

26<sup>th</sup> INTERNATIONAL  
SEMICONDUCTOR LASER CONFERENCE

# ISLC2018

16-19 SEPTEMBER | SANTA FE, NEW MEXICO

## FINAL PROGRAM



09-16-2018

SuA

- 12:00 - 14:30 Optical Feedback and Facet Stability in High Power Semiconductor Lasers** **Mesa Ballroom**  
Moderation: P. Leisher<sup>1</sup>, P. Crump<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/DE
- 12:00 - 12:15 **SuA1 - ACCELERATED DEGRADATION OF HIGH POWER DIODE LASERS CAUSED BY EXTERNAL OPTICAL FEEDBACK OPERATION**  
H. Kissel<sup>1</sup>, B. Leonhäuser<sup>1</sup>, J.W. Tomm<sup>2</sup>, M. Hempel<sup>2</sup>, J. Biesenbach<sup>1</sup>, <sup>1</sup>Mainz/DE, <sup>2</sup>Berlin/DE
- 12:15 - 12:30 **SuA2 - Pulsed High Power Diode Arrays for Pumping and Direct Illumination**  
A. Kohl, S. Patterson, J. Braker, /US
- 12:30 - 12:45 **SuA3 - ADVANCED LASER BAR DEVELOPMENT FOR HIGH BRIGHTNESS DIRECT DIODE SOURCES**  
S. Mcdougall<sup>1</sup>, E. Sarailou<sup>1</sup>, S. Heinemann<sup>1</sup>, X. Liu<sup>1</sup>, C.-L. Jiang<sup>1</sup>, H. Zimer<sup>2</sup>, <sup>1</sup>Cranbury/US, <sup>2</sup>/US
- 12:45 - 13:00 **SuA4 - MODELING AND SIMULATION OF HIGH-POWER BROAD-AREA SEMICONDUCTOR LASERS WITH OPTICAL FEEDBACK FROM DIFFERENT EXTERNAL CAVITIES**  
M. Radziunas<sup>1</sup>, U. Bandelow<sup>1</sup>, C. Bree<sup>1</sup>, V. Raab<sup>2</sup>, H. Wenzel<sup>1</sup>, A. Zeghuzi<sup>1</sup>, <sup>1</sup>Berlin/DE, <sup>2</sup>Potsdam/DE
- 13:00 - 13:15 **SuA5 - THERMOREFLECTANCE IMAGING OF HIGH POWER DIODE LASERS UNDER BACK-IRRADIANCE CONDITIONS**  
A.K. Jha<sup>1</sup>, C. Li<sup>1</sup>, C. Cao<sup>1</sup>, P. Thiagarajan<sup>1</sup>, R.J. Deri<sup>1</sup>, M. Boisselle<sup>1</sup>, P. Leisher, K. Pipe<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>Ann Arbor/US
- 13:15 - 13:30 **SuA6 - FACET STABILITY OF HIGH POWER GAN-BASED DIODE LASERS**  
J.W. Tomm, Berlin/DE
- 13:30 - 13:45 **SuA7 - HIGH-POWER 638-NM ALINGAP BROAD AREA LASER DIODE AND ITS RELIABILITY**  
T. Yagi<sup>1</sup>, K. Kuramoto<sup>2</sup>, S. Abe<sup>2</sup>, M. Miyashita<sup>2</sup>, T. Nishida<sup>2</sup>, <sup>1</sup>Itami/JP, <sup>2</sup>/JP
- 13:45 - 14:00 **SuA8 - HIGH BRIGHTNESS, LOW NOISE CW AND GHZ REPETITION RATE MODE-LOCKED SEMICONDUCTOR DISK LASERS**  
J.V. Moloney, Tucson/US

**15:00 - 17:30 Stable Single Frequency and Frequency Comb Lasers Mesa Ballroom**

Moderation: E. Bente<sup>1</sup>, S. Breuer<sup>2</sup>, <sup>1</sup>NL, <sup>2</sup>DE

**15:00 - 15:15 SuB1 - OPTIMUM OPTICAL FREQUENCY COMBS FOR TELECOMMUNICATIONS AND DATA CENTRE NETWORKS**

P. Anandarajah<sup>1</sup>, P. Landais<sup>2</sup>, M.D. Gutierrez Pascual<sup>2</sup>, L. Barry<sup>2</sup>, A. Kaszubowska-Anandarajah<sup>3</sup>, <sup>1</sup>Glasnevin, Dublin 9/IE, <sup>2</sup>Glasnevin, Dublin/IE, <sup>3</sup>Dublin/IE

**15:15 - 15:30 SuB2 - INTEGRATED HETEROGENEOUS SILICON/III-V MODE-LOCKED-LASER BASED FREQUENCY COMBS**

M. Davenport, J. Bowers, Santa Barbara/US

**15:30 - 15:45 SuB3 - Terahertz Quantum Cascade Laser Frequency Combs**

D. Burghoff, /US

**15:45 - 16:00 SuB4 - InAs/InP Quantum Dot Lasers and Applications**

J. Liu, /CA

**16:00 - 16:15 SuB5 - TWO-WAVELENGTH TUNABLE LASER DIODE USING A QUANTUM DOT SOA AND A SILICON PHOTONIC EXTERNAL CAVITY**

T. Kita, Tokyo/JP

**16:15 - 16:30 SuB6 - EXTENDED-CAVITY SINGLE-FREQUENCY SEMICONDUCTOR LASERS USING RING FILTERS IN LOW-LOSS SILICON NITRIDE TECHNOLOGY**

Y. Fan, J. Mak, A. Van Rees, E. Klein, K. Boller, Enschede/NL

**16:30 - 16:45 SuB7 - Semiconductor Laser Stabilization with WGM Resonators**

L. Maleki, /US

**16:45 - 17:00 SuB8 - NARROW LINEWIDTH SEMICONDUCTOR LASER SYSTEMS FOR COLD ATOM-BASED QUANTUM TECHNOLOGY APPLICATIONS**

A. Wicht, Berlin/DE

09-17-2018

MA

**08:30 - 09:45 Plenary I**

**Mesa Ballroom**

Moderation: K. Choquette<sup>1</sup>, P. Crump<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/DE

08:30 - 09:15 **MA1 - RECENT PROGRESS IN PHOTONIC CRYSTAL LASERS AND NANOLASERS**

S. Matsuo, Atsugi, Kanagawa/JP

09:15 - 09:45 **MA2 - THE IMPACT OF METALORGANIC CHEMICAL VAPOR DEPOSITION (MOCVD) ON THE DEVELOPMENT OF QUANTUM WELL LASERS**

P.D. Dapkus, Los Angeles/US

MB

**10:15 - 12:15 Long and Short Wavelength Lasers**

**Mesa Ballroom**

Moderation: B. Ooi<sup>1</sup>, N. Tansu<sup>2</sup>, <sup>1</sup>/SA, <sup>2</sup>/US

10:15 - 10:45 **MB1 - TYPE-I QUANTUM WELL GASB-BASED CASCADE DIODE LASERS**

L. Shterengas, T. Hosoda, G. Kipshidze, T. Feng, M. Wang, J. Jiang, G. Belenky, /US

10:45 - 11:00 **MB2 - FAILURE ANALYSIS OF HIGH-POWER (ONE-WATT) ROOM-TEMPERATURE CONTINUOUS WAVE MOCVD QUANTUM CASCADE LASERS**

B. Knipfer<sup>1</sup>, C. Sigler<sup>1</sup>, C. Boyle<sup>1</sup>, J. Kirch<sup>1</sup>, K. Oresick<sup>1</sup>, H. Kim<sup>1</sup>, D. Botez<sup>1</sup>, L. Mawst, N. Becher<sup>2</sup>, M. Farzaneh<sup>2</sup>, D. Lindberg<sup>1</sup>, T. Earles<sup>1</sup>, <sup>1</sup>Madison/US, <sup>2</sup>Stevens Point/US

11:00 - 11:15 **MB3 - HIGH-TEMPERATURE (200 °C) OPERATION OF 7.4 UM DISTRIBUTED FEEDBACK (DFB) QUANTUM CASCADE LASER**

H. Yoshinaga<sup>1</sup>, T. Kato<sup>2</sup>, H. Mori<sup>2</sup>, Y. Tsuji<sup>2</sup>, M. Murata<sup>2</sup>, M. Migita<sup>2</sup>, J. Hashimoto<sup>2</sup>, M. Ekawa<sup>2</sup>, Y. Iguchi<sup>2</sup>, T. Katsuyama<sup>2</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>/JP

11:15 - 11:45 **MB4 - WATT-CLASS GREEN LASER DIODES ON SEMIPOLAR {20-21} GAN SUBSTRATES**

M. Murayama<sup>1</sup>, Y. Nakayama<sup>2</sup>, H. Watanabe<sup>2</sup>, N. Fuutagawa<sup>2</sup>, H. Kawanishi<sup>2</sup>, T. Uemura<sup>3</sup>, H. Narui<sup>2</sup>, <sup>1</sup>Atsugi, Kanagawa/JP, <sup>2</sup>Atsugi-shi, Kanagawa/JP, <sup>3</sup>/JP

11:45 - 12:00 **MB5 - INCORPORATION OF A CURVED MIRROR INTO GAN-BASED VCSEL**

T. Hamaguchi<sup>1</sup>, H. Nakajima<sup>1</sup>, M. Tanaka<sup>1</sup>, M. Ito<sup>1</sup>, T. Jyoukawa<sup>1</sup>, N. Kobayashi<sup>1</sup>, T. Matou<sup>1</sup>, K. Hayashi<sup>1</sup>, M. Ohara<sup>1</sup>, H. Watanabe<sup>1</sup>, K. Fujii<sup>1</sup>, R. Koda<sup>1</sup>, H. Narui<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>Atsugi-shi, Kanagawa/JP

12:00 - 12:15 **MB6 - IMPROVEMENT OF SLOPE EFFICIENCY AND OUTPUT POWER IN GAN-BASED VCSELS WITH SIO2-BURIED LATERAL INDEX GUIDE**

M. Kuramoto, S. Kobayashi, T. Akagi, K. Tazawa, K. Tanaka, T. Saito, T. Takeuchi, /JP

**13:30 - 15:45 Communication Lasers****Mesa Ballroom**Moderation: A. Kasukawa<sup>1</sup>, M. Wu<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>/US**13:30 - 13:45 MC1 - HIGH-POWER, EFFICIENT 1280NM WDM SOURCE FOR TERABIT INTERCONNECTS**S. Fryslie<sup>1</sup>, B. Buckley<sup>2</sup>, K. Guinn<sup>2</sup>, G. Morrison<sup>1</sup>, A. Gazman<sup>3</sup>, Y. Shen<sup>3</sup>, K. Bergman<sup>3</sup>, M. Mashanovitch, L. Johansson<sup>1</sup>, <sup>1</sup>Goleta/US, <sup>2</sup>Santa Barbara/US, <sup>3</sup>New York/US**13:45 - 14:00 MC2 - 90DEGC CW OPERATION OF 1.3-MM WAVELENGTH NPN-ALGAINAS/INP TRANSISTOR LASERS BY THICK AND WIDE BASE-ELECTRODE**S. Yoshitomi<sup>1</sup>, K. Yamanaka<sup>2</sup>, Y. Goto<sup>2</sup>, N. Nishiyama<sup>2</sup>, S. Arai<sup>2</sup>, <sup>1</sup>Tokyo/Jp, <sup>2</sup>/JP**14:00 - 14:15 MC3 - DYNAMICS AND NOISE PROPERTIES OF HIGH-Q HYBRID LASER**A. Gallet<sup>1</sup>, K. Hassan<sup>2</sup>, C. Jany<sup>2</sup>, T. Card<sup>2</sup>, J. Dafonseca<sup>2</sup>, V. Rebeyrol<sup>2</sup>, A. Shen<sup>1</sup>, F. Van Dijk<sup>1</sup>, V. Muffato<sup>2</sup>, A. Coquiard<sup>2</sup>, S. Malhouitre<sup>2</sup>, S. Olivier<sup>2</sup>, G. Baili<sup>3</sup>, H. Debrégeas<sup>1</sup>, G. Duan<sup>1</sup>, F. Grillot<sup>4</sup>, A. De Rossi<sup>3</sup>, <sup>1</sup>Palaiseau/FR, <sup>2</sup>/FR, <sup>3</sup>Palaiseau Cedex/FR, <sup>4</sup>Paris/FR**14:15 - 14:30 MC4 - WIDE TEMPERATURE RANGE OPERATION (20 - 80°C) OF 53.2 GBIT/S NRZ DIRECTLY MODULATED 1.3-MM DFB LASERS TRANSMITTED OVER 2 KM**T. Nakajima, A. Nakanishi, N. Sasada, M. Mukaikubo, M. Ebisu, Y. Sekino, S. Hayakawa, K. Okamoto, K. Naoe, K. Uomi, Sagamihara/JP**14:30 - 14:45 MC5 - WIDELY TUNABLE INTEGRATED LASER TRANSMITTER FOR FREE SPACE OPTICAL COMMUNICATIONS**H. Zhao, S. Pinna, B. Song, S.T. Šuran Brunelli, B. Isaac, F. Sang, L. Coldren, J. Klamkin, /US**14:45 - 15:00 MC6 - HIGH POWER COMPACT EML TRANSMITTER MODULE FOR 400G-FR4**T. Misawa<sup>1</sup>, S. Yoshimura<sup>1</sup>, T. Saeki<sup>1</sup>, K. Kobayashi<sup>1</sup>, K. Yamaji<sup>2</sup>, D. Shoji<sup>2</sup>, Y. Fujimura<sup>1</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>Yamanashi/JP**15:00 - 15:15 MC7 - INDIUM PHOSPHIDE PHOTONIC INTEGRATED CIRCUIT TRANSMITTER WITH INTEGRATED LINEWIDTH NARROWING FOR LASER COMMUNICATIONS AND SENSING**B. Isaac, B. Song, S. Pinna, S. Arafin, L. Coldren, J. Klamkin, /US**15:15 - 15:30 MC8 - GAIN COUPLED 4x25 GB/S EML ARRAY BASED ON IDENTICAL EPITAXIAL LAYER SCHEME**S. Yang<sup>1</sup>, C. Sun<sup>1</sup>, B. Xiong<sup>1</sup>, J. Wang<sup>1</sup>, Y. Luo<sup>1</sup>, Z. Hao<sup>1</sup>, Y. Han<sup>1</sup>, L. Wang<sup>2</sup>, H. Li<sup>1</sup>, T. Tanemura<sup>3</sup>, Y. Nakano<sup>3</sup>, <sup>1</sup>Beijing/CN, <sup>2</sup>/CN, <sup>3</sup>Tokyo/JP**15:30 - 15:45 MC9 - GHZ-BANDWIDTH NONPOLAR INGAN/GAN MICRO-LED OPERATING AT LOW CURRENT DENSITY FOR VISIBLE-LIGHT COMMUNICATION**A. Rashidi, M. Monavarian, A. Aragon, A. Rishinaramangalam, D. Feezell, Albuquerque/US

**16:15 - 18:00 Quantum Dot Lasers****Mesa Ballroom**Moderation: L. Lester<sup>1</sup>, A. Larrson<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/SE**16:15 - 16:45 MD1 - 1.5 UM QUANTUM DOT LASERS AND AMPLIFIERS**J.P. Reithmaier<sup>1</sup>, G. Eisenstein<sup>2</sup>, <sup>1</sup>Kassel/DE, <sup>2</sup>Haifa/IL**16:45 - 17:00 MD2 - 1.5 UM ROOM-TEMPERATURE ELECTRICALLY PUMPED QUANTUM DOT LASERS MONOLITHICALLY GROWN ON EXACT (001) SI**B. Shi<sup>1</sup>, S. Zhu<sup>2</sup>, Q. Li<sup>2</sup>, K.M. Lau<sup>2</sup>, <sup>1</sup>Hong Kong/HK, <sup>2</sup>/HK**17:00 - 17:15 MD3 - QUANTUM DOT LASER DIODES EMITTING 1.57~1.67UM AT ROOM TEMPERATURE GROWN BY BLOCK COPOLYMER LITHOGRAPHY AND SELECTIVE AREA MOCVD**H. Kim, W. Wei, T. Kuech, P. Gopalan, L. Mawst, Madison/US**17:15 - 17:30 MD4 - 492 FS SHORT OPTICAL PULSE GENERATION WITH 9.2 W PEAK POWER BY A MONOLITHIC EDGE-EMITTING QUANTUM DOT LASER**S. Meinecke<sup>1</sup>, L. Drzewietzki<sup>2</sup>, C. Weber<sup>2</sup>, B. Lingnau<sup>1</sup>, M. Krakowski<sup>3</sup>, I. Krestnikov<sup>4</sup>, K. Lüdge<sup>1</sup>, S. Breuer<sup>2</sup>, <sup>1</sup>Berlin/DE, <sup>2</sup>Darmstadt/DE, <sup>3</sup>PALAISEAU/FR, <sup>4</sup>Dortmund/DE**17:30 - 17:45 MD5 - GAIN CHARACTERIZATION OF P-DOPED 1.3 UM INAS QUANTUM DOT LASERS ON SILICON: THEORY AND EXPERIMENT**Z. Zhang<sup>1</sup>, D. Jung<sup>1</sup>, J. Norman<sup>1</sup>, P. Patel<sup>1</sup>, W. Chow<sup>2</sup>, J. Bowers<sup>1</sup>, <sup>1</sup>Santa Barbara/US, <sup>2</sup>Albuquerque/US**17:45 - 18:00 MD6 - ELECTRICALLY PUMPED CONTINUOUS-WAVE QUANTUM DOT DISTRIBUTED-FEEDBACK LASER ARRAY GROWN ON SILICON**S. Chen<sup>1</sup>, Y. Wang<sup>2</sup>, Y. Yu<sup>2</sup>, L. Zhou<sup>2</sup>, L. Liu<sup>2</sup>, C. Yang<sup>2</sup>, M. Liao<sup>1</sup>, M. Tang<sup>1</sup>, J. Wu<sup>1</sup>, A. Seeds<sup>1</sup>, H. Liu<sup>1</sup>, S. Yu<sup>1</sup>, <sup>1</sup>LONDON/GB, <sup>2</sup>/CN

09-18-2018

TuA

**08:30 - 09:45 Plenary II**

**Mesa Ballroom**

Moderation: P. Crump<sup>1</sup>, K. Choquette<sup>2</sup>, <sup>1</sup>/DE, <sup>2</sup>/US

08:30 - 09:15 **TuA1 - FRONTIERS IN III-V LASER INTEGRATION ON SILICON PHOTONIC INTEGRATED CIRCUITS**

G. Roelkens, /BE

09:15 - 09:45 **TuA2 - 1.5-1.6 MM WAVELENGTH GAINASP/INP LASERS**

S. Arai, /JP

- 10:15 - 12:15 Heterogeneous Integration on Silicon** **Mesa Ballroom**  
Moderation: D. Hall<sup>1</sup>, S. Arai<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/JP
- 10:15 - 10:30 **TuB1 - A 2.5 KHZ LINEWIDTH WIDELY TUNABLE LASER WITH BOOSTER SOA INTEGRATED ON SILICON**  
M. Tran<sup>1</sup>, D. Huang<sup>1</sup>, T. Komljenovic<sup>1</sup>, J. Peters<sup>1</sup>, J. Bowers<sup>2</sup>, <sup>1</sup>SANTA BARBARA/US, <sup>2</sup>Santa Barbara/US
- 10:30 - 10:45 **TuB2 - ELECTRONICALLY TUNABLE DFB LASER ON SILICON**  
S. Dhoore<sup>1</sup>, A. Köninger<sup>2</sup>, R. Meyer<sup>2</sup>, G. Roelkens<sup>3</sup>, G. Morthier<sup>1</sup>, <sup>1</sup>Gent/BE, <sup>2</sup>Garching/DE, <sup>3</sup>/BE
- 10:45 - 11:00 **TuB3 - LOW-OPERATING ENERGY HETEROGENEOUSLY INTEGRATED PHOTONIC-CRYSTAL LASER ON SI WAVEGUIDE**  
H. Nishi<sup>1</sup>, K. Takeda<sup>1</sup>, T. Fujii<sup>2</sup>, E. Kuramochi<sup>1</sup>, A. Shinya<sup>1</sup>, M. Notomi<sup>1</sup>, T. Tsuchizawa<sup>1</sup>, T. Kakitsuka<sup>1</sup>, S. Matsuo<sup>1</sup>, <sup>1</sup>Atsugi, Kanagawa/JP, <sup>2</sup>Atsugi-shi, Kanagawa/JP
- 11:00 - 11:15 **TuB4 - ON-CHIP HYBRID SILICON QUANTUM DOT COMB LASER WITH 14 ERROR-FREE CHANNELS**  
G. Kurczveil<sup>1</sup>, C. Zhang<sup>1</sup>, A. Descos<sup>1</sup>, D. Liang<sup>1</sup>, M. Fiorentino<sup>2</sup>, R. Beausoleil<sup>2</sup>, <sup>1</sup>Santa Barbara/US, <sup>2</sup>/US
- 11:15 - 11:30 **TuB5 - HETEROGENEOUSLY INTEGRATED INTERBAND CASCADE LASERS ON SILICON**  
A. Spott<sup>1</sup>, E. Stanton<sup>1</sup>, A. Torres<sup>1</sup>, M. Davenport<sup>2</sup>, C. Canedy<sup>1</sup>, I. Vurgaftman<sup>1</sup>, M. Kim<sup>1</sup>, C.S. Kim<sup>1</sup>, C. Merritt<sup>1</sup>, W. Bewley<sup>1</sup>, J. Meyer, J. Bowers<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>Santa Barbara/US
- 11:30 - 11:45 **TuB6 - SI WAVEGUIDE INTEGRATED MEMBRANE BURIED HETEROSTRUCTURE DFB LASER USING SIN MULTIPLE-PHASE-SHIFT SURFACE GRATING**  
T. Aihara<sup>1</sup>, H. Taturou<sup>1</sup>, K. Takeda<sup>2</sup>, K. Hasebe<sup>2</sup>, T. Fujii<sup>3</sup>, T. Tsuchizawa<sup>1</sup>, T. Kakitsuka<sup>2</sup>, S. Matsuo<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>Atsugi, Kanagawa/JP, <sup>3</sup>Atsugi-shi, Kanagawa/JP
- 11:45 - 12:00 **TuB7 - DEGRADATION STUDIES OF INAS / GAAS QD LASERS GROWN ON SI**  
S. Shutts<sup>1</sup>, C. Allford<sup>1</sup>, C. Spinnler<sup>2</sup>, Z. Li<sup>1</sup>, M. Tang<sup>1</sup>, H. Liu<sup>3</sup>, P. Smowton<sup>1</sup>, <sup>1</sup>Cardiff/GB, <sup>2</sup>/CH, <sup>3</sup>JE/GB
- 12:00 - 12:15 **TuB8 - TEMPERATURE CHARACTERISTICS OF 1.3-MICRON MEMBRANE LASERS ON INP-ON-INSULATOR SUBSTRATE**  
T. Fujii<sup>1</sup>, H. Nishi<sup>2</sup>, K. Takeda<sup>2</sup>, E. Kanno<sup>2</sup>, K. Hasebe<sup>2</sup>, T. Sato<sup>2</sup>, T. Kakitsuka<sup>2</sup>, H. Fukuda<sup>2</sup>, T. Tsuchizawa<sup>2</sup>, S. Matsuo<sup>2</sup>, <sup>1</sup>Atsugi-shi, Kanagawa/JP, <sup>2</sup>Atsugi, Kanagawa/JP



**13:30 - 15:30 Vertical Cavity Surface Emitting Lasers Mesa Ballroom**

Moderation: Y. Nakano, P.D. Dapkus, /US

**13:30 - 14:00 TuC1 - TAILOR THE BEAM DIVERGENCE OF HIGH POWER VCSEL ARRAYS BY EPITAXIAL DESIGN**M. Scheller, J.-F. Seurin, H. Othman, A. Miglo, G. Xu, C. Ghosh, Mercerville/US**14:00 - 14:15 TuC2 - ALL MONOLITHICALLY INTEGRATED SELF-SCANNING VERTICAL-CAVITY SURFACE-EMITTING LASER ARRAY**T. Kondo, /JP**14:15 - 14:30 TuC3 - ALL-SEMICONDUCTOR COUPLED-CAVITY VCSELS FOR NARROW LINEWIDTH**D. Serkland<sup>1</sup>, T. Morin<sup>1</sup>, A. Grine<sup>1</sup>, G. Peake<sup>1</sup>, W. Kendall<sup>1</sup>, M. Wood<sup>1</sup>, C. Hains<sup>1</sup>, H. So<sup>2</sup>, A. Soudachanh<sup>1</sup>, K. Geib<sup>1</sup>, <sup>1</sup>Albuquerque/US, <sup>2</sup>New York/US**14:30 - 14:45 TuC4 - VCSEL AMPLIFIER DOT PROJECTOR WITH FOLDED-PATH SLOW-LIGHT WAVEGUIDE FOR 3D DEPTH SENSING**M. Morinaga<sup>1</sup>, X. Gu<sup>2</sup>, K. Shimura<sup>2</sup>, M. Nakahama<sup>2</sup>, A. Matsutani<sup>1</sup>, F. Koyama<sup>3</sup>, <sup>1</sup>YOKOHAMA/JP, <sup>2</sup>/JP, <sup>3</sup>Yokohama/JP**14:45 - 15:00 TuC5 - The Complex Coupling Coefficient of Coherent VCSEL Arrays**K. Choquette, Z. Gao, B. Thompson, H. Dave, /US**15:00 - 15:15 TuC6 - ELECTRICALLY-PUMPED 1050-NM MEMS TUNABLE VCSELS WIDE TUNING RANGE FOR OCT APPLICATIONS**D. Ellafi<sup>1</sup>, M. Yang<sup>2</sup>, S. Kim<sup>3</sup>, N. Bandyopadhyay<sup>3</sup>, C. Chase<sup>1</sup>, <sup>1</sup>BERKELEY/US, <sup>2</sup>/TW, <sup>3</sup>/US**15:15 - 15:30 TuC7 - VECSEL PLATFORM FOR SINGLE/DUAL FREQUENCY CW OPERATION AND ULTRASHORT PULSE GENERATION**A. Laurain<sup>1</sup>, R. Rockmore<sup>1</sup>, I. Kilen<sup>1</sup>, C. Baker<sup>1</sup>, S. Addamane<sup>2</sup>, G. Balakrishnan<sup>2</sup>, J. Jones<sup>1</sup>, S.W. Koch<sup>3</sup>, J.V. Moloney<sup>1</sup>, <sup>1</sup>Tucson/US, <sup>2</sup>/US, <sup>3</sup>Marburg/DE

**16:00 - 17:30 Narrow Linewidth Lasers and Tunable Lasers Mesa Ballroom**

Moderation: D. Liang<sup>1</sup>, N. Nishiyama<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/JP

16:00 - 16:15 **TuD1 - REDUCTION OF CAVITY LENGTH IN LAMBDA-SCALE EMBEDDED ACTIVE-REGION PHOTONIC CRYSTAL (LEAP) LASERS**

K. Takeda<sup>1</sup>, T. Fujii<sup>2</sup>, E. Kuramochi<sup>1</sup>, A. Shinya<sup>1</sup>, M. Notomi<sup>1</sup>, T. Kakitsuka<sup>1</sup>, S. Matsuo<sup>1</sup>,  
<sup>1</sup>Atsugi, Kanagawa/Jp, <sup>2</sup>Atsugi-shi, Kanagawa/Jp

16:15 - 16:30 **TuD2 - AN INP-BASED DBR LASER WITH AN INTRA-CAVITY RING RESONATOR WITH 130 KHZ LINEWIDTH AND 65 DB SMSR**

S. Andreou, K. Williams, E. Bente, Eindhoven/NL

16:30 - 16:45 **TuD3 - 2-UM ACTIVE DBR LASER FOR WIDE-TUNING-RANGE CO2 GAS SENSING**

Y. Ueda, T. Shindo, T. Kanai, M. Shimokozono, N. Fujiwara, H. Ishii, H. Matsuzaki, /JP

16:45 - 17:00 **TuD4 - SPECTRAL CHARACTERISTICS OF NARROW LINEWIDTH INAS/INP QUANTUM DOT DISTRIBUTED FEEDBACK LASERS**

T. Septon<sup>1</sup>, S. Gosh<sup>1</sup>, A. Becker<sup>2</sup>, O. Eyal<sup>1</sup>, M. Bjelica<sup>2</sup>, V. Sichkovskiy<sup>2</sup>, A. Rippien<sup>2</sup>, F. Schnabel<sup>2</sup>, B. Witzigmann<sup>2</sup>, J.P. Reithmaier<sup>2</sup>, G. Eisenstein<sup>1</sup>, <sup>1</sup>/IL, <sup>2</sup>/DE

17:00 - 17:15 **TuD5 - LOW-NOISE CHARACTERISTICS ON 1.3-MICRON-WAVELENGTH QUANTUM-DOT DFB LASERS UNDER EXTERNAL OPTICAL FEEDBACK**

M. Matsuda<sup>1</sup>, N. Yasuoka<sup>1</sup>, K. Nishi<sup>2</sup>, K. Takemasa<sup>2</sup>, T. Yamamoto<sup>1</sup>, M. Sugawara<sup>2</sup>, Y. Arakawa<sup>3</sup>, <sup>1</sup>Atsugi/Jp, <sup>2</sup>Kasasaki/Jp, <sup>3</sup>Tokyo/Jp

17:15 - 17:30 **TuD6 - THE GAIN-ENHANCED MICROTUNE: A SIMPLE, MONOLITHIC, WIDELY TUNABLE DIODE LASER**

G. Morrison, K. Ottosson, J. Sherman, I. Gonzalez, J. Campbell, B. Maertz, D. Renner, M. Mashanovitch, L. Johansson, Goleta/US

**17:30 - 19:00 Poster Session****Canyon Room**

Moderation: P. Crump, /DE

- 17:30 - 17:30 **TP1 - BEAM QUALITY IMPROVEMENT OF BROAD-AREA LASER DIODES BY SYMMETRIC FACET REFLECTIVITIES**  
S. Rauch<sup>1</sup>, P. Modak<sup>2</sup>, C. Holly<sup>2</sup>, H. Zimer<sup>2</sup>, <sup>1</sup>/DE, <sup>2</sup>/US
- 17:30 - 17:30 **TP2 - INFLUENCE OF QUANTUM WELL BARRIER HEIGHT ON SERIES RESISTANCE IN GAAS-BASED BROAD AREA DIODE LASERS**  
C. Frevert<sup>1</sup>, S. Knigge<sup>2</sup>, G. Erbert<sup>2</sup>, F. Bugge<sup>2</sup>, P. Crump<sup>2</sup>, <sup>1</sup>/DE, <sup>2</sup>Berlin/DE
- 17:30 - 17:30 **TP3 - ADVANCEMENTS IN BROAD AREA INP BASED HIGH POWER LASERS OPERATING FROM 1100 NM TO 2100 NM**  
T. Tanbun-Ek, Z. Xu, J. Mott, Santa Clara/US
- 17:30 - 17:30 **TP4 - (Withdrawn)**
- 17:30 - 17:30 **TP5 - MODE ENGINEERING VIA WAVEGUIDE STRUCTURING**  
P. Strzebonski<sup>1</sup>, B. Thompson<sup>1</sup>, K. Lakomy<sup>2</sup>, P. Leisher, K. Choquette<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>Urbana/US
- 17:30 - 17:30 **TP6 - SCATTERING LOSS AT WAVEGUIDE FACETS AND IMPLICATIONS FOR LASER EFFICIENCY**  
R. Swint, Lexington/US
- 17:30 - 17:30 **TP7 - GOING BEYOND THE BEAM QUALITY LIMIT OF SPECTRAL BEAM COMBINING**  
C. Tong, F. Sun, Y. Zhao, S. Shu, G. Hou, L. Wang, L. Wang, Changchun/CN
- 17:30 - 17:30 **TP8 - OPTICALLY PUMPED POLARIZATION-PINNED GAN-BASED VERTICAL-CAVITY SURFACE-EMITTING LASERS USING NANOPOROUS DISTRIBUTED BRAGG REFLECTORS**  
S. Mishkat-Ul-Masabih<sup>1</sup>, T. Luk<sup>2</sup>, M. Monavarian<sup>1</sup>, D. Feezell<sup>1</sup>, <sup>1</sup>Albuquerque/US, <sup>2</sup>/US
- 17:30 - 17:30 **TP9 - HIGH POWER GAN-BASED BLUE SUPERLUMINESCENT DIODE EXCEEDING 450 MW**  
A.A. Alatawi<sup>1</sup>, J.A. Holguin-Lerma<sup>1</sup>, C. Shen<sup>1</sup>, M.K. Shakfa<sup>1</sup>, A.A. Alhamoud<sup>2</sup>, A.M. Albadri<sup>2</sup>, A.Y. Alyamani<sup>2</sup>, T.K. Ng<sup>1</sup>, B.S. Ooi<sup>1</sup>, <sup>1</sup>Thuwal/SA, <sup>2</sup>Riyadh/SA
- 17:30 - 17:30 **TP10 - THEORETICAL AND EXPERIMENTAL STUDIES ON POTENTIAL FLUCTUATION IN INGAN QUANTUM-WELL LAYERS**  
T. Fujita<sup>1</sup>, S. Sakai<sup>1</sup>, Y. Ikeda<sup>1</sup>, A.A. Yamaguchi<sup>1</sup>, Y. Kanitani<sup>1</sup>, S. Tomiya<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>Minato-ku/JP
- 17:30 - 17:30 **TP11 - NONPOLAR GAN-BASED SUPERLUMINESCENT DIODE WITH 2.5 GHZ MODULATION BANDWIDTH**  
A. Rishinaramangalam<sup>1</sup>, A. Rashidi<sup>1</sup>, M. Monavarian<sup>1</sup>, S. Mishkat UI Masabih<sup>1</sup>, A. Aragon<sup>1</sup>, C. Lee<sup>2</sup>, S. Denbaars<sup>2</sup>, D. Feezell<sup>1</sup>, <sup>1</sup>Albuquerque/US, <sup>2</sup>/US

- 17:30 - 17:30 **TP12 - DETERMINATION OF DEFORMATION POTENTIALS IN INGAN ALLOY MATERIAL FOR THEORETICAL PREDICTION OF OPTICAL GAIN CHARACTERISTICS IN SEMIPOLAR AND NONPOLAR INGAN QUANTUM WELLS LASER DIODES**  
S. Sakai, K. Kojima, S.F. Chichibu, A.A. Yamaguchi, /JP
- 17:30 - 17:30 **TP13 - PHYSICAL PROPERTIES OF 1.3 MM INAS-BASED QUANTUM DOT LASER ON SILICON.**  
I. Marko<sup>1</sup>, A. Baltusis<sup>1</sup>, A. Adams<sup>1</sup>, D. Jung<sup>2</sup>, J. Norman<sup>2</sup>, J. Bowers<sup>2</sup>, S. Sweeney<sup>1</sup>,  
<sup>1</sup>Guildford/GB, <sup>2</sup>Santa Barbara/US
- 17:30 - 17:30 **TP14 - DYNAMIC PROPERTIES OF MONOLITHIC 1.3 MU M INAS/GAAS QUANTUM DOT LASERS ON SILICON**  
C. Hantschmann<sup>1</sup>, P. Vasil'Ev<sup>1</sup>, S. Chen<sup>2</sup>, M. Liao<sup>3</sup>, A. Seeds<sup>3</sup>, H. Liu<sup>3</sup>, R. Penty<sup>1</sup>, I. White<sup>1</sup>, <sup>1</sup>Cambridge/GB, <sup>2</sup>/GB, <sup>3</sup>LONDON/GB
- 17:30 - 17:30 **TP15 - ON THE RELATIONSHIP BETWEEN ELECTRICAL AND ELECTRO-OPTICAL CHARACTERISTICS IN 1.55 MM QUANTUM DOT LASERS**  
G. Eisenstein, Haifa/IL
- 17:30 - 17:30 **TP16 - CARRIER DYNAMICS IN A 1.55 MM TUNNELING INJECTION QUANTUM DOT SEMICONDUCTOR OPTICAL AMPLIFIER**  
I. Khanonkin<sup>1</sup>, M. Lorke<sup>2</sup>, S. Michael<sup>2</sup>, A.K. Mishra<sup>3</sup>, J.P. Reithmaier<sup>2</sup>, F. Jahnke<sup>2</sup>, G. Eisenstein<sup>4</sup>, <sup>1</sup>Haifa/IL, <sup>2</sup>/DE, <sup>3</sup>/SG, <sup>4</sup>/IL
- 17:30 - 17:30 **TP17 - QUANTUM DOT FREQUENCY COMB LASER STABILIZATION**  
D. Auth<sup>1</sup>, S. Stutz<sup>1</sup>, C. Weber<sup>1</sup>, O. Nikiforov<sup>1</sup>, R. Rosales<sup>2</sup>, T. Walther<sup>1</sup>, L.F. Lester<sup>3</sup>, S. Breuer<sup>1</sup>, <sup>1</sup>Darmstadt/DE, <sup>2</sup>Berlin/DE, <sup>3</sup>Blacksburg/US
- 17:30 - 17:30 **TP18 - CONTINUOUS-WAVE LASING OF 1.3-MICROMETER QUANTUM-DOT PHOTONIC-CRYSTAL SURFACE-EMITTING LASERS**  
G. Lin<sup>1</sup>, M.-Y. Hsu<sup>2</sup>, P.-C. Pan<sup>2</sup>, Y.-C. Chen<sup>2</sup>, <sup>1</sup>Hsinchu/TW, <sup>2</sup>/TW
- 17:30 - 17:30 **TP19 - MODE LOCKING STABILITY REGIMES IN TAPERED QUANTUM DOT LASERS**  
P. Bardella<sup>1</sup>, M. Rossetti<sup>1</sup>, L. Drzewietzki<sup>2</sup>, C. Weber<sup>2</sup>, M. Krakowski<sup>3</sup>, I. Krestnikov<sup>4</sup>, S. Breuer<sup>2</sup>, <sup>1</sup>Torino/IT, <sup>2</sup>Darmstadt/DE, <sup>3</sup>Palaiseau Cedex/FR, <sup>4</sup>Dortmund/DE
- 17:30 - 17:30 **TP20 - DEMONSTRATION OF SWITCHABLE ALL-OPTICAL FLIP-FLOP AND INVERTER OPERATIONS IN SEMICONDUCTOR MICRORING LASER**  
R. Aoki<sup>1</sup>, N. Kobayashi<sup>2</sup>, Y. Kawamura<sup>2</sup>, T. Arakawa<sup>1</sup>, Y. Kokubun<sup>1</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>/JP
- 17:30 - 17:30 **TP21 - ENERGY COST ANALYSIS OF RIDGE-WAVEGUIDE TYPE MEMBRANE DISTRIBUTED-REFLECTOR LASERS FOR ON-CHIP APPLICATION**  
N. Nakamura, T. Yoshida, W. Fang, T. Amemiya, N. Nishiyama, S. Arai, Tokyo/JP
- 17:30 - 17:30 **TP22 - THE COMBO DBR: COMB-OPTIMIZED DBR LASER FOR VERSATILE DESIGN**  
G. Morrison, J. Sherman, I. Gonzalez, K. Ottosson, J. Campbell, S. Estrella, P. Leisher, R. Moireira, D. Renner, L. Johansson, M. Mashanovitch, Goleta/US

- 17:30 - 17:30 **TP23 - 1.5 UM GAINASP HIGH MESA LASER DIODE ON DIRECTLY BONDED INP/SI SUBSTRATE**  
G.K. Periyanyagam, K. Uchida, H. Sugiyama, X. Han, N. Hayasaka, M. Aikawa, H. Yada, K. Shimomura, /JP
- 17:30 - 17:30 **TP24 - MULTI-CHANNEL INTERFERENCE WIDELY TUNABLE LASER INTEGRATED WITH SEMICONDUCTOR OPTICAL AMPLIFIER THROUGH DEEPLY ETCHED SLOT**  
C. Jiang<sup>1</sup>, Q. Chen<sup>2</sup>, Q. Lu<sup>2</sup>, W. Guo<sup>2</sup>, <sup>1</sup>Wuhan/CN, <sup>2</sup>/CN
- 17:30 - 17:30 **TP25 - EXTREMELY HIGH DYNAMIC OUTER EXTINCTION RATIO (9.7 DB) OF 56-GB/S PAM-4 WITH EA-DFB LASERS BY OPTICAL ORTHOGONAL POLARIZATION-MULTIPLEXING**  
K. Nakahara<sup>1</sup>, R. Hirai<sup>1</sup>, N. Kikuchi<sup>2</sup>, K. Tamura<sup>1</sup>, S. Tanaka<sup>1</sup>, <sup>1</sup>Kanagawa/JP, <sup>2</sup>/JP
- 17:30 - 17:30 **TP26 - A HIGH PERFORMANCE EML TOSA EMPLOYING FPC INTERFACE FOR 53 GBAUD PAM4**  
M. Shirao, Kamakura, Kanagawa/JP
- 17:30 - 17:30 **TP27 - IN-LINE NON-DESTRUCTIVE CHARACTERISATION METHOD FOR PHOTONIC CRYSTAL SURFACE EMITTING LASERS**  
B. King<sup>1</sup>, R. Taylor<sup>2</sup>, P. Ivanov<sup>1</sup>, I. Butler<sup>1</sup>, T. Roberts<sup>1</sup>, D. Childs<sup>1</sup>, R. Hogg<sup>1</sup>, <sup>1</sup>/GB, <sup>2</sup>Glasgow/GB
- 17:30 - 17:30 **TP28 - ROOM TEMPERATURE PHOTONIC CRYSTAL SURFACE EMITTING LASER WITH SYNTHESIZED MONOLAYER TUNGSTEN DISULFIDE**  
X. Ge<sup>1</sup>, M. Minkov<sup>2</sup>, T. Choudhury<sup>2</sup>, M. Chubarov<sup>2</sup>, S. Fan<sup>2</sup>, J. Redwing<sup>2</sup>, X. Li<sup>2</sup>, W. Zhou<sup>1</sup>, <sup>1</sup>Arlington/US, <sup>2</sup>/US
- 17:30 - 17:30 **TP29 - MODELLING AND DEVICE SIMULATION OF PHOTONIC CRYSTAL SURFACE EMITTING LASERS BASED ON MODAL INDEX ANALYSIS**  
G. Li<sup>1</sup>, J. Sarma<sup>1</sup>, I. Butler<sup>1</sup>, R. Taylor<sup>2</sup>, D. Childs<sup>1</sup>, R. Hogg<sup>1</sup>, <sup>1</sup>/GB, <sup>2</sup>Glasgow/GB
- 17:30 - 17:30 **TP30 - RANDOM BIT GENERATION IN DUAL TRANSVERSE MODE MICROLASER WITHOUT OPTICAL INJECTION OR FEEDBACK**  
J.-L. Xiao<sup>1</sup>, C.-G. Ma<sup>2</sup>, Z.-X. Xiao<sup>2</sup>, Y.-D. Yang<sup>2</sup>, Y.-Z. Huang<sup>2</sup>, <sup>1</sup>/CN, <sup>2</sup>Beijing/CN
- 17:30 - 17:30 **TP31 - WAVEGUIDE COUPLING OF WAVELENGTH-SCALE CAPSULE-SHAPED METAL-CLAD LASER**  
Y. Xiao<sup>1</sup>, M. Watanabe<sup>2</sup>, Y. Wang<sup>2</sup>, T. Tanemura<sup>1</sup>, Y. Nakano<sup>1</sup>, <sup>1</sup>Tokyo/JP, <sup>2</sup>/JP
- 17:30 - 17:30 **TP32 - PHOTONIC CRYSTAL SURFACE EMITTING LASERS WITH NOVEL TRANSPARENT CLADDING LAYERS**  
S.-C. Huang, K.-B. Kuo-Bin Hong, H.-L. Chiu, T.-C. Lu, /TW
- 17:30 - 17:30 **TP33 - CANTILEVER-BASED MICRORING LASERS**  
T. Zhou, X. Liu, B. Xiang, X. Fang, Z. Zhang, /CN
- 17:30 - 17:30 **TP34 - GAIN LEVER EFFECT IN A 2 UM INGASB/ALGAASSB QUANTUM WELL LASER**

X. Li<sup>1</sup>, H. Wang<sup>1</sup>, Z.L. Qiao<sup>2</sup>, X. Guo<sup>1</sup>, W. Wang<sup>1</sup>, J.X. Sia<sup>1</sup>, C. Liu<sup>1</sup>, <sup>1</sup>/SG, <sup>2</sup>singapore/SG

17:30 - 17:30 **TP35 - EFFICIENCY LIMITING MECHANISMS IN 1.2-1.3 MM GAINAS/GAASSB 'W' LASERS**

T. Eales<sup>1</sup>, I. Marko<sup>1</sup>, C. Kemp<sup>1</sup>, C. Fuchs<sup>2</sup>, W. Stolz<sup>2</sup>, S. Sweeney<sup>1</sup>, <sup>1</sup>Guildford/GB, <sup>2</sup>Marburg/DE

17:30 - 17:30 **TP36 - EVALUATION OF DILUTE BISMIDE MATERIALS FOR MID-IR APPLICATIONS**

J. Hader<sup>1</sup>, S.C. Badescu<sup>1</sup>, L.C. Bannow<sup>2</sup>, S.R. Johnson<sup>1</sup>, J.V. Moloney<sup>3</sup>, S.W. Koch<sup>4</sup>, <sup>1</sup>/US, <sup>2</sup>/DE, <sup>3</sup>Tucson/US, <sup>4</sup>Marburg/DE

17:30 - 17:30 **TP37 - MEMS TUNABLE LITTMAN-METCALF DIODE LASER AT 2.2UM FOR RAPID BROADBAND SPECTROSCOPY IN AQUEOUS SOLUTIONS**

N. Torcheboeuf<sup>1</sup>, S. Droz<sup>2</sup>, I. Šimonytė<sup>3</sup>, A. Miasojedovas<sup>3</sup>, A. Trinkūnas<sup>3</sup>, K. Vizbaras<sup>3</sup>, A. Vizbaras<sup>3</sup>, D. Boiko<sup>1</sup>, <sup>1</sup>/CH, <sup>2</sup>Neuchâtel/CH, <sup>3</sup>Vilnius/LT

17:30 - 17:30 **TP38 - CONTROLLING THE QUANTUM CASCADE LASER FREQUENCY COMB VIA RISKEN-NUMMEDAL-GRAHAM-HAKEN INSTABILITY**

A.A. Antonov<sup>1</sup>, D.I. Kuritsyn<sup>1</sup>, A. Gajic<sup>2</sup>, E.E. Orlova<sup>1</sup>, N. Vukovic<sup>2</sup>, J. Radovanovic<sup>2</sup>, V.V. Vaks<sup>1</sup>, D. Boiko<sup>3</sup>, <sup>1</sup>Nizhny Novgorod/RU, <sup>2</sup>Belgrade/RS, <sup>3</sup>/CH

17:30 - 17:30 **TP39 - ELECTRICALLY-INJECTED VCSELS WITH A COMPOSITE MONOLITHIC HIGH CONTRAST GRATING AND DISTRIBUTED BRAGG REFLECTOR COUPLING MIRROR**

M. GebSKI<sup>1</sup>, T. Czystanowski<sup>1</sup>, J.A. Lott<sup>2</sup>, <sup>1</sup>Lodz/PL, <sup>2</sup>Berlin/DE

17:30 - 17:30 **TP40 - LASING ACTION IN GAN-BASED VCSELS WITH TOP HIGH-CONTRAST GRATING REFLECTORS**

T. Chang<sup>1</sup>, S.-Y. Kuo<sup>2</sup>, E. Hashemi<sup>3</sup>, Å. Haglund<sup>3</sup>, T.-C. Lu<sup>2</sup>, <sup>1</sup>Hsinchu/TW, <sup>2</sup>/TW, <sup>3</sup>/SE

17:30 - 17:30 **TP41 - LARGE-SIGNAL CIRCUIT MODEL FOR DATACOM VCSELS**

A. Grabowski, J. Gustavsson, Z.S. He, A. Larsson, /SE

17:30 - 17:30 **TP42 - SIMULTANEOUS USE OF SPONTANEOUS EMISSION LIGHT IN VCSEL FOR IMPROVING EFFICIENCY OF OPTICAL WIRELESS POWER TRANSMISSION**

T. Miyamoto<sup>1</sup>, Y. Suda<sup>2</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>/JP

17:30 - 17:30 **TP43 - BEAM QUALITY FACTOR ANALYSIS FOR COHERENTLY-COUPLED VERTICALLY-EMITTING LASER ARRAYS**

J. Raftery, West Point/US

17:30 - 17:30 **TP44 - PHYSICS OF WIDELY TUNABLE VCSELS WITH COUPLED CAVITIES**

K. Cook<sup>1</sup>, P. Qiao<sup>1</sup>, J. Qi<sup>1</sup>, L. Coldren<sup>2</sup>, C. Chang-Hasnain<sup>1</sup>, <sup>1</sup>Berkeley/US, <sup>2</sup>Santa Barbara/US

17:30 - 17:30 **TP45 - MICROSCOPIC MANY-BODY MODEL FOR MODE-LOCKED AND MULTI-WAVELENGTH OPERATION IN VERTICAL EXTERNAL-CAVITY SURFACE-EMITTING LASERS**

I. Kilen<sup>1</sup>, S.W. Koch<sup>2</sup>, J. Hader<sup>1</sup>, J.V. Moloney<sup>1</sup>, <sup>1</sup>Tucson/US, <sup>2</sup>Marburg/DE

17:30 - 17:30 **TP46 - VECSEL-BASED OFFSET-FREE FREQUENCY COMB IN THE MIR**

R. Rockmore, A. Laurain, J. Moloney, R.J. Jones, /US

17:30 - 17:30 **TP47 - WATT-LEVEL HIGH ORDER HERMITE-GAUSSIAN AND LAGUERRE-GAUSSIAN BEAMS FROM VERTICAL EXTERNAL CAVITY SURFACE EMITTING LASERS**

M. Lukowski, J. Meyer, C. Hassenius, E. Wright, M. Fallahi, Tucson/US

17:30 - 17:30 **TP48 - A LASER THAT OPTOMECHANICALLY COOLS ITSELF**

J. Lawall<sup>1</sup>, A. Ganesan<sup>2</sup>, J. Foley<sup>2</sup>, W. Yang<sup>2</sup>, C. Chase<sup>3</sup>, <sup>1</sup>Gaithersburg/US, <sup>2</sup>/US, <sup>3</sup>BERKELEY/US

17:30 - 17:30 **TP49 - A NEW METHOD TO EVALUATE THE DEGREE OF POTENTIAL FLUCTUATION IN INGAN QUANTUM-WELL LASER DIODES BY OPTICAL-PUMP STIMULATED-EMISSION MEASUREMENTS**

I. Oshima<sup>1</sup>, Y. Ikeda<sup>1</sup>, S. Sakai<sup>1</sup>, A.A. Yamaguchi<sup>1</sup>, Y. Kanitani<sup>1</sup>, S. Tomiya<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>Minato-ku/JP

17:30 - 17:30 **TP50 - HIGH SPEED WAVELENGTH TUNING OF MEMS VCSEL WITH ADVANCED VOLTAGE DRIVE TECHNIQUE**

S. Inoue<sup>1</sup>, S. Nishimura<sup>1</sup>, M. Nakahama<sup>2</sup>, A. Matsutani<sup>3</sup>, F. Koyama<sup>1</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>/JP, <sup>3</sup>YOKOHAMA/JP

09-19-2018

WA

**08:30 - 09:45 Plenary III** **Mesa Ballroom**

Moderation: K. Choquette, P. Leisher, /US

08:30 - 09:15 **WA1 - Opportunities in Semiconductor Laser Technology for Meeting the Requirements of Future High Energy Laser Missions**

P. Leisher

09:15 - 09:45 **WA2 - ANALYSIS AND DESIGN OF SEMICONDUCTOR LASERS USING STRAIN**

A. Adams, Guildford/GB

WB

**10:15 - 12:15 Novel Lasers and Materials** **Mesa Ballroom**

Moderation: F. Koyama<sup>1</sup>, L. Coldren<sup>2</sup>, <sup>1</sup>/JP, <sup>2</sup>/US

10:15 - 10:45 **WB1 - NON-RECIPROCAL LASING FROM TOPOLOGICAL CAVITIES**

B. Kante, /US

10:45 - 11:00 **WB2 - 7W CW OPERATION OF DOUBLE-LATTICE PHOTONIC-CRYSTAL LASERS**

M. De Zoysa<sup>1</sup>, M. Yoshida<sup>2</sup>, K. Ishizaki<sup>2</sup>, B.-S. Song<sup>2</sup>, Y. Tanaka<sup>2</sup>, R. Hatsuda<sup>2</sup>, S. Fukuhara<sup>2</sup>, S. Noda<sup>2</sup>, <sup>1</sup>8510/JP, <sup>2</sup>/JP

11:00 - 11:15 **WB3 - GAINASP PHOTONIC CRYSTAL BANDEDGE LASER WITH HIGH ION SENSITIVITY**

K. Watanabe, T. Baba, Yokohama/JP

11:15 - 11:30 **WB4 - NANOSCALE III-V LIGHT EMITTING DIODE WITH ANTENNA-ENHANCED 250 PICOSECOND SPONTANEOUS EMISSION LIFETIME**

S. Fortuna<sup>1</sup>, C. Heidelberger<sup>2</sup>, E. Yablonovitch<sup>2</sup>, E. Fitzgerald<sup>2</sup>, M. Wu<sup>2</sup>, <sup>1</sup>Berkeley/US, <sup>2</sup>/US

11:30 - 11:45 **WB5 - IONTRONIC CONTROL OF GAINASP PHOTONIC CRYSTAL NANOLASER**

Y. Saijo, T. Watanabe, K. Watanabe, Y. Nishijima, T. Baba, Yokohama/JP

11:45 - 12:00 **WB6 - LOW-THRESHOLD OPERATION OF GAAS-BASED (GAIN)AS/GA(ASSB)/(GAIN)AS „W“-QUANTUM WELL LASERS EMITTING AT 1.3 MM**

C. Fuchs<sup>1</sup>, P. Ludewig<sup>1</sup>, A. Brüggemann<sup>1</sup>, A. Ruiz Perez<sup>1</sup>, M.J. Weseloh<sup>1</sup>, S. Reinhard<sup>1</sup>, J. Hader<sup>2</sup>, J.V. Moloney<sup>2</sup>, A. Bäumner<sup>1</sup>, S.W. Koch<sup>1</sup>, W. Stolz<sup>1</sup>, <sup>1</sup>Marburg/DE, <sup>2</sup>Tucson/US

12:00 - 12:15 **WB7 - THE NATURE OF AUGER RECOMBINATION IN TYPE-I QUANTUM WELL LASERS OPERATING IN THE NEAR- AND MID-INFRARED**

T. Eales<sup>1</sup>, I. Marko<sup>1</sup>, B. Ikyo<sup>1</sup>, A. Adams<sup>1</sup>, A. Andrejew<sup>2</sup>, K. Vizbaras<sup>2</sup>, M.-C. Amann<sup>2</sup>, L. Shterengas<sup>3</sup>, S. Sweeney<sup>1</sup>, <sup>1</sup>Guildford/GB, <sup>2</sup>Garching/DE, <sup>3</sup>New York/US



**13:30 - 15:30 High Power Lasers****Mesa Ballroom**Moderation: G. Charache<sup>1</sup>, E. Bente<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/NL**13:30 - 14:00 WC1 - HIGH PULSE POWER WAVELENGTH STABILIZED LASER DIODES FOR AUTOMOTIVE LIDAR**A. Knigge<sup>1</sup>, A. Klehr<sup>1</sup>, H. Wenzel<sup>2</sup>, A. Zeghuzi<sup>2</sup>, J. Fricke<sup>1</sup>, A. Maaßdorf<sup>1</sup>, A. Liero<sup>1</sup>, G. Tränkle<sup>1</sup>, <sup>1</sup>/DE, <sup>2</sup>Berlin/DE**14:00 - 14:15 WC2 - TAPERED MONOLITHIC MODE-LOCKED LASER DIODE WITH 200PJ PULSE ENERGY FOR SPACE APPLICATIONS**M. Krakowski<sup>1</sup>, P. Resneau<sup>2</sup>, M. Garcia<sup>2</sup>, E. Vinet<sup>2</sup>, Y. Robert<sup>2</sup>, C. Theveneau<sup>2</sup>, M. Lecomte<sup>2</sup>, O. Parillaud<sup>2</sup>, B. Gerard<sup>2</sup>, S. Kundermann<sup>3</sup>, N. Torcheboeuf<sup>4</sup>, D. Boiko<sup>4</sup>, <sup>1</sup>PALAISEAU/FR, <sup>2</sup>/FR, <sup>3</sup>Neuchâtel/CH, <sup>4</sup>/CH**14:15 - 14:30 WC3 - HIGH POWER AND HIGH BEAM QUALITY VCSEL AMPLIFIER**Z. Ho<sup>1</sup>, J. Hayakawa<sup>2</sup>, K. Shimura<sup>3</sup>, K. Kondo<sup>1</sup>, X. Gu<sup>3</sup>, A. Matsutani<sup>4</sup>, A. Murakami<sup>2</sup>, F. Koyama<sup>1</sup>, <sup>1</sup>Yokohama/JP, <sup>2</sup>Ebina/JP, <sup>3</sup>/JP, <sup>4</sup>YOKOHAMA/JP**14:30 - 14:45 WC4 - RELIABLE 2 W DBR-TAPERED DIODE LASERS LASING AT 1180 NM BASED ON HIGHLY STRAINED QUANTUM WELLS**K. Paschke, /DE**14:45 - 15:00 WC5 - FAILURE MODE AND LIFETIME ANALYSIS OF 9×× NM HIGH POWER BROAD STRIPE LASER DIODES**Y. Yamagata<sup>1</sup>, S. Sato<sup>1</sup>, Y. Yamada<sup>1</sup>, M. Yamaguchi<sup>2</sup>, <sup>1</sup>Sakura-shi/JP, <sup>2</sup>Sakura-shi, Chiba/JP**15:00 - 15:15 WC6 - FLARED OSCILLATOR WAVEGUIDE DIODES (FLOW-DIODES) PRODUCE RECORD-HIGH SINGLE-WAVELENGTH FIBER-COUPLED POWER**M. Kanskar**15:15 - 15:30 WC7 - HIGH POWER, 14XX-NM EYE-SAFE, EPITAXIALLY STACKED PULSE LASER FOR DETECTION AND RANGING APPLICATIONS**Y. Higa<sup>1</sup>, M. Yoshida<sup>2</sup>, N. Nishiyama<sup>2</sup>, Y. Miyamoto<sup>2</sup>, N. Kagi<sup>2</sup>, <sup>1</sup>Chiba/JP, <sup>2</sup>/JP

**16:00 - 17:45 Datacom VCSELS and Post Deadline****Mesa Ballroom**Moderation: L. Mawst<sup>1</sup>, P. Crump<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>/DE16:00 - 16:15 **WD1 - HOW ETHERNET STANDARDS SHAPED VCSEL TECHNOLOGY**J. Jewell, Boulder/US16:15 - 16:30 **WD2 - VERTICAL-CAVITY SILICON-INTEGRATED LASERS BY BONDING AND TRANSFER PRINTING**A. Larsson<sup>1</sup>, E. Haglund<sup>1</sup>, S. Kumari<sup>2</sup>, J. Goyvaerts<sup>2</sup>, J. Gustavsson<sup>1</sup>, R. Baets<sup>2</sup>, G. Roelkens<sup>2</sup>, <sup>1</sup>/SE, <sup>2</sup>/BE16:30 - 16:45 **WD3 - ENHANCED DIGITAL MODULATION OF COHERENT PHOTONIC CRYSTAL VCSEL ARRAYS**H. Dave<sup>1</sup>, P. Liao<sup>1</sup>, S. Fryslie<sup>1</sup>, Z. Gao<sup>1</sup>, B. Thompson<sup>1</sup>, A. Willner<sup>1</sup>, K. Choquette<sup>2</sup>, <sup>1</sup>/US, <sup>2</sup>Urbana/US16:45 - 17:00 **WD4 - 35 GHZ BANDWIDTH WITH DIRECTLY CURRENT MODULATED 980 NM OXIDE APERTURE SINGLE CAVITY VCSELS**N. Haghighi, G. Larisch, R. Rosales, M. Zorn, J.A. Lott, Berlin/DE