PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 7134

, "Front Matter: Volume 7134," Proc. SPIE 7134, Passive Components and Fiber-based Devices V, 713401 (20 January 2009); doi: 10.1117/12.819367

SPIE.

Event: Asia-Pacific Optical Communications, 2008, Hangzhou, China

PROCEEDINGS OF SPIE

Passive Components and Fiber-based Devices V

**Ming-Jun Li
Ping Shum
Ian H. White
Xingkun Wu**
Editors

**27–30 October 2008
Hangzhou, China**

Sponsored by
SPIE

COS—Chinese Optical Society (China)
CIC—China Institute of Communications (China)
Joint Research Center of Photonics of the Royal Institute of Technology (Sweden) and
Zhejiang University (China)

Cooperating Organizations
Zhejiang Optical Society (China)
Hangzhou Municipal Government (China)
Municipal Government of Fuyang City (China)

Published by
SPIE

Volume 7134
Part One of Two Parts

Proceedings of SPIE, 0277-786X, v. 7134

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 *Passive Components and Fiber-based Devices V*, edited by Ming-Jun Li, Ping Shum, Ian H. White, Xingkun Wu, Proceedings of SPIE Vol. 7134 (SPIE, Bellingham, WA, 2008) Article CID Number.

ISSN 0277-786X

ISBN 9780819473745

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 © 2008, 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/08/\$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

Part One

xvii *Conference Committee*

SESSION 1A PHOTONIC CRYSTAL FIBERS I

- 7134 02 **Better photonic crystal fibres** [7134-01]
J. C. Knight, Univ. of Bath (United Kingdom)
- 7134 03 **A novel design of highly negative dispersion photonic crystal fibers with central index dip** [7134-02]
H. Li, S. Lou, T. Guo, H. Fang, W. Chen, L. Wang, S. Jian, Beijing Jiaotong Univ. (China)

SESSION 1B FIBER LASERS AND AMPLIFIERS

- 7134 06 **High-concentration erbium-doped fiber-based short cavity ring lasers** [7134-06]
L. Liu, Y. Fu, J. Peng, K. Zheng, X. Mao, H. Wei, F. Yan, H. Lei, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 07 **Temporal characteristics of a high-power erbium-doped fiber ring laser** [7134-07]
A. Zhang, Z. Tong, X. Ma, X. Yang, Tianjin Univ. of Technology (China); K. Nakkeeran, Univ. of Aberdeen (United Kingdom)
- 7134 08 **Radiation effect on EDFA for inter-satellite optical communication on low dose orbits** [7134-08]
M. Li, J. Ma, L. Tan, Y. Zhou, S. Yu, J. Yu, C. Che, C. Lu, Harbin Institute of Technology (China)
- 7134 09 **Temperature dependence of fluorescence in erbium-doped silica fiber** [7134-09]
J. Peng, Y. Fu, L. Liu, F. Yan, H. Wei, X. Mao, K. Zheng, L. Wang, H. Li, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 0A **Advanced topics on Er- and ErYb-doped fibers for fiber amplifiers and lasers (Invited Paper)** [7134-10]
B. Zhu, OFS (United States)
- 7134 0B **EDFA gain-flattening based on the cascade of step-changed LPGs** [7134-11]
Y. Ran, W. Liu, Jinan Univ. (China); W. Du, Institute of Industry Technology (China); H. Huang, S. Chen, Jinan Univ. (China)

SESSION 2A OPTICAL FIBERS I	
7134 0D	New bend insensitive fiber products enabled deep penetration in MDU and FTTP inside wiring (Invited Paper) [7134-13] D. Z. Chen, Verizon (United States)
7134 0G	Bend insensitive fibers for FTTH and MDU (Invited Paper) [7134-16] J. Kim, D. W. Peckham, A. H. McCurdy, J. M. Fini, OFS (United States); P. I. Borel, OFS Denmark (Denmark); K. Konstadinidis, P. Weimann, R. Norris, F. Wu, R. Lingle, Jr., D. J. Mazzaresse, J. George, A. Oliviero, OFS (United States)
7134 0I	Dispersion of the nano-InP doped fiber [7134-18] Y. Duan, X. Chen, R. Zhang, P. Lang, Y. Zhang, Beijing Univ. of Posts and Telecommunications (China)
SESSION 2B FIBER BRAGG GRATINGS	
7134 0K	The design and fabrication of optical fiber Bragg grating filter with dual-bandpass pair by phase sampling and phase shifts [7134-20] X. Li, P. Shum, N. Q. Ngo, T. Cheng, Nanyang Technological Univ. (Singapore)
7134 0L	Recent advances in the design and fabrication of high channel-count fiber Bragg gratings (Invited Paper) [7134-21] H. Li, M. Li, Shizuoka Univ. (Japan)
7134 0M	Temperature insensitive packaging of FBG based on a flat diaphragm and an L-shaped lever [7134-22] W. Zhang, Y. Liu, F. Li, Institute of Semiconductors (China)
7134 0N	Spectral self-imaging phenomena in binary phase-only sampled fiber Bragg gratings [7134-23] X. Zhu, C. Wang, Y. Lu, G. Zhang, M. Zhao, Soochow Univ. (China)
7134 0O	Expression of reflection-peak wavelengths of arbitrary chirped and sampled fiber Bragg gratings [7134-24] Y. Lu, C. Wang, X. Zhu, G. Zhang, M. Zhao, Soochow Univ. (China)
7134 0P	Research on fiber sensor demodulating technique using tilted fiber Bragg gratings [7134-25] Y. Miao, B. Liu, W. Zhang, Q. Zhao, Nankai Univ. (China)
SESSION 3A BEST STUDENT PAPERS	
7134 0Q	Continuously tunable microwave photonic filter based on high-birefringence linearly chirped grating [7134-26] J. Q. Zhou, H. Dong, S. Aditya, P. Shum, X. Li, S. Fu, M. Tang, Nanyang Technological Univ. (Singapore)
7134 0R	1.5μm correlated photon pair generation in high nonlinear microstructure fibre [7134-27] Q. Zhou, W. Zhang, J. Cheng, X. Li, Y. Huang, J. Peng, Tsinghua Univ. (China)

- 7134 0S **Design of multimode interference coupled polymer rectangular ring resonators with air trench assisted mirrors** [7134-28]
X. Zhang, Univ. of Cambridge (United Kingdom) and Huazhong Univ. of Science and Technology (China); N. Bamiedakis, J. Beals IV, R. V. Penty, I. H. White, Univ. of Cambridge (United Kingdom); X. Zhang, D. Huang, Huazhong Univ. of Science and Technology (China)
- 7134 0T **A novel strain sensor based on a pair of fiber Bragg grating comb filters** [7134-29]
F. Yin, Y. Zhang, S. Xie, Tsinghua Univ. (China)
- 7134 0U **The cascaded recirculating buffer based on nonlinear polarization rotation in a semiconductor optical amplifier** [7134-30]
M. Cheng, C. Wu, C. Song, R. Zhao, S. Zhao, Q. Wang, Beijing Jiaotong Univ. (China)
- 7134 0V **Total internal reflection type echelle grating demultiplexer based on amorphous silicon nanowire platform (Best Student Paper Award)** [7134-31]
N. Zhu, J. Song, L. Wosinski, S. He, The Royal Institute of Technology (Sweden) and Zhejiang Univ. (China)

SESSION 3B OPTICAL COMPONENTS I

- 7134 0X **Slot-based athermal silicon arrayed-waveguide grating (AWG)** [7134-33]
X. Wang, S. Xiao, W. Zheng, F. Wang, Y. Hao, X. Jiang, M. Wang, J. Yang, Zhejiang Univ. (China)
- 7134 0Y **Phenomenological model with application for polarization-sensitive semiconductor optical amplifiers** [7134-34]
Z. Li, C. Wu, S. S. Yang, M. Cheng, C. Y. Tian, R. Y. Zhang, Beijing Jiaotong Univ. (China)
- 7134 0Z **A new type of mode power characteristics of extremely short external cavity semiconductor laser** [7134-35]
J.-G. Wu, Z.-M. Wu, G.-Q. Xia, X.-D. Lin, T. Deng, Southwest Univ. (China)
- 7134 10 **Ultra-wideband pulse generation using turbo-switches** [7134-36]
W. Zhang, J. Sun, C. Cheng, X. Zhang, D. Huang, Huazhong Univ. of Science and Technology (China)

SESSION 4A SPECIALTY FIBERS

- 7134 12 **High bandwidth specialty optical fibers for data communications (Invited Paper)** [7134-38]
J. Li, X. Sun, OFS (United States)

SESSION 4B OPTICAL COMPONENTS II

- 7134 13 **Linearity of the optical micro-resonator-based modulators** [7134-39]
H. Akhavan, Iran Univ. of Science and Technology (Iran, Islamic Republic of)
- 7134 14 **Design and fabrication of SU-8 polymer-based micro-racetrack resonators** [7134-40]
D. Dai, B. Yang, L. Yang, Z. Sheng, Zhejiang Univ. (China)

- 7134 15 **Photosensitive terpolymer based on PFS:PFOA:GMA monomers for optical communications** [7134-41]
A. Moujoud, H. J. Kim, Yonsei Univ. (Korea, Republic of); M. Andrews, McGill Univ. (Canada)
- 7134 16 **Properties of liquid inorganic-organic hybrid polymer optical waveguide materials** [7134-42]
X. Han, L. Wang, Y. Liu, H. Zhang, J. Wang, X. Jian, M. Zhao, Dalian Univ. of Technology (China)
- 7134 17 **Crosstalk between two nonparallel waveguides in AWG demultiplexer** [7134-43]
F. Guo, L. Li, Fujian Normal Univ. (China); M. Wang, Zhejiang Univ. (China)
- 7134 18 **All-optical wavelength conversions in PPLN waveguide with continuous and pulsed pumping** [7134-44]
M. Zhang, J. Cui, M. Liu, C. Wang, Y. Sun, Beijing Institute of Technology (China)

SESSION 5A PHOTONIC CRYSTAL FIBERS II

- 7134 1A **A design of large negative dispersion photonic crystal fibers** [7134-47]
H. Li, S. Lou, H. Fang, T. Guo, L. Yao, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 1B **A linear step effective index model to study chromatic dispersion properties in high nonlinear photonic crystal fibers** [7134-48]
D. Zhang, Nankai Univ. (China) and Shanghai Hengtong Optic and Electronic Technology Co., Ltd. (China); J. Zhang, Q. Sheng, X. Dong, Nankai Univ. (China)
- 7134 1C **Design of broadband dispersion-compensating microstructure fiber with large modal area** [7134-49]
X. Zhang, Q. Lu, X. Ren, Y. Huang, Beijing Univ. of Posts and Telecommunications (China)

SESSION 5B OPTICAL BUFFER AND SIGNAL PROCESSING

- 7134 1D **Potential optoelectronic devices for all-optical signal processing (Invited Paper)** [7134-169]
D. Huang, Huazhong Univ. of Science and Technology (China)
- 7134 1E **SBS slow light using a novel optical fiber doped with nanoparticles** [7134-51]
Y. Zhang, P. Lang, R. Zhang, Beijing Univ. of Posts and Telecommunications (China)
- 7134 1G **A novel programmable all-optical buffer for optical packet switching network** [7134-53]
Y. Wang, C. Wu, D. Shu, X. Zhao, Beijing Jiaotong Univ. (China); X. Xin, Beijing Univ. of Posts and Telecommunications (China); Y. Wang, S. Zhao, Z. Wang, Beijing Jiaotong Univ. (China)
- 7134 1H **Wavelength and power dependence of optical delay system utilizing HNLFs and DCF** [7134-54]
A. Yang, X. Wu, Y. Sun, Beijing Institute of Technology (China)

SESSION 6A OPTICAL FIBERS II

- 7134 1I **Optical coupling optimization for fiber lasers and devices (Invited Paper)** [7134-55]
B. S. Wang, E. W. Mies, Vytran LLC (United States)

- 7134 1K **Fabrication of specialty optical fibers using flash vaporization method** [7134-57]
B. Lenardič, M. Kveder, Optacore (Slovenia); H. Guillon, S. Bonnafous, Kemstream (France)
- 7134 1L **Advanced multimode fiber for high-speed short-read interconnect (Invited Paper)** [7134-58]
Y. Sun, R. Lingle, Jr., G. Oulundsen, A. H. McCurdy, D. S. Vaidya, D. Mazzaresse, T. Irujo, OFS (United States)
- 7134 1N **Research on the fiber's UV transmission performance influenced by the doping process** [7134-60]
F. Tu, D. Liu, X. Qian, Huazhong Univ. of Science and Technology (China); T. Deng, C. Yang, J. Luo, Yangtze Optical Fibre and Cable Co., Ltd. (China)

SESSION 6B SILICON PHOTONICS

- 7134 1O **Silicon nanophotonic waveguides and their applications (Invited Paper)** [7134-61]
W. Bogaerts, L. Liu, S. K. Selvaraja, P. Dumon, J. Brouckaert, D. Taillaert, D. Vermeulen, G. Roelkens, D. Van Thourhout, R. Baets, Univ. Gent (Belgium)
- 7134 1R **Applications of nonlinear effects in silicon wire waveguides: all-optical modulation, wavelength conversion, and quantum entanglement (Invited Paper)** [7134-64]
K. Yamada, T. Tsuchizawa, T. Watanabe, H. Fukuda, H. Shinojima, H. Nishi, H. Takesue, T. Tanabe, A. Shinya, E. Kuramochi, M. Notomi, Y. Tokura, S. Itabashi, Nippon Telegraph and Telephone Corp. (Japan)

SESSION 7A NONLINEAR SIGNAL PROCESSING

- 7134 1T **A novel 80 km dispersion-compensation 8×100GHz comb-equalizer for fiber optical parametric amplifier** [7134-66]
H. Cao, G. Chen, W. Chen, Foshan Univ. (China); J. Sun, D. Huang, Huazhong Univ. of Science and Technology (China)
- 7134 1U **Four-wave mixing-based all-optical signal processing with pulsed signal input** [7134-67]
X. Xiao, P. Shum, S. Fu, Nanyang Technological Univ. (Singapore)
- 7134 1V **Fiber stimulated Brillouin scattering-based microwave signal processing** [7134-68]
S. Gao, Y. Gao, H. Fu, Zhejiang Univ. (China)
- 7134 1W **Investigation of nonlinear optical loop mirror based optical thresholding for high speed OCDM system** [7134-69]
X. Chen, China Three Gorges Univ. (China); D. Huang, Huazhong Univ. of Science and Technology (China)

SESSION 7B OPTICAL SWITCHES

- 7134 1X **High-speed switching of a DFB grating in a twin-hole fibre** [7134-70]
Z. Yu, Zhejiang Univ. (China) and Royal Institute of Technology (Sweden); P.-Y. Fonjallaz, W. Margulis, O. Tarasenko, Acreo AB (Sweden) and Royal Institute of Technology (Sweden)

- 7134 1Y **Research on 1×2 all fiber high-speed magneto-optic switch** [7134-71]
S. Lin, Z. Weng, M. Wang, X. Chen, J. Ruan, Xiamen Univ. (China)
- 7134 1Z **Analysis and design for ultrafast magneto-optic switch** [7134-72]
X. Chen, Z. Weng, S. Lin, M. Wang, Xiamen Univ. (China)
- 7134 21 **Electro-optic polymer assisted optical switch based on silicon slot structure** [7134-74]
S. Xiao, F. Wang, X. Wang, Y. Hao, X. Jiang, M. Wang, J. Yang, Zhejiang Univ. (China)
- 7134 22 **Ring-resonator-assisted optical switch with high extinction ratio** [7134-75]
F. Wang, X. Wang, H. Zhou, S. Xiao, X. Jiang, J. Yang, M. Wang, Zhejiang Univ. (China)

SESSION 8A POLARIZATION EFFECTS

- 7134 23 **Wide band single polarization and polarization-maintaining fibers with stress rods and air holes (Invited Paper)** [7134-76]
X. Chen, M.-J. Li, J. Koh, D. A. Nolan, Corning Inc. (United States)
- 7134 24 **Study on the performance of the stress area mismatched Panda erbium-doped polarization-maintaining fiber** [7134-77]
T. Gong, F. Yan, L. Wang, P. Liu, P. Tao, Beijing Jiaotong Univ. (China); G. Wang, China Electric Power Research Institute (China); J. Li, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 25 **The least DOFs required for a polarization controller in PMD compensator** [7134-78]
X. Zhang, G. Duan, L. Xi, Beijing Univ. of Posts and Telecommunications (China)
- 7134 26 **Investigation of cross-polarization modulation in semiconductor optical amplifier** [7134-79]
S. Zhao, C. Wu, Z. Feng, X. Song, Beijing Jiaotong Univ. (China)
- 7134 27 **Polarization-induced phase noise in fiber optic Michelson interferometer with Faraday rotator mirrors** [7134-80]
Y. Wu, F. Li, W. Zhang, H. Xiao, Y. Liu, Institute of Semiconductors (China)

SESSION 8B FIBER SENSORS

- 7134 28 **Temperature insensitive strain sensors based on high birefringence fiber loop mirror with a single fiber Bragg grating** [7134-81]
H. Zhou, B. Liu, Y. Liu, H. Sun, Y. Miao, J. Luo, Nankai Univ. (China)
- 7134 29 **Raman-based distributed temperature sensor using a 1.66μm ring type Q-switched fiber laser with adjustable pulsewidth** [7134-82]
L. Zhang, X. Feng, Q. Zhou, X. Liu, Tsinghua Univ. (China)
- 7134 2A **The research of multi-parameter sensor based on two-mode highly birefringent photonic crystal fibers** [7134-83]
K. Wen, R. Wang, J. Wang, J. Li, The PLA Univ. of Science and Technology (China)

- 7134 2B **Investigations of a novel mechanical anti-aliasing filtering fiber-optic hydrophone with a cylindrical Helmholtz resonator** [7134-84]
Z. Wang, Y. Hu, National Univ. of Defense Technology (China)
- 7134 2C **Analysis of a new measurement for electromagnetic with fiber grating** [7134-85]
H. Peng, Y. Su, Y. Li, The PLA Univ. of Science and Technology (China)
- 7134 2D **Temperature dependence of the strain response of chemical composition gratings in optical fibers** [7134-86]
G. Li, B. Guan, Dalian Univ. of Technology (China)

Part Two

SESSION 9A FIBER LASERS

- 7134 2E **Fiber fuse in high-power optical fiber (Invited Paper)** [7134-87]
J. Wang, S. Gray, D. Walton, L. Zenteno, Corning Inc. (United States)
- 7134 2G **Experimental investigation of double-clad Tm³⁺-doped silica fiber amplifying at 1.99μm** [7134-89]
T. Jing, H. Wang, Quanzhou Normal Univ. (China); Y. Zhang, Harbin Institute of Technology (China)
- 7134 2H **High-power narrow-linewidth wavelength-tunable YB³⁺-doped double-clad fiber lasers** [7134-90]
Y.-Y. Fan, C.-C. Ye, C.-Y. Wu, Z.-P. Cai, Xiamen Univ. (China)

SESSION 9B OPTICAL DEVICES

- 7134 2I **Transmission enhancement of a metallic slit by a nearby metallic nano-particle** [7134-91]
Y. Cui, Zhejiang Univ. (China); Y. Jin, Y. He, S. He, Royal Institute of Technology (Sweden) and Zhejiang Univ. (China)
- 7134 2J **High-speed optical hold module in optical assisted ADC** [7134-92]
X. Fu, H. Zhang, M. Yao, Tsinghua Univ. (China)
- 7134 2K **All-optical correlator based on 3×3 coupler with feedback for optical header processing** [7134-93]
Y. Wang, C. Wu, Y. Wang, M. Cheng, Beijing Jiaotong Univ. (China)
- 7134 2M **All-optical flip-flop based on the optical bistable Fabry-Perot laser diode with fiber-Bragg-grating external cavity** [7134-95]
Z. Feng, C. Wu, S. Zhao, X. Sheng, Beijing Jiaotong Univ. (China)
- 7134 2N **Broadband optical directional full couplers based on Blackman function** [7134-96]
C.-F. Chen, Y.-S. Ku, National Central Univ. (Taiwan, China)

SESSION 10A MICROSTRUCTURED FIBERS

- 7134 2P **Finite element analysis of propagation characteristics for an octagonal photonic crystal fiber (O-PCF) [7134-98]**
J. Guan, Nanjing Univ. of Posts and Telecommunications (China)
- 7134 2S **Single-mode TE₀₁ fibers (Invited Paper) [7134-102]**
J. Bures, X. Daxhelet, École Polytechnique de Montréal (Canada) (Canada)

SESSION 10B FIBER RING LASERS

- 7134 2T **Optical injection mode-locking and DWDM channeling of the weak-resonant-cavity FPLD-based fiber ring lasers (Invited Paper) [7134-103]**
G.-H. Peng, National Taiwan Univ. (Taiwan, China); Y.-C. Lin, K.-C. Lin, China Institute of Technology (Taiwan, China); G.-R. Lin, National Taiwan Univ. (Taiwan, China)
- 7134 2U **Multiwavelength emission and passive mode-locking from a same fiber laser with nonlinear optical loop mirror [7134-104]**
Z. Zhang, Jiangxi Normal Univ. (China) and Beijing Univ. of Posts and Telecommunications (China); J. Wu, K. Xu, Beijing Univ. of Posts and Telecommunications (China); Z. Ye, M. Sang, Y. Nie, Jiangxi Normal Univ. (China); J. Lin, Beijing Univ. of Posts and Telecommunications (China)
- 7134 2V **Tunable single polarization Yb³⁺-doped fiber ring laser by using intracavity tilted fiber Bragg grating [7134-105]**
X. P. Cheng, J. Q. Zhou, P. Shum, Nanyang Technological Univ. (Singapore); R. F. Wu, DSO National Labs. (Singapore)
- 7134 2W **Discretely tunable narrow linewidth fiber ring laser based on matching the transmission spectra of two fiber Bragg grating Fabry-Perot filters [7134-106]**
M. Chen, X. Dong, J. Zhou, J. Qi, Xiamen Univ. (China)
- 7134 2X **Characteristics of active mode-locked fiber ring laser based on semiconductor optical amplifier [7134-107]**
S. Yan, Xi'an Institute of Optics and Precision Mechanics (China) and Graduate School of Chinese Academy of Sciences (China); J. Zhang, London South Bank Univ. (United Kingdom); J. Zhou, Ministry of Army Aviation (China); W. Zhao, Xi'an Institute of Optics and Precision Mechanics (China)
- 7134 2Y **Discretely tunable SOA-fiber laser based on few-mode polarization maintaining fiber in Sagnac interferometer [7134-108]**
G. Sun, Gwangju Institute of Science and Technology (Korea, Republic of) and Shantou Univ. (China); D. S. Moon, Samsung Electronics Hainan Fiberoptics-Korea Co., Ltd. (Korea, Republic of); Y. Chung, Gwangju Institute of Science and Technology (Korea, Republic of)

SESSION 11A OPTICAL FILTERS

- 7134 31 **Widely tunable Gaussian-shaped spectral filters using dispersion-engineered fibers for bio-imaging applications** [7134-111]
K.-C. Hsu, National Chiao Tung Univ. (Taiwan, China); N.-K. Chen, National United Univ. (Taiwan, China); S.-K. Liaw, National Taiwan Univ. of Science and Technology (Taiwan, China); Y. Lai, National Chiao Tung Univ. (Taiwan, China); S. Chi, National Chiao Tung Univ. (Taiwan, China) and Yuan Ze Univ. (Taiwan, China)
- 7134 32 **How to design an easily deposited multi-band-pass filter** [7134-112]
S. Kamikawa, Koshin-Kogaku Co., Ltd. (Japan)
- 7134 33 **Ultra narrow flat-top filter based on multiple equivalent phase shifts** [7134-113]
F. Wang, Nanjing Univ. (China); X. Zou, Southwest Jiaotong Univ. (China); Z. Yin, X. Chen, H. Shen, Nanjing Univ. (China)
- 7134 34 **All fiber tunable band-pass filter based on dual acousto-optic mode coupling** [7134-114]
R. Miao, W. Zhang, X. Feng, J. Zhao, X. Liu, Tsinghua Univ. (China)

SESSION 11B FIBER GRATINGS

- 7134 35 **Transfer matrix model of the fiber grating external cavity semiconductor laser** [7134-115]
Z.-Y. Li, Z.-M. Wu, Z.-C., Gao, J. Liu, L.-H. Du, G. Xia, Southwest Univ. (China)
- 7134 36 **Wavelength-spacing-tunable multiwavelength filter and laser using a fiber grating-based distributed F-P interferometer** [7134-116]
X. Dong, China Jiliang Univ. (China); H.-Y. Tam, C. Lu, The Hong Kong Polytechnic Univ. (Hong Kong, China); P. Shum, Nanyang Technological Univ. (Singapore)
- 7134 37 **Recent development on CO₂-laser written long-period fiber gratings (Invited Paper)** [7134-117]
Y. Liu, Shanghai Univ. (China) and City Univ. of Hong Kong (Hong Kong, China); K. S. Chiang, City Univ. of Hong Kong (Hong Kong China)
- 7134 38 **Optical resonance analysis of reflected long period fiber gratings with metal film overlay** [7134-118]
G. Zhang, B. Cao, C. Wang, M. Zhao, Soochow Univ. (China)
- 7134 39 **High sensitive pulse measurements using nonuniform quasi-phase matching gratings** [7134-119]
C. Ning, J. Cui, A. Yang, M. Liu, Y. Sun, Beijing Institute of Technology (China)

SESSION 12A NONLINEAR EFFECTS

- 7134 3A **The study of the gain characteristics of 1.66 μ m fiber Raman amplifier with ordinary single-mode fiber** [7134-120]
L. Liu, C. Wu, L. Zhai, G. Lin, Beijing Jiaotong Univ. (China); Y. Li, Nankai Univ. (China)

- 7134 3B **Demonstration of a multiwavelength laser source based on supercontinuum generation in dispersion-flattened holey fiber** [7134-122]
Q. Wang, H. Zhang, Beijing Univ. of Posts and Telecommunications (China); X. Zhang, Liaocheng Univ. (China); W. Li, B. Yang, Beijing Univ. of Posts and Telecommunications (China)
- 7134 3C **Modulational instability in highly nonlinear media** [7134-123]
A. B. Moubissi, T. B. Ekogo, S. B. Yamgoue, J. P. Ngantcha, Univ. des Sciences et Techniques de Masuku (France); K. Nakkeeran, Univ. of Aberdeen (United Kingdom); K. Senthilnathan, National Institute of Technology (India); A. Zhang, Tianjin Univ. of Technology (China)
- 7134 3E **All-optical low-pass filter based on cross-gain modulation in fiber optical parametric amplifier** [7134-125]
K. K. Y. Cheung, J. T. F. Chau, J. Li, K. K. Y. Wong, The Univ. of Hong Kong (Hong Kong, China)

POSTER SESSION

- 7134 3F **Hole-assisted lightguide fiber for dispersion tailoring** [7134-03]
D. J. J. Hu, P. Shum, Nanyang Technological Univ. (Singapore); C. Lu, The Hong Kong Polytechnic Univ. (Hong Kong China); H. Y. Meng, Nanyang Technological Univ. (Singapore)
- 7134 3G **All-optical clock recovery CSRZ-format data at 40Gbit/s using SOA-based ring laser** [7134-126]
Z. Chen, Central Univ. of Finance and Economics (China)
- 7134 3H **A novel ultrafast all-optical NRZ to RZ format converter based on Sagnac interferometric structure** [7134-127]
Z. Chen, Central Univ. of Finance and Economics (China)
- 7134 3J **Photoluminescence of copper ion-exchanged planar waveguides in commercial soda-lime glass** [7134-129]
F. Qiu, Y. Ti, J. Zhang, Y. Cao, J. Zheng, Jilin Univ. (China); P. Wang, G. Farrell, Dublin Institute of Technology (Ireland)
- 7134 3K **Design of tunable wavelength selector with fiber Bragg gratings with cladding made of Electro-optic materials** [7134-130]
S.-L. Hou, B. Chen, Lanzhou Univ. of Technology (China); Z.-X. Chen, Central Univ. of Finance and Economics (China)
- 7134 3L **Output power stabilized dual-order Raman fiber laser by generated amplified spontaneous emission** [7134-131]
Y. Zhou, M. Cheng, Z. Luo, Minjiang Univ. (China)
- 7134 3M **Direct design of super-narrowband fiber grating filter with discrete layer-peeling algorithm** [7134-132]
P. Chen, R. Wang, T. Pu, L. Lu, Y. Zhu, J. Zheng, PLA Univ. of Science and Technology (China)
- 7134 3N **Thermal stress effects of the interlayer between waveguide cores in buried channel optical waveguides** [7134-133]
H. Huang, D. Huang, W. Liu, Z. Cheng, Huazhong Univ. of Science and Technology (China)

- 7134 3O **Exceeded 1W average power, 1kW peak power, and all-fiber nanosecond Yb-doped amplifier** [7134-134]
F. Liu, Hunan Univ. of Science and Technology (China) and Nankai Univ. (China); Z. Wang, L. Xu, Nankai Univ. (China); B. Huang, Nankai Univ. (China) and Chinese Electronics Technology Group Corp. (China); W. Fan, S. Yuan, Nankai Univ. (China)
- 7134 3P **Dielectric properties of GaAs in terahertz wave** [7134-135]
J. Li, X. Zhao, J. Li, China Jiliang Univ. (China)
- 7134 3Q **Compact optical modulator based on slow-wave waveguide** [7134-136]
J. Li, X. Zhao, China Jiliang Univ. (China)
- 7134 3S **Fiber grating laser pressure sensor** [7134-138]
J. Luo, B. Liu, S. Yan, S. Yuan, Nankai Univ. (China)
- 7134 3T **A novel joint-matching method for optimizing the compatibility between optical source and en/decoder of OCDMA** [7134-139]
J. Zheng, R. Wang, T. Pu, P. Chen, Y. Zhu, L. Lu, Nanjing Institute of Communication Engineering (China)
- 7134 3U **High-frequency ultrasound measurement using fiber grating laser hydrophone** [7134-141]
L.-Y. Shao, The Hong Kong Polytechnic Univ. (Hong Kong, China) and China Jiliang Univ. (China); S.-T. Lau, The Hong Kong Polytechnic Univ. (Hong Kong China); X. Dong, China Jiliang Univ. (China); Y.-J. Wang, S.-Y. Liu, H.-Y. Tam, H. L.-W. Chan, C. Lu, The Hong Kong Polytechnic Univ. (Hong Kong China)
- 7134 3V **Fiber Bragg gratings with refractive index direct current component modulation** [7134-142]
B. Yan, Beijing Univ. of Posts and Telecommunications (China) and Univ. of New South Wales (Australia); G.-D. Peng, Univ. of New South Wales (Australia); K. Wang, C. Yu, X. Xin, D. Xu, Beijing Univ. of Posts and Telecommunications (China)
- 7134 3W **Simultaneous measurement of surrounding temperature and refractive index by the tilted fiber Bragg grating** [7134-143]
Y. Miao, B. Liu, S. Tian, Q. Zhao, Nankai Univ. (China)
- 7134 3X **Tm³⁺-doped silica fiber laser output at 1.94μm with multi-mode FBG as cavity** [7134-144]
H. Wang, T. Jing, Quanzhou Normal Univ. (China); Y. Zhang, Harbin Institute of Technology (China)
- 7134 3Y **Analysis of a new measurement for electromagnetic field with the DGD of fiber grating** [7134-145]
Y. Su, H. Peng, Y. Li, The PLA Univ. of Science and Technology (China)
- 7134 3Z **Study of the highly dispersive dual-core photonic crystal fiber with large mode area** [7134-146]
W. Chen, S. Lou, H. Li, L. Wang, H. Fang, T. Guo, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 40 **Investigations on beam-shape transformation by direct inscribing an index modulation pattern on optical fiber surface** [7134-147]
T. Liao, Q. Zhao, S. Li, Nankai Univ. (China)

- 7134 41 **Dual-wavelength erbium-doped fiber ring laser based on one polarization maintaining fiber Bragg grating in a Sagnac loop interferometer** [7134-148]
S. Feng, H. Li, O. Xu, S. Lu, X. Mao, T. Ning, S. Jian, Beijing Jiaotong Univ. (China)
- 7134 42 **Solid-core photonic bandgap fiber with polymer coating for biosensing applications** [7134-149]
Y. F. Zhang, C. C. Chan, J. Sun, Nanyang Technological Univ. (Singapore)
- 7134 43 **Glucose optical biosensor with sol-gel-coated long-period gratings** [7134-150]
J. Sun, C. C. Chan, Y. F. Zhang, L. T. Zheng, Nanyang Technological Univ. (Singapore);
H. L. Ho, X. Y. Dong, L. Y. Shao, The Hong Kong Polytechnic Univ. (Hong Kong China)
- 7134 44 **Ring-cavity Er/Yb co-doped fiber laser and its mode characteristics** [7134-151]
M. Jiang, Y. Guo, J. Huo, Y. Zhang, T. Wang, Jilin Univ. (China)
- 7134 45 **A simple in-line fiber polarizer based on tapered flat-clad microfiber with a liquid cladding overlay** [7134-152]
C.-L. Lee, H.-P. Chuang, K.-C. Lai, I.-S. Hsieh, T.-F. Chang, J.-X. Fan, H.-H. Tsao, National United Univ. (Taiwan, China); K.-C. Hsu, National Chiao Tung Univ. (Taiwan, China); N.-K. Chen, National United Univ. (Taiwan, China)
- 7134 46 **Improvement of optical characteristics of holey fibers and their applications** [7134-153]
C.-H. Jung, K.-G. Lee, C.-H. Ouh, K.-S. Ryu, H.-J. Kang, Optomagic Co., Ltd. (Korea, Republic of); S.-B. Lee, Korea Institute of Science and Technology (Korea, Republic of); Y.-G. Han, Hanyang Univ. (Korea, Republic of)
- 7134 47 **Design and simulation of microring resonators for time-domain optical add-drop multiplexing** [7134-154]
J. Hong, C. Li, J. Zhou, S. Chen, Wuhan Univ. of Technology (China); L. Zhou, Wuhan Institute of Technology (China); W. Chen, Wuhan Univ. of Technology (China)
- 7134 48 **Investigation of aluminum wire-grid polarizers for visible wavelengths using rigorous coupled wave analysis** [7134-155]
C. Hu, Wuhan Univ. of Technology (China) and Huazhong Univ. of Science and Technology (China); D. Liu, Huazhong Univ. of Science and Technology (China)
- 7134 49 **Quarter wave plate made by cutting straight holey birefringent fiber** [7134-156]
Z.-D. Shi, M.-N. Ji, Shanghai Univ. (China); J.-Q. Lin, Guangxi Institute of Technology (China); M.-J. Li, Y. Bai, Shanghai Univ. (China)
- 7134 4A **Influence of extension lead and input polarization state on performance of quarter wave plate made by increscent-spinning birefringent fiber** [7134-157]
Z.-D. Shi, M.-N. Ji, Shanghai Univ. (China); J.-Q. Lin, Guangxi Institute of Technology (China); Y. Bai, M.-J. Li, Shanghai Univ. (China)
- 7134 4B **Fabry-Perot etalon in hole-type photonic crystal as an optical sensor** [7134-158]
X. Chen, Minjiang Univ. (China); Y. Wang, Longyan Univ. (China); Z. Lin, N. Lin, G. Lin, Minjiang Univ. (China); Y. Qiu, H. Li, J. Jiang, B. Ni, J. Bai, Fujian Normal Univ. (China)

- 7134 4C **High power tunable and passively mode-locked erbium-doped fiber ring laser based on nonlinear polarization rotation** [7134-159]
S. Zhang, G. Zhao, Z. Zhang, D. Li, Hebei Normal Univ. (China)
- 7134 4E **All-optically tuned delay characteristics of fibre Bragg grating** [7134-161]
Y. Peng, K. Qiu, B. Wu, S. Ji, Y. Yang, Univ. of Electronic Science and Technology of China (China)
- 7134 4F **Fabrication of photosensitive polarization-maintaining erbium-doped fiber and application for fiber laser** [7134-162]
P. Liu, Beijing Jiaotong Univ. (China) and Xingtai College (China); F. Yan, L. Wang, J. Li, T. Gong, P. Tao, Beijing Jiaotong Univ. (China)
- 7134 4G **Design and experiments on multiwavelength fiber lasers** [7134-163]
J. Li, Beijing Jiaotong Univ. (China); P. Liu, Beijing Jiaotong Univ. (China) and XingTai College (China); J. Wang, W. Jiang, J. Zheng, S. Jian, T. Gong, B. Lv, Beijing Jiaotong Univ. (China)
- 7134 4H **Wavelength tunable single frequency bistability erbium-doped fiber ring laser** [7134-164]
T. Wang, S. Qian, X. Zhou, Y. Qi, Q. Li, Hangzhou Dianzi Univ. (China)
- 7134 4I **A low-loss broadband y-branch for fiber to the home applications** [7134-165]
T. Lang, D. Dai, S. He, Zhejiang Univ. (China)
- 7134 4J **A high-performance aluminum wire-grid polarizer for the optical telecommunication applications** [7134-166]
C. Hu, Huazhong Univ. of Science and Technology (China) and Wuhan Univ. of Technology (China); D. Liu, Huazhong Univ. of Science and Technology (China)
- 7134 4K **Short cavity single-mode dual wavelength fiber laser array** [7134-167]
T. Wang, S. Qian, X. Zhou, Y. Qi, Q. Li, Hangzhou Dianzi Univ. (China)
- 7134 4L **Multiwavelength fiber ring laser based on an SOA and Lyot birefringent filter** [7134-168]
M. Wang, J. Wu, J. Lin, Beijing Univ. of Posts and Telecommunications (China)

Author Index

Conference Committee

Symposium Chairs

Lars Thylén, Joint Research Center of the Royal Institute of Technology (Sweden) and Zhejiang University (China)
Wei Yang, Zhejiang University (China)
Bingkun Zhou, Tsinghua University (China)

Conference Chairs

Ming-Jun Li, Corning Inc. (United States)
Ping Shum, Nanyang Technological University (Singapore)
Ian H. White, University of Cambridge (United Kingdom)
Xingkun Wu, Zhejiang University (China)

Program Committee

David Z. Chen, Verizon (United States)
Xiang-Fei Chen, Nanjing University (China)
Yuh-Jen Cheng, Academia Sinica (Taiwan, China)
Kin-Seng Chiang, City University of Hong Kong (Hong Kong, China)
Jon V. DeGroot, Jr., Dow Corning Corporation (United States)
Libin Fu, IMRA America, Inc. (United States)
Claire Gu, University of California, Santa Cruz (United States)
Helmut Heidrich, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany)
Jørn M. Hvam, Technical University of Denmark (Denmark)
Xiaofeng Jin, Zhejiang University (China)
Magnus Karlsson, Chalmers University of Technology (Sweden)
Kyunghwan Ken Oh, Yonsei University (Korea, Republic of)
Namkyoo Park, Seoul National University (Korea, Republic of)
Rong-Hui Qu, Shanghai Institute of Optics and Fine Mechanics (China)
Rajeev Jagga Ram, Massachusetts Institute of Technology (United States)
Yun-Jiang Rao, University of Electronic Science and Technology of China (China)
Ken Sakuma, Fujikura Ltd. (Japan)
Akihiko Shinya, NTT Atsugi R & D Center (Japan)
Hon K. Tsang, The Chinese University of Hong Kong (Hong Kong, China)
Baishi Wang, Vytran LLC (United States)
Ji Wang, Corning Inc. (United States)
Benyuan Zhu, OFS (United States)

Session Chairs

- 1a Photonic Crystal Fibers I
Jes Broeng, Crystal Fibre A/S (Denmark)
- 1b Fiber Lasers and Amplifiers
Ping Shum, Nanyang Technological University (Singapore)
- 2a Optical Fibers I
Xin Chen, Corning Inc. (United States)
- 2b Fiber Bragg Gratings
Yung-Jui Chen, University of Maryland, Baltimore County (United States)
- 3a Best Student Papers
Ming-Jun Li, Corning Inc. (United States)
- 3b Optical Components I
Jinkee Kim, OFS (United States)
- 4a Specialty Fibers
Baishi Wang, Vytran LLC (United States)
- 4b Optical Components II
Yi Sun, OFS (United States)
- 5a Photonic Crystal Fibers II
Ming-Jun Li, Corning Inc. (United States)
- 5b Optical Buffer and Signal Processing
Jie Li, OFS (United States)
- 6a Optical Fibers II
Satoki Kawanishi, NTT Basic Research Laboratories (Japan)
- 6b Silicon Photonics
Kevin A. Williams, Technische Universiteit Eindhoven (Netherlands)
- 7a Nonlinear Signal Processing
Gong-Ru Lin, National Taiwan University (Taiwan, China)
- 7b Optical Switches
Ming-Jun Li, Corning Inc. (United States)
- 8a Polarization Effects
Ping Shum, Nanyang Technological University (Singapore)

- 8b Fiber Sensors
Yunqi Liu, Shanghai University (China)
- 9a Fiber Lasers
Ji Wang, Corning Inc. (United States)
- 9b Optical Devices
Hongpu Li, Shizuoka University (Japan)
- 10a Microstructured Fibers
Jes Broeng, Crystal Fibre A/S (Denmark)
- 10b Fiber Ring Lasers
Xin Chen, Corning Inc. (United States)
- 11a Optical Filters
Xingkun Wu, Zhejiang University (China)
- 11b Fiber Gratings
Hongpu Li, Shizuoka University (Japan)
- 12a Nonlinear Effects
Chester Shu, The Chinese University of Hong Kong (Hong Kong, China)