Optoelectronic Materials and Devices II

Yoshiaki Nakano
Editor

2–5 November 2007
Wuhan, China

Sponsored by
SPIE
COS—Chinese Optical Society (China)
CIC—China Institute of Communications (China)
The People’s Government of Wuhan Municipality (China)

Cooperating Organizations
WNLO—Wuhan National Laboratory for Optoelectronics (China)
The Productivity Promotion Center of Wuhan East Lake Hi-Tech Development Zone (China)
Wuhan Research Institute of Posts and Telecommunications (China)
The State Optoelectronics and Information Industry Base of China (China)

Published by
SPIE

Part One of Two Parts
Volume 6782
Contents

Part One

xv  Conference Committee

SILICON PHOTONICS SYMPOSIUM

6782 02  Si photonics: past, present, and future (Invited Paper) [6782-01]
K. Wada, The Univ. of Tokyo (Japan)

6782 03  Micro/nanoscale silicon based photonic devices (Invited Paper) [6782-02]
Z. Zhou, Wuhan National Lab. for Optoelectonics (China) and Georgia Institute of Technology (USA)

6782 04  Ge nanostructures doped silica-on-silicon waveguides (Invited Paper) [6782-03]

ALL-OPTICAL PROCESSING

6782 05  Photonic buffer memory based on polarization bistability in VCSELs (Invited Paper) [6782-04]
H. Kawaguchi, Nara Institute of Science and Technology (Japan) and CREST, Japan Science and Technology Agency (Japan)

6782 08  40Gb/s all-optical digital encoder/comparator based on semiconductor optical amplifiers [6782-07]
Y. Wang, X. Zhang, J. Dong, D. Huang, Wuhan National Lab. for Optoelectronics (China)

6782 09  Investigation of ultrafast all-optical AND gate based on cascaded SOAs and optical filters [6782-08]
J. Xu, X. Zhang, J. Dong, D. Liu, D. Huang, Wuhan National Lab. for Optoelectronics (China)

6782 0A  Analysis of femtosecond self-polarization modulation in semiconductor optical amplifier [6782-09]
M. Liu, A. Yang, Y. Sun, Beijing Institute of Technology (China)
**BEST STUDENT PAPER SESSION**

6782 0B 1.55 µm extremely efficient and polarization insensitive tunable Mach-Zehnder wavelength duplexer based on an InGaAsP/InP ridge waveguide structure (Best Student Paper Award) [6782-11]  

6782 0C Ultrafast multifunctional all-optical logic gates based on single semiconductor optical amplifier [6782-12]  
J. Dong, X. Zhang, Wuhan National Lab. for Optoelectronics (China); S. Fu, Nanyang Technological Univ. (Singapore); Y. Wang, D. Huang, Wuhan National Lab. for Optoelectronics (China)

6782 0D Electrooptic properties of InGaAsP-based asymmetric double quantum well electroabsorption modulators [6782-13]  
D. K. Kim, D. S. Citrin, Georgia Institute of Technology (USA) and Georgia Tech-CNRS, Georgia Tech Lorraine (France)

6782 0E The spectral feature analysis of semiconductor thin disk laser [6782-14]  
C. He, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of the Chinese Academy of Science (China); L. Qin, Changchun Institute of Optics, Fine Mechanics and Physics (China); J. Li, L. Cheng, X. Liang, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of the Chinese Academy of Science (China); Y. Ning, L. Wang, Changchun Institute of Optics, Fine Mechanics and Physics (China)

6782 0F Variable wavelength conversion based on fan-out grating in QPM-LN [6782-15]  
Y. Wang, Y. Huang, Z. Weng, H. Yan, R. Ye, J. Zhu, Xiamen Univ. (China)

**PHOTONIC INTEGRATION**

6782 0H Design and fabrication of a novel monolithically integrated dual-wavelength tunable photodetector [6782-17]  
J. Lv, H. Huang, Y. Huang, X. Ren, A. Miao, Y. Li, H. Du, Q. Wang, Beijing Univ. of Posts and Telecommunications (China)

6782 0I Multiplication characteristics of InP/InGaAs avalanche photodiodes with thick multiplication and charge layers [6782-18]  
Y. Zhao, Wuhan National Lab. for Optoelectronics (China)

6782 0J On the performance analysis and design of a novel shared-layer integrated device using RCE-p-i-n-PD/SHBT [6782-19]  
S. Zhou, Zhejiang Univ. of Technology (China); D. Xiong, Guangdong Univ. of Technology (China); Y. Qin, Zhejiang Univ. of Technology (China); H. Cui, Y. Chong, A. Miao, J. Lv, Beijing Univ. of Posts and Telecommunications (China); J. Gao, Institute of Semiconductors (China)

6782 0K Modulation responses and problems of a novel monolithically integrated optical transceiver for EPON [6782-20]  
H. Zhang, W. Li, T. Wang, Wuhan National Lab. for Optoelectronics (China)
InP-based optoelectronic components for all optical communication (Invited Paper)

Y. Baek, D. K. Oh, Electronics and Telecommunications Research Institute (South Korea)

MICRO LASERS

InP-based long wavelength VCSELs: their characteristics and applications (Invited Paper)

N. Nishiyama, Tokyo Institute of Technology (Japan); C. Caneau, M. Sauer, A. Kobyakov, C. E. Zah, Corning Inc. (USA)

Moving from ultrafast VECSELs to MIXSELs: a new class of ultrafast semiconductor lasers (Invited Paper)


High power VCSEL device with periodic gain active region

Y. Q. Ning, L. Qin, Y. F. Sun, T. Li, J. J. Cui, B. Peng, G. Y. Liu, Y. Zhang, Y. Liu, L. J. Wang, Changchun Institute of Optics, Fine Mechanics and Physics (China); D. F. Cui, Z. Y. Xu, Institute of Physics (China)

Loss-reduced semiconductor ring lasers based on active vertical coupler structure and two-section rectangular cavity

R. Zhang, O. Ansell, Z. Ren, S. Yu, Univ. of Bristol (United Kingdom)

NOVEL APPLICATION

Optical gain in 407nm and 470nm InGaN/GaN heterostructures: signature of quantum-dot states

B. Witzigmann, S. Steiger, M. Tomamichel, R. Veprek, ETH Zürich (Switzerland); U. T. Schwarz, Univ. of Regensburg (Germany)

Analysis of the focusing performance of microlens made of anisotropically dielectric material by multi-wavelength illumination

J. Liu, S. Wang, F. Sun, C. Hu, G. Zhang, Beijing Jiaotong Univ. (China)

Applications of swept light sources in imaging, sensor, and tests (Invited Paper)

T. Li, Y. Tang, W. Xu, Q. Qi, D. Eu, InPhenix, Inc. (USA)

QUANTUM WELL OPTICAL MODULATORS

Design and fabrication of high-performance InGaAsP/InP electroabsorption modulator

H. Yang, M. K. Chin, Nanyang Technological Univ. (Singapore); D. C. S. Lim, DSO National Labs. (Singapore); J. Zhou, Institute of Semiconductors (China); S. Lee, Nanyang Technological Univ. (Singapore); Y. Cheng, H. Zhu, W. Chen, Institute of Semiconductors (China)
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6782</td>
<td>Nano-structured special quantum well for high-performance optical modulators (Invited Paper) [6782-39]</td>
<td>T. Arakawa, Yokohama National Univ. (Japan); K. Tada, Kanazawa Institute of Technology (Japan)</td>
</tr>
</tbody>
</table>

**PHOTONIC CRYSTALS AND FIBERS**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6782</td>
<td>Silicon based ultra-compact modulator with photonic crystal [6782-30]</td>
<td>R. Hao, A. Mao, J. Feng, D. Gao, Wuhan National Lab. for Optoelectronics (China); Z. Zhou, Wuhan National Lab. for Optoelectronics (China) and Georgia Institute of Technology (USA); D. S. Citrin, Georgia Institute of Technology (USA)</td>
</tr>
<tr>
<td>6782</td>
<td>Negative refraction and birefringence in a two-dimensional flat perfect photonic crystal [6782-31]</td>
<td>Z. Li, Univ. of Shanghai for Science and Technology (China) and Henan Univ. (China); B. Liang, H. Guo, J. Chen, S. Zhuang, Univ. of Shanghai for Science and Technology (China)</td>
</tr>
<tr>
<td>6782</td>
<td>Wide-band transmission of slow light in one-dimensional photonic crystal coupled resonator optical waveguide [6782-33]</td>
<td>C. Li, H. Tian, B. Liu, Y. Ji, Beijing Univ. of Posts and Telecommunications (China)</td>
</tr>
<tr>
<td>6782</td>
<td>Continuous-wave optical fiber based supercontinuum light source [6782-34]</td>
<td>Z. G. Lu, National Research Council (Canada); Y. Song, National Research Council (Canada) and Concordia Univ. (Canada); J. R. Liu, National Research Council (Canada); X. P. Zhang, Concordia Univ. (Canada)</td>
</tr>
<tr>
<td>6782</td>
<td>Hybrid mode-locking based on nonlinear polarization rotation in a SOA fiber ring laser [6782-35]</td>
<td>F. Wang, Wuhan National Lab. for Optoelectronics (China) and Chongqing Institute of Technology (China); X.-L. Zhang, Chongqing Institute of Technology (China); Z.-M. Wu, G.-Q. Xia, Southwest Univ. (China)</td>
</tr>
<tr>
<td>6782</td>
<td>Liquid crystal photonic bandgap fiber components (Invited Paper) [6782-36]</td>
<td>L. Scolari, T. T. Alkeskjold, D. Noordegraaf, Technical Univ. of Denmark (Denmark); G. Tartarini, P. Bassi, Univ. of Bologna (Italy); A. Bjarklev, Technical Univ. of Denmark (Denmark)</td>
</tr>
</tbody>
</table>
λ/4 phase-shifted distributed feedback lasers with chirped grating: dynamic single-mode and modulation characteristics analyses [6782-43]
X.-H. Jia, Sichuan Normal Univ. (China); Z.-M. Wu, G.-Q. Xia, Southwest Univ. (China); D.-Z. Zhong, Wuyi Univ. (China); F. Wang, Chongqing Institute of Technology (China); J.-G. Wu, Southwest Univ. (China); H.-T. Chen, The Chinese People’s Armed Police Force Academy (China)

Field trial of 160 Gb/s all-optical packet switching (Invited Paper) [6782-44]
Y. Liu, Eindhoven Univ. of Technology (Netherlands) and Univ. of Electronic Science and Technology of China (China); J. Herrera, Eindhoven Univ. of Technology (Netherlands) and Univ. Politècnica de València (Spain); O. Raz, E. Tangdiongga, Eindhoven Univ. of Technology (Netherlands); J. Martí, F. Ramos, Univ. Politècnica de València (Spain); G. Maxwell, A. Poustie, Ctr. for Integrated Photonics Ltd. (United Kingdom); H. C. H. Mulvad, Technical Univ. of Denmark (Denmark); M. T. Hill, H. de Waardt, G. D. Khoe, A. M. J. Koonen, H. J. S. Dorren, Eindhoven Univ. of Technology (Netherlands)

Theoretical analysis of nonlinear polarization rotation influence on optical sampling in semiconductor optical amplifier [6782-45]
M. Liu, A. Yang, Y. Sun, Beijing Institute of Technology (China)

Design of all-optical UWB monocycle generation for UWB-over-fibre communications [6782-46]
J. Dong, X. Zhang, J. Xu, D. Huang, Wuhan National Lab. for Optoelectronics (China)

A simple approach of high-purity millimeter-wave signal photonic generation [6782-47]
T. Wang, M. Chen, H. Chen, S. Xie, Tsinghua Univ. (China)

Widely tunable lasers based on mode-hop-free semiconductor laser array (Invited Paper) [6782-48]

Automated chip-on-carrier screening of a SOA integrated full band tunable laser (DSDBR) [6782-49]
C. Wang, Bookham Technology (Shenzhen) Co., Ltd. (China); G. Dimitropoulos, A. J. Ward, Bookham Technology plc (United Kingdom); G. Yang, X. Wu, Bookham Technology (Shenzhen) Co., Ltd. (China)

A compact tunable transmitter assembly for high performance 10 Gbps optical systems [6782-50]
Y. Zhang, F. Liu, S. Yu, N. Zhang, Bookham Technology Co. Ltd. (China); P. Mitchell, S. Mayne, L. Nelson, Bookham Technology (United Kingdom)
Static properties of widely tunable external cavity semiconductor laser with sampled fiber grating [6782-51]  
X. He, Wuhan National Lab. for Optoelectonics (China) and Hong Kong Polytechnic Univ. (Hong Kong China); Y. Yu, D. Huang, Wuhan National Lab. for Optoelectonics (China); D. N. Wang, Hong Kong Polytechnic Univ. (Hong Kong China)

Theoretical model and simulation of the extremely short external cavity semiconductor laser [6782-52]  
G. Xia, Z. Wu, J. Wu, Z. Li, Q. Yang, B. Yang, Southwest Univ. (China)

Trend and applications of tunable semiconductor lasers (Invited Paper) [6782-53]  
S.-L. Lee, Y.-T. Pan, Y.-J. Hung, C.-L. Yao, C.-H. Cheng, S.-T. Ji, National Taiwan Univ. of Science and Technology (Taiwan)

Advanced component technologies for colourless access networks (Invited Paper) [6782-54]  
C. Kazmierski, Alcatel-Thales III-V Lab. (France); P. Chanclou, France Telecom Division R&D (France); J. A. Lazaro, Univ. Politécnica de Catalunya (Spain)

Cost-effective telecom/datacom semiconductor lasers (Invited Paper) [6782-55]  

980 nm pump laser module with 750 mW output power [6782-56]  
B. Guo, J. Lin, Q. He, Bookham Technology Co., Ltd. (China); S. Loten, J. Greatrex. Bookham Technology plc (United Kingdom); H.-U. Pfeiffer, S. Mohrdiek, T. Pliska, Bookham AG (Switzerland)

Design of taper coupler for effective laser and single mode fiber coupling with large tolerance [6782-57]  

Photonics studies on dilute nitrides at long wavelength for telecommunication (Invited Paper) [6782-58]  
C. S. Peng, M. Pessa, Tampere Univ. of Technology (Finland)

Intersubband photonic devices by group-III nitrides (Invited Paper) [6782-59]  
P. Holmström, Royal Institute of Technology (Sweden) and Sophia Univ. (Japan); X. Y. Liu, Chalmers Univ. of Technology (Sweden); H. Uchida, Sophia Univ. (Japan); T. Aggerstam, Royal Institute of Technology (Sweden); A. Kikuchi, K. Kishino, Sophia Univ. (Japan); S. Lourdudoss, Royal Institute of Technology (Sweden); T. G. Andersson, Chalmers Univ. of Technology (Sweden); L. Thylen, Royal Institute of Technology (Sweden)
Investigation on electro-optic single-sideband modulation using period phase reversal electrode [6782-61]
J. Hu, X. Yuan, Wuhan National Lab. for Optoelectronics (China)

Design of a novel high-speed magneto-optic modulator [6782-62]
J. Wan, Y. Huang, Z. Weng, H. Yan, Y. Wang, Z. Wu, R. Ye, Xiamen Univ. (China)

Part Two

NOVEL PHOTONICS COMPONENTS

Birefringent hollow core fibers (Invited Paper) [6782-63]
P. J. Roberts, Danish Technical Univ. (Denmark)

Experimental demonstration of PPLN-based double ring fiber laser and its application to 40 Gb/s wavelength conversion [6782-64]
J. Wang, J. Sun, Q. Sun, Wuhan National Lab. for Optoelectronics (China)

Light waveguide electro-optical printed circuit board [6782-65]
F. Luo, M. Cao, X. Zhou, J. Xu, Z. Luo, J. Yuan, Huazhong Univ. of Science and Technology (China) and Wuhan National Lab. for Optoelectronics (China); L. Zong, C. Zhang, Huazhong Univ. of Science and Technology (China)

Carbon-nanotube-based photonic devices (Invited Paper) [6782-68]
S. Yamashita, Univ. of Tokyo (Japan)

QUANTUM STRUCTURE DEVICES

InAs/InP-based quantum dot mode-locked semiconductor lasers at 1.5 µm (Invited Paper) [6782-69]

Influence of flux on the growth of InAs quantum dots on GaAs patterned substrate [6782-70]
Y. Song, Z. Yu, Y. Liu, Beijing Univ. of Posts and Telecommunications (China) and Key Lab. of Optical Communication and Lightwave Technologies (China)

The strain energy distribution of the capping layer surface for InAs/GaAs quantum dot along different growth directions [6782-71]
Z. Yu, Y. Liu, Beijing Univ. of Posts and Telecommunications (China)

Quantum-dot semiconductor waveguide devices [6782-72]
Z. G. Lu, J. R. Liu, S. Raymond, P. J. Poole, P. J. Barrios, S. Haffouz, D. Poitras, G. Pakulski, National Research Council (Canada); S. Taebi, National Research Council (Canada) and Univ. of Ottawa (Canada); Y. Song, National Research Council (Canada) and Concordia Univ. (Canada); X. P. Zhang, Concordia Univ. (Canada); T. Hall, Univ. of Ottawa (Canada)
The couple electronic state of the stack quantum dots by axial symmetrical finite element analysis [6782-73]
Y. Liu, Z. Yu, Beijing Univ. of Posts and Telecommunications (China) and Key Lab. of Optical Communication and Lightwave Technologies (China); X. Ren, Key Lab. of Optical Communication and Lightwave Technologies (China)

Determination on wave function of quantum structures using finite-difference time domain [6782-74]
B. Jia, Z. Yu, Y. Liu, Beijing Univ. of Posts and Telecommunications (China) and Key Lab. of Optical Communication and Lightwave Technologies (China)

---

**POSTER SESSION**

Resonant-cavity based monolithic white light-emitting diode [6782-76]
L. Huang, D. Huang, F. Wen, Wuhan National Lab. for Optoelectronics (China)

Multi-quantum-well InGaNAs/GaAs resonant cavity enhanced photodetector with integrated vertical taper structure [6782-77]
Y. Xu, Y.-Q. Huang, H. Huang, X.-M. Ren, Beijing Univ. of Posts and Telecommunications (China)

High power vertical cavity surface-emitting laser with high reliability [6782-78]
C. Yan, Changchun Univ. of Science and Technology (China); G. Lu, C. He, L. Qin, Changchun Institute of Optics, Fine Mechanics and Physics (China)

Characterization of white OLEDs [6782-79]
W. Chen, L. Lu, Univ. of Electronic Science and Technology of China (China)

Parameter optimization of nonlinear SOA in an SOA-MZI packet-level self-synchronization scheme [6782-80]
L. Cai, M. Zhang, H. Han, W. Yang, P. Ye, Beijing Univ. of Posts and Telecommunications (China)

Fine-tuning of the spectral efficiency based on tunneling splitting in multiple quantum well system [6782-81]
C. Huang, Hunan Institute of Science and Technology (China); J. Sun, Wuhan National Lab. for Optoelectronics (China); J. Liu, Hunan Institute of Science and Technology (China) and Wuhan National Lab. for Optoelectronics (China); W. Hu, Hunan Institute of Science and Technology (China)

Large aperture low threshold current 980nm VCSELs fabricated with pulsed anodic oxidation [6782-82]
J. Cui, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of Chinese Academy of Sciences (China); Y. Ning, Changchun Institute of Optics, Fine Mechanics and Physics (China); T. Li, G. Liu, Y. Zhang, B. Peng, Y. Sun, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of Chinese Academy of Sciences (China); L. Wang, Changchun Institute of Optics, Fine Mechanics and Physics (China)
Buffer optimization for high-quality InP-on-GaAs(001) quasi-substrates [6782-83]
J. Zhou, X. Ren, D. Xiong, J. Lv, Q. Wang, Y. Huang, H. Huang, S. Cai, Beijing Univ. of Posts and Telecommunications (China)

Novel scheme to increase the operation speed of a SOA for all-optical wavelength conversion [6782-84]
Z. Wu, Y. Huang, Z. Weng, H. Yan, Y. Wang, J. Wan, R. Ye, Xiamen Univ. (China)

Novel optical modulator of silicon photonic crystals [6782-86]
J. Li, J. Li, China Jiliang Univ. (China)

Structural and optical properties of InGaN/GaN multiple quantum wells structure for ultraviolet emission [6782-87]
B. Wang, Hebei Univ. of Science and Technology (China) and Institute of Semiconductors (China); X. Wang, Institute of Semiconductors (China); H. Wen, R. Wu, Hebei Univ. of Science and Technology (China); G. Hu, J. Ran, H. Xiao, Institute of Semiconductors (China)

Theory study of AlInGaN quantum well with different barriers [6782-88]
F. Wen, Huazhong Univ. of Science and Technology (China) and Univ. of Electronic Science and Technology (China); D. Liu, Huazhong Univ. of Science and Technology (China); L. Huang, Wuhan National Lab. for Optoelectronics (China)

Picosecond pulse Raman amplification and controlled time delay in silicon-on-insulator waveguides [6782-89]
J. Wu, F. Luo, M. Cao, Q. Zhang, Y. Huang, Wuhan National Lab. for Optoelectronics (China)

Research of photodetector and its array in standard CMOS technology [6782-90]
J. Bian, Jiangsu Polytechnic Univ. (China) and Xiamen Univ. (China); X. Cheng, C. Chen, Xiamen Univ. (China)

Single-SOA-based all-optical XNOR and AND gates [6782-91]
P. Li, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China); D. Huang, X. Zhang, Wuhan National Lab. for Optoelectronics (China); G. Zhu, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China)

Luminescence properties of Cu and Cu,Al doped ZnS quantum dots [6782-92]
X. Zhang, Tianjin Univ. of Technology (China) and Nankai Univ. (China); L. Li, Tianjin Univ. of Technology (China); X. Dong, G. Kai, Nankai Univ. (China); D. Dong, Y. Zhang, J. Li, Tianjin Univ. of Technology (China)

NIR luminescence properties of ZnS:Er,Yb quantum dots [6782-93]
X. Zhang, Nankai Univ. (China) and Tianjin Univ. of Technology (China); X. Dong, Nankai Univ. (China); L. Li, Tianjin Univ. of Technology (China); Z. Wang, Y. Liu, Nankai Univ. (China); D. Dong, Y. Zhang, Tianjin Univ. of Technology (China); G. Kai, Nankai Univ. (China)

Two-dimensional photonic crystal polarizer modulated by silicon resin [6782-94]
C. Tan, X. Huang, South China Normal Univ. (China)
 Simulation and analysis of gain-transparent SOA used as optical phase-modulator in DPSK applications [6782-95]
W. Hong, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China); D. Huang, X. Zhang, Wuhan National Lab. for Optoelectronics (China); G. Zhu, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China);

Finite element method analysis of LiNbO3 fiber type modulator [6782-96]
J. Li, J. Li, China Jiliang Univ. (China)

Noise-reduction of experimental optical chaos and its attributes [6782-99]
Z. Zhu, Y. Meng, N. Fang, Z. Huang, Shanghai Univ. (China)

Modeling of dynamics of DBR tunable lasers based on transfer matrix method [6782-101]
S. Kai, Y. Yu, Wuhan National Lab. for Optoelectronics (China)

The spectrum of chaos signal based on Wigner distribution [6782-102]
X. Guo, N. Fang, Z. Huang, Shanghai Univ. (China)

Activation experiments and quantum efficiency theory on gradient-doping NEA GaAs photocathodes [6782-103]
J. Zou, Nanjing Univ. of Science and Technology (China) and East China Institute of Technology (China); Z. Yang, J. Qiao, P. Gao, B. Chang, Nanjing Univ. of Science and Technology (China)

Design of high performance DBR lasers for WDM fiber optic communications [6782-104]
H. H. Yee, C. L. Xiao, C. K. Liao, H. Y. Tung, H. H. Lu, National Taipei Univ. of Technology (Taiwan)

Simulation of integrated DFB lasers in serial in a convenient model with transfer matrices method [6782-108]
H. Xie, Y. Wang, W. Zhang, L. He, Y. Sha, W. Zhang, Beijing Univ. of Technology (China)

Design of preamplifier for PIN/ HBT OEIC optical receiver [6782-109]
Q. Wu, Y.-Q. Huang, H. Huang, H. L. Cui, Y. Q. Li, A. Miao, X.-M. Ren, Beijing Univ. of Posts and Telecommunications (China)

Tunable ultraviolet laser source from a frequency doubled Alexandrite laser [6782-110]
S. Liu, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of Chinese Academy of Sciences (China); J. Liu, China Northern Institute of Electric Equipment (China); L. Wang, Changchun Institute of Optics, Fine Mechanics and Physics (China)

The role of dispersive magnetic permeability in ultrashort electromagnetic pulse propagation in nonlinear metamaterials [6782-111]
S. Wen, Q. Lv, X. Cheng, L. Jiang, W. Su, Hunan Univ. (China)

All-optical ultrawideband monocycle and doublet generation using cascaded PPLN waveguides [6782-112]
J. Wang, J. Sun, Q. Sun, Wuhan National Lab. for Optoelectronics (China)
Analysis and measurement of thermal-electrical performance of microbolometer detector
[6782-113]
L. Sun, B. Chang, J. Zhang, Y. Qiu, Y. Qian, S. Tian, Nanjing Univ. of Science and Technology (China)

Three-input ultrahigh-speed all-optical AND and NOR gates based on orthogonal dual-pump four-wave mixing in semiconductor optical amplifier with PolSK modulated signals
[6782-114]
P. Li, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China); D. Huang, X. Zhang, Wuhan National Lab. for Optoelectronics (China); G. Zhu, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China)

Theoretical investigation and experimental demonstration of nonlinear patterning suppression in bulk semiconductor optical amplifiers for transient cross phase modulation
[6782-115]
E. Zhou, X. Zhang, D. Huang, Wuhan National Lab. for Optoelectronics (China)

Structural and photoluminescence properties of porous silicon with r.f.-sputtered thin films
[6782-116]
Y. Zhang, Xi'an Jiatong Univ. (China); Z. Jia, Xinjiang Univ. (China)

The cavity enhancing effect of F-P cavity mode on the non-degenerated four-wave mixing in distributed-feedback semiconductor laser diodes
[6782-117]
J. Wu, G. Xia, Southwest Univ. (China); X. Jia, Sichuan Normal Univ. (China); X. Yan, J. Li, X. Wang, Z. Wu, Southwest Univ. (China)

Performance analysis of all optical XOR gate using quantum dot semiconductor optical amplifier-based Mach-Zehnder interferometer
[6782-119]
H. Han, F. Zhang, W. Yang, L. Cai, M. Zhang, P. Ye, Beijing Univ. of Posts and Telecommunications (China)

High efficiency 160 Gb/s all-optical wavelength converter based on terahertz optical asymmetric demultiplexer with quantum dot semiconductor optical amplifier
[6782-120]
H. Han, F. Zhang, W. Yang, L. Cai, M. Zhang, P. Ye, Beijing Univ. of Posts and Telecommunications (China)

Linear frequency modulation with electronic-optics modulator
[6782-121]
C. Cao, X. Zeng, Y. Zheng, H. Liu, X. Zhao, Xidian Univ. (China)

Study on the collimation of laser diode beams
[6782-122]
Y. Zheng, X. Zeng, C. Cao, Z. Feng, Xidian Univ. (China)

Focused light from a metallic nanostructure composed by a nanoparticle and a nanoslit
[6782-123]
G. Zhang, J. Liu, C. Hu, F. Sun, X. Su, Beijing Jiaotong Univ. (China)
**6782 3C** Numerical investigation of differential phase noise and its power penalty for optical amplification using semiconductor optical amplifiers in DPSK applications [6782-124]

W. Hong, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China); D. Huang, X. Zhang, Wuhan National Lab. for Optoelectronics (China); G. Zhu, Wuhan National Lab. for Optoelectronics (China) and Huazhong Univ. of Science and Technology (China)

---

**6782 3D** On-line measurement system of GaAs photocathodes and its applications [6782-125]

J. Zou, Nanjing Univ. of Science and Technology (China) and East China Institute of Technology (China); L. Feng, G. Lin, Y. Rao, East China Institute of Technology (China); Z. Yang, Y. Qian, B. Chang, Nanjing Univ. of Science and Technology (China)

---

Author Index
Conference Committee

Symposium Chairs

**Chung-En Zah**, Corning Inc. (USA)
**Chaohui Ye**, Wuhan National Laboratory for Optoelectronics (China)
**Bingkun Zhou**, Tsinghua University (China)
**Yun C. Chung**, Korea Advanced Institute of Science and Technology (South Korea)

Conference Chair

**Yoshiaki Nakano**, The University of Tokyo (Japan)

Conference Co-chairs

**Jens Buus**, Gayton Photonics Ltd. (United Kingdom)
**David S. Citrin**, Georgia Institute of Technology (USA)
**Jinzhong Yu**, Institute of Semiconductors (China)

Program Committee

**Alfred R. Adams**, University of Surrey (United Kingdom)
**Markus-Christian Amann**, Walter Schottky Institute (Germany)
**Dan Botez**, University of Wisconsin, Madison (USA)
**Kent D. Choquette**, University of Illinois at Urbana-Champaign (USA)
**Jen-Inn Chyi**, National Central University (Taiwan)
**Akihiko Kasukawa**, The Furukawa Electric Company, Ltd. (Japan)
**Fumio Koyama**, Tokyo Institute of Technology (Japan)
**Yong-Hee Lee**, Korea Advanced Institute of Science and Technology (South Korea)
**Yu-Hwa Lo**, University of California, San Diego (USA)
**Kikuo Makita**, NEC Corporation (Japan)
**Berthold E. Schmidt**, Bookham AG (Switzerland)
**Meint K. Smit**, Technische Universiteit Eindhoven (Netherlands)
**JunQiang Sun**, Huazhong University of Science and Technology (China)
**Shinji Tsuji**, Hitachi Central Research Laboratory (Japan)
**Chih-Chung Yang**, National Taiwan University (Taiwan)

Session Chairs

Silicon Photonics Symposium
**Yoshiaki Nakano**, The University of Tokyo (Japan)
All-Optical Processing
Yong Liu, University of Electronic Science and Technology of China (China)

Best Student Paper Session
Yoshiaki Nakano, The University of Tokyo (Japan)

Photonic Integration
Nong Chen, Archcom Technology Inc. USA (USA)

Micro Lasers
Shinji Tsuji, Hitachi, Ltd. (Japan)

Novel Application
Shinji Tsuji, Hitachi, Ltd. (Japan)

Quantum Well Optical Modulators
Jianyi Yang, Zhejiang University (China)

Photonic Crystals and Fibers
Shinji Yamashita, The University of Tokyo (Japan)

Telecom and RF Photonics
Christophe Kazmierski, Consultant (France)

Tunable Lasers
Jens Buus, Gayton Photonics Ltd. (United Kingdom)

Cost-Effective Components
Guang-Hua Duan, Alcatel-Thales III-V Laboratory (France)

Modulators and Switches
Jinzhong Yu, Institute of Semiconductors (China)

Novel Photonics Components
JunQiang Sun, Huazhong University of Science and Technology (China)

Quantum Structure Devices
Norbert Grote, Fraunhofer-Gesellschaft (Germany)