiber in a coiled configuration [10512-61]
- 10512 1R Monolithic diffraction-limited 976-nm laser based on saddle-shaped photo darkening-free Yb-doped fiber [10512-62]
- 10512 1S Theoretical and experimental study of bent fully aperiodic large-pitch fibers for enhancing the high-order modes delocalization [10512-63]
- 10512 1T Ultra-large mode area single frequency anisotropic MOPA with double clad Yb-doped tapered fiber [10512-64]

---

**SESSION 14 RAMAN AND NONLINEAR FIBER LASERS**

---

- 10512 1U Raman based power combining and wavelength conversion of high power ytterbium fiber lasers [10512-65]
- 10512 1V Diode-pumped all-fiber Raman lasers with high beam quality [10512-66]
- 10512 1W Simple modules for high efficiency conversion of standard ytterbium doped fiber lasers into octave spanning continuous-wave supercontinuum sources [10512-67]
- 10512 1X High average power pulsed multi-mode Raman fiber laser in graded index fiber [10512-68]

---

**SESSION 15 MODE INSTABILITIES IN HIGH POWER FIBER LASERS II**

---

- 10512 1Y Effects of perturbation relative phase on transverse mode instability gain [10512-69]
- 10512 20 Finite element BPM fiber modal instability modeling [10512-71]
- 10512 21 Laser linewidth dependence to the transverse mode instability (TMI) nonlinear gain in kW-class fiber amplifiers [10512-72]

---

**POSTER SESSION**

---

- 10512 22 Watt-level single-frequency tunable neodymium MOPA fiber laser operating at 915-937 nm [10512-73]
- 10512 25 Dual line CW fiber laser module based on FBG combination [10512-76]

- 10512 26 **Dynamic behavior of pump light radiation induced photo-bleaching effect on BAC-Si in bismuth/erbium co-doped optical fibers** [10512-77]
- 10512 28 **Design of an amplifier model accounting for thermal effect in fully aperiodic large pitch fibers** [10512-79]
- 10512 29 **Optimized design and performance of a shared pump single clad 2  $\mu\text{m}$  TDFA** [10512-80]
- 10512 2B **Dual-wavelength noise-like pulse generation in passively mode-locked all-fiber laser based on MMI effect** [10512-82]
- 10512 2C **Switchable and tunable dual-wavelength Er-doped fiber ring laser with single-frequency lasing wavelengths** [10512-83]
- 10512 2D **Narrow line width dual wavelength semiconductor optical amplifier based random fiber laser** [10512-84]
- 10512 2E **Nanosecond pulse generation from actively Q-switched thulium-doped fiber laser using a high-speed optical switch** [10512-85]
- 10512 2F **Fiber laser for application in phase sensitive optical time domain reflectometry** [10512-86]
- 10512 2H **Influence of seed power and gain fiber temperature on output linewidth in single-frequency Er<sup>3+</sup>/Yb<sup>3+</sup> co-doped fiber amplifier** [10512-88]
- 10512 2I **Theoretical study and design of third-order random fiber laser** [10512-89]
- 10512 2L **Fiber laser platform for highest flexibility and reliability in industrial femtosecond micromachining: TruMicro Series 2000** [10512-92]
- 10512 2N **High-power femtosecond pulse propagation in a tapered large-mode-area optical fiber** [10512-94]
- 10512 2P **Pump absorption in coiled and twisted double-clad hexagonal fiber: effect of launching conditions and core location** [10512-96]
- 10512 2R **In-fiber modal interferometer based on multimode and double cladding fiber segments for tunable fiber laser applications** [10512-99]
- 10512 2S **1-kW monolithic narrow linewidth linear-polarized fiber laser at 1030 nm** [10512-100]
- 10512 2T **All-fiber passively Q-switched thulium-doped fiber laser by using a holmium-doped fiber as saturable absorber** [10512-101]
- 10512 2U **All-polarization maintaining erbium fiber laser based on carbon nanowalls saturable absorber** [10512-102]
- 10512 2W **Leaky channel fiber design for large mode area high power application at 1 micron** [10512-104]

- 10512 2X **Experimental investigation of the onset of modulation instability as a precursor for the stimulated Brillouin scattering in Yb-doped fiber amplifiers** [10512-105]
- 10512 2Y **Experimental study of multi-pulse generation in a full polarization-controlled passively mode-locked Er-fiber laser** [10512-106]

# 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., 0F  
Abedin, Kazi S., 0D, 1E, 1Q  
Adib, George A., 1M  
Ahmad, Raja, 1E, 1Q  
Alaniz-Baylón, J., 2T  
Aleshire, Chris, 02  
Aleshkina, Svetlana S., 1R  
Alkeskjold, Thomas T., 0X, 12  
Almeida, Paulo, 15  
Álvarez-Tamayo, R. I., 2R, 2T  
Amezcuá-Correa, Rodrigo, 0V, 1G, 1X  
Andersen, Thomas V., 12  
Anderson, F. Scott, 11  
Antier, Marie, 0B  
Antonio-Lopez, Jose Enrique, 0V, 1G, 1X  
Aparanji, Santosh, 1U  
Armas-Rivera, I., 2Y  
Ashok, Nandam, 2W  
Aubrecht, Jan, 2P  
Auguste, Jean-Louis, 1\$  
Babin, Sergey A., 1V  
Bacher, Christoph, 1C, 1L  
Bachert, C., 17, 18  
Bai, Xiaolei, 19, 2C, 2H  
Balaswamy, V., 1U, 1W  
Barcelata-Pinzón, A., 2R  
Bawden, Nathaniel, 0T  
Bay, M., 17  
Beck, Steven, 11  
Bellanger, Séverine, 0B  
Belley, Catherine, 02  
Bello-Jiménez, Miguel, 2T  
Beltrán-Pérez, G., 2Y  
Benabid, Fetah, 1O  
Benoît, Aurélien, 06, 1S  
Bertoldi, A., 22  
Bobkov, Konstantin K., 1R  
Bock, Victor, 1F, 1I  
Bodnar, Nathan, 0P  
Boivin, M., 0Y  
Bondué, Magalie, 0X  
Booker, Phillip, 0I  
Bourderionnet, Jérôme, 0B  
Bouyer, P., 22  
Bracamontes-Rodríguez, Y. E., 2Y  
Bradford, Joshua, 0P, 1G, 1X  
Bravo-Huerta, E., 2T  
Brignon, Arnaud, 0B  
Bubnov, Mikhail M., 16, 1R  
Budnicki, Aleksander, 2L  
Bueno Escobedo, J. L., 2F  
Buldt, Joachim, 08, 0W  
Butov, Oleg V., 16, 1T  
Cadier, B., 22  
Canuel, B., 22  
Castillo-Guzmán, A., 2R  
Chafer, Matthieu, 1O  
Chamorovskii, Yuri, 1T  
Chan, Jaclyn S., 15  
Chanteloup, Jean-Christophe, 0B  
Chavez-Pirson, Arturo, 19  
Chen, Mo, 0J  
Cho, HyungSu, 2W  
Choudhury, Vishal, 1W  
Codemand, Christophe A., 15  
Cook, Justin, 0P, 1G, 1X  
Cook, Matt, 1P  
Corwin, Kristan L., 1O  
Crain, William, 11  
Crist, Robert P., 1P  
Cucinotta, A., 28  
Cui, Xuelong, 2S  
Dadashzadeh, Neda, 1O  
Daillet, Romain, 2P  
Daniault, Louis, 0B  
Darwich, Dia, 06, 1S, 28  
Daulat, Romain, 06, 1S, 28  
Dawson, Jay W., 1P  
De La Cruz, Joel, 0E  
de Varona, Omar, 0I  
Debord, Benoît, 1O  
Delavaux, Jean-Marc, 0Q, 29  
De Santolo, Anthony M., 1E  
Desbiens, L., 0Y  
Diekamp, Holger, 2L  
DiGiovanni, David J., 0D, 1E, 1Q  
Ding, Mingjie, 26  
Dobashi, Kazuma, 25  
Dostovalov, Alexandr V., 1V  
Dotan, Yaniv, 11  
Doya, Valérie, 2P  
Drachenberg, Derrek R., 1P  
du Jeu, Rémi, 06, 1S, 28  
Durand, Eric, 0B  
Durán-Sánchez, M., 2R, 2T, 2Y  
Eberhardt, Ramona, 0G, 1F  
Eidam, T., 0W  
Endo, Masamori, 1J

- Enns, H., 17  
 Fan, T. Y., 02  
 Fang, Qiang, 2S  
 Fedotov, Andrei, 1T  
 Feurer, Thomas, 1C  
 Filippov, Valery, 1T  
 Fittkau, Willy, 0I  
 Fitzau, O., 17, 18  
 Fotiadi, A. A., 2F  
 Fsaifes, Ihsan, 0B  
 Fu, Shijie, 19, 2B, 2C, 2H, 2I, 2S  
 Fuhrberg, P., 0O  
 Gaida, Christian, 0V  
 Galvanauskas, A., 0F  
 Gaponsev, Valentin, 0E  
 Gebhardt, Martin, 0V  
 Gérôme, Frédéric, 1O  
 Ghosh, Aditi, 2X  
 Giesberts, M., 17, 18  
 Goebel, Thorsten A., 1I  
 Golant, Konstantin, 1T  
 Gorman, Philip, 15  
 Gottschall, Thomas, 08  
 Gouhier, B., 22  
 Gumenuk, Regina, 1T  
 Gürel, Kutan, 1N  
 Guryanov, Alexei N., 16, 1R  
 Hakobyan, Sargis, 1N  
 Han, JaeWan, 2W  
 Headley, Clifford E., 0D, 1E, 1Q  
 Heck, Maximilian, 1I  
 Heidt, Alexander, 1C, 1L  
 Heilmann, Anke, 0B  
 Heinzig, Matthias, 0G  
 Henderson-Sapir, Ori, 0T  
 Hernández-Arriaga, M. V., 2T, 2Y  
 Heuermann, Tobias, 0V  
 Hirohashi, Junji, 25  
 Hochheim, Sven, 0I  
 Hoffmann, H.-D., 17, 18  
 Hosdorf, S., 17  
 Hoshi, Masayuki, 25  
 Hou, Bowen, 2S  
 Hu, I-Ning, 0F  
 Hudson, D. D., 0S  
 Hwang, Chris, 02  
 Ibarra-Escamilla, B., 2R, 2T, 2Y  
 Ikoma, Shinya, 0C  
 Ionov, Pavel, 11  
 Iyoda, Mitsuhiro, 1J  
 Izawa, Jun, 2U  
 Jackson, Stuart D., 0S, 0U  
 Jakobsen, Christian, 0X, 12  
 Jamier, Raphaël, 06, 1S, 28  
 Jansen, Florian, 2L  
 Jauregui, Cesar, 04, 07, 0V  
 Johansen, Mette M., 0X, 12  
 Jornod, Nayara, 1N  
 Jung, Chang Hyun, 2W  
 Kablukov, Sergey I., 1V  
 Kahmann, Max, 2L  
 Kanal, Florian, 2L  
 Kanskar, M., 0F  
 Koponen, J., 0F  
 Karuza, Petras, 11  
 Kashiwagi, Masahiro, 0C  
 Kawaguchi, Norihito, 2U  
 Khalil, Diaa, 1M, 2D  
 Khitrov, Victor V., 1P  
 Khudyakov, M. M., 16  
 Kiani, Leily S., 1P  
 Kimmelma, O., 0F  
 Kitzler, Ondrej, 0G  
 Klantsataya, Elizaveta, 0T  
 Klas, R., 0W  
 Klenke, Arno, 08  
 Koo, Joonhoi, 2E  
 Korobko, D. A., 2F, 2N  
 Koška, Pavel, 2P  
 Kösters, A., 17  
 Kotb, Hussein E., 2D  
 Kotov, L. V., 16  
 Kracht, Dietmar, 0I  
 Krämer, Ria G., 1I  
 Krause, V., 17, 18  
 Kristensen, Torben, 0X, 12  
 Kumar, Gyanendra, 2N  
 Kurata, Shintaro, 2U  
 Kuzin, E. A., 2R, 2T, 2Y  
 Labranche, B., 0Y  
 Lallier, Eric, 0B  
 Lamrini, S., 0O  
 Lange, R., 17, 18  
 Laperle, P., 0Y  
 Larat, Christian, 0B  
 Laroche, M., 22  
 Lätt, Christoph, 1C  
 le Dritz, Jérémie, 0B  
 Leconte, Baptiste, 06, 1S, 28  
 Levchenko, Andrei E., 1R  
 Liem, Andreas, 1F, 1I  
 Likhachev, Mikhail E., 16, 1R  
 Limpert, Jens, 04, 07, 08, 0V, 0W  
 Lipatov, Denis S., 16, 1R  
 López-Mercado, C. A., 2F  
 Lotshaw, William, 1I  
 Luo, Hong, 0J  
 Luo, Yanhua, 26  
 Luxen, R., 17  
 Maack, Martin D., 12  
 Majewski, Matthew R., 0U  
 Makio, Satoshi, 25  
 Malleville, Marie-Alicia, 06, 1S, 28  
 Marfels, S., 17  
 Martz, Dale, 02  
 Masuda, Taizo, 1J  
 Matsukuma, Hiraku, 0T  
 Matzdorf, Christian, 1I  
 Medvedkov, Oleg I., 1R  
 Mégret, P., 2F

- Meng, Zhou, 0J  
 Mermelstein, Marc D., 21  
 Messerly, Michael J., 1P  
 Michieletto, Mattia, 0X, 12  
 Mildren, Richard P., 0G  
 Molardi, C., 28  
 Monberg, Eric M., 1Q  
 Montoya, Juan, 02  
 Mu, Xiaodong, 11  
 Müller, Michael, 08, 0W  
 Myasnikov, D. V., 1V  
 Nemov, Ilya N., 1V  
 Neumann, Jörg, 0I, 0O  
 Nguyen, Can, 11  
 Nicholson, Jeffrey W., 0D, 1E, 1Q  
 Nilsson, Johan, 2X  
 Nolte, Stefan, 1I  
 Noronen, Teppo, 1T  
 Odnoblyudov, Maxim, 1T  
 Olesen, Anders S., 0X, 12  
 Ottaway, David J., 0T  
 Ouh, ChiHwan, 2W  
 Overmeyer, Ludger, 0I  
 Panbiharwala, Yusuf, 2X  
 Papior, Sidsel R., 0X, 12  
 Paré, C., 0Y  
 Pawliszewska, Maria, 1A  
 Pax, Paul H., 1P  
 Peng, Gang-Ding, 26  
 Peterka, Pavel, 2P  
 Petersen, Christian, 12  
 Peyghambarian, N., 19  
 Platonov, Nikolai, 0E  
 Poli, F., 28  
 Posada-Ramírez, B., 2T  
 Pottiez, O., 2Y  
 Prieto-Cortés, P., 2R  
 Przewłoka, Aleksandra, 1A  
 Raisin, Philippe, 1C  
 Rastogi, Vipul, 2N  
 Reed, Patricia, 02  
 Rehan, Mohd, 2N  
 Rehmann, G., 17  
 Richardson, Martin, 0P, 1G, 1X  
 Richter, Daniel, 1I  
 Riley, Mike, 02  
 Ripin, Dan, 02  
 Rissanen, Joonas, 1T  
 Robin, T., 22  
 Rodríguez-Morales, L. A., 2Y  
 Romano, Clément, 0Q, 29  
 Romano, Valerio, 1C, 1L  
 Rose, Todd, 11  
 Rota-Rodrigo, S., 22  
 Roumayah, Patrick, 1X  
 Roy, Philippe, 06, 1S, 28  
 Roy, V., 0Y  
 Rybaltovsky, A. A., 16  
 Ryser, Manuel, 1C, 1L  
 S., Arun, 1U, 1W  
 Sabry, Yasser M., 1M  
 Salceda-Delgado, G., 2R  
 Santarelli, G., 22  
 Santiago-Hernández, H., 2T, 2Y  
 Sasaki, Kiyoto, 1J  
 Scelle, Raphael, 2L  
 Schäfer, M., 0O  
 Schenk, M., 17  
 Schenkel, Nick, 1P  
 Schilt, Stéphane, 1N  
 Scholle, K., 0O  
 Schreiber, Thomas, 0G, 1F, 1I  
 Schülzgen, A., 0V  
 Schuster, Kay, 06, 1S  
 Schwuchow, Anka, 06  
 Selleri, S., 28  
 Selvas-Aguilar, R., 2R  
 Senatorov, A. K., 16  
 Shah, Larry, 1G  
 Shaw, Scot, 02  
 Shawki, Heba A., 2D  
 Sheng, Quan, 19, 2B, 2C, 2H, 2I  
 Shi, Chaodu, 19  
 Shi, Guannan, 2B  
 Shi, Wei, 19, 2B, 2C, 2H, 2I, 2S  
 Shima, Kensuke, 0C  
 Shin, WooJin, 2E, 2W  
 Simon-Boisson, Christophe, 0B  
 Sincore, Alex, 0P  
 Sotor, Jarosław, 1A  
 Spirin, V. V., 2F  
 Srinivasan, Balaji, 2X  
 Stark, Henning, 08  
 Steinke, Michael, 0I, 0O  
 Steinurzel, Paul, 1I  
 Stihler, Christoph, 04, 07  
 Stutzki, F., 0V  
 Sudarshanam, Venkatapuram S., 0D  
 Südmeier, Thomas, 1N  
 Supradeepa, V. R., 1U, 1W  
 Sutter, Dirk, 2L  
 Sysoliatin, A. A., 2N  
 Taillon, Y., 0Y  
 Takubo, Yuya, 0C  
 Tan, Chuong, 2L  
 Tanaka, Daiichiro, 0C  
 Tang, Zhao, 19  
 Tench, Robert E., 0Q, 29  
 Theeg, Thomas, 0I  
 Thirugnanasambandam, Manasadevi P., 1O  
 Tian, Wenyan, 14  
 Tokita, Shigeki, 0T  
 Tragni, K., 28  
 Trainor, Michael, 02  
 Traynor, N., 22  
 Triches, Marco, 0X, 12  
 Tünnermann, Andreas, 04, 07, 08, 0G, 0V, 0W, 1F,  
 1I  
 Tyrtysnyy, V. A., 1V  
 Uchiyama, Keisuke, 0C

Venkitesh, Deepa, 2X  
Vukovic, Natasha, 15  
Walbaum, Till, 0G  
Wang, Chenyu, 0J  
Wang, Jianfei, 0J  
Ward, Benjamin G., 20  
Washburn, Brian R., 1O  
Weber, H., 17  
Weerasinghe, H. W. Kushan, 1O  
Weirich, Johannes, 0X, 12  
Wellmann, Felix, 0I  
Wen, Jianxiang, 26  
Weßels, Peter, 0I  
Westbrook, Paul S., 1E, 1Q  
Williams, Robert J., 0G  
Wisk, Patrick W., 1Q  
Wittwer, Valentin J., 1N  
Wolf, Alexey A., 1V  
Woodward, Robert I., 0S, 0U  
Wysmolek, M., 0O  
Xie, Zhaoxin, 2I, 2S  
Xu, Yang, 2S  
Xue, Lifang, 2C  
Yagodkin, Roman, 0E  
Yamashita, Tomohiro, 1J  
Yan, Man F., 1Q  
Yao, Jianquan, 19, 2B, 2C, 2H, 2I  
Yasumatus, Yuta, 1J  
Yusim, Alexander, 0E  
Zervas, Michalis N., 05, 15, 1Y  
Zhang, Haiwei, 2C, 2H  
Zhang, J., 0F  
Zhang, Shukui, 14  
Zhao, J., 22  
Zlobina, Ekaterina A., 1V  
Zolotovskiy, I. O., 2F

# Conference Committee

## Symposium Chairs

**Koji Sugioka**, RIKEN (Japan)

**Reinhart Poprawe**, Fraunhofer-Institut für Lasertechnik (Germany)

## Symposium Co-Chairs

**Xianfan Xu**, Purdue University (United States)

**Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland)

## Program Track Chairs

**Kunihiro Washio**, Paradigm Laser Research Ltd. (Japan)

**John Ballato**, Clemson University (United States)

## Conference Chair

**Ingmar Hartl**, Deutsches Elektronen-Synchrotron (Germany)

## Conference Co-Chair

**Adrian L. Carter**, Nufern (United States)

## Conference Program Committee

**Thomas Tanggaard Alkeskjold**, NKT Photonics A/S (Denmark)

**Liang Dong**, Center for Optical Materials Science + Engineering Technologies (United States)

**Fabio Di Teodoro**, Raytheon Company (United States)

**Mark Dubinskii**, U.S. Army Research Laboratory (United States)

**Clifford E. Headley III**, OFS Fitel LLC (United States)

**Stuart D. Jackson**, Macquarie University (Australia)

**Cesar Jauregui-Misas**, Friedrich-Schiller-Universität Jena (Germany)

**Peter F. Moulton**, MIT Lincoln Laboratory (United States)

**Martin H. Muendel**, Lumentum (United States)

**Craig A. Robin**, Lockheed Martin Aculight (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 Center  
(United Kingdom)

Session Chairs

- 1 Mode Instabilities in High Power Fiber Lasers I  
**Peter F. Moulton**, MIT Lincoln Laboratory (United States)
- 2 Coherent Combining of Fiber Lasers  
**Cesar Jauregui-Misas**, Friedrich-Schiller-Universität Jena (Germany)
- 3 kW Fiber Lasers  
**Adrian L. Carter**, Nufern (United States)
- 4 Narrow Linewidth Fiber Lasers  
**L. Brandon Shaw**, U.S. Naval Research Laboratory (United States)
- 5 Thulium-doped Fiber Lasers  
**Lawrence Shah**, Luminar Technologies, Inc. (United States)
- 6 Mid-IR Fiber Lasers  
**Mark Dubinskii**, U.S. Army Research Laboratory (United States)
- 7 Ultrafast Fiber Lasers I  
**Yoann Zaouter**, Amplitude Systèmes (France)
- 8 Ultrafast Fiber Lasers II  
**Cesar Jauregui-Misas**, Friedrich-Schiller-Universität Jena (Germany)
- 9 Pulsed Fiber Lasers  
**Stuart D. Jackson**, Macquarie University (Australia)
- 10 Mode-locked Fiber Oscillators  
**Ingmar Hartl**, Deutsches Elektronen-Synchrotron (Germany)
- 11 High-power Fiber Lasers  
**Akira Shirakawa**, The University of Electro-Communications (Japan)
- 12 Novel Techniques in Fiber Lasers  
**Michalis N. Zervas**, Optoelectronics Research Center  
(United Kingdom)

- 13 Novel Fiber Designs and their Applications  
**Liang Dong**, Center for Optical Materials Science + Engineering Technologies (United States)
- 14 Raman and Nonlinear Fiber Lasers  
**Clifford E. Headley III**, OFS Fitel, LLC (United States)
- 15 Mode Instabilities in High Power Fiber Lasers II  
**Thomas Tanggaard Alkeskjold**, NKT Photonics A/S (Denmark)

