



LDC2017 PROGRAM

Apr. 19(Wed.)—21(Fri.), 2017

Pacifico Yokohama, Yokohama, Japan

■Wednesday, April 19 AM

OPIC Plenary Session

<Room 501+502>

9:00-12:10

■Wednesday, April 19 PM

LDC & LEDIA Joint Session

<Room 301>

[LED-LDC1] 13:30-17:20

LEDIA & LDC Joint Session

Chairs: Ryuji Katayama

Osaka University, Japan

Sunao Kurimura

National Institute for Materials Science, Japan

Opening Remarks : 13:30-14:00

Hiroshi Amano

Nagoya University, Japan

Kazuo Kuroda

Utsunomiya University, Japan

LED-LDC1-1 : 14:00

Invited

IQE Quantification of Nitride Semiconductors
-Omnidirectional Photoluminescence (ODPL)
Measurement Utilizing an Integrating Sphere-

Kazunobu Kojima¹, Hirotaka Ikeda², Kenji Fujito²,
Shigefusa F. Chichibu¹

¹Tohoku University, Japan, ²Mitsubishi Chemical
Corporation, Japan

LED-LDC1-2 : 14:30

Invited

IQE Quantification of Nitride Semiconductors
-Photocurrent and Photoluminescence Measurements
for InGaN Based LED-

Shigeyoshi Usami, Yoshio Honda, Hiroshi Amano

Nagoya University, Japan

LED-LDC1-3

15:00

Invited

IQE Quantification of Nitride Semiconductors
-Simultaneous Photo-acoustic and Photoluminescence
Measurements for InGaN Quantum Wells-

Atushi A. Yamaguchi¹, Takashi Nakano¹, Shigeta
Sakai¹, Haruki Fukada¹, Yuya Kanitani², Shigetaka
Tomiya²

¹Kanazawa Institute of Technology, Japan, ²Sony
Corporation, Japan

----- 15:30-15:50 Break -----

LED-LDC1-4 : 15:50

Invited

Output Power Improvement of High-Power Blue Laser
Diode with Modulated AlGaIn Cladding and n-type
InGaIn/GaN Superlattice Waveguide Layers

C.L. Wu¹, J.D. Wu², Y.L. Lai², K.Y. Liao², C.L. Lin², Y.L.
Li², S.H. Teng¹,

¹National Taiwan Univ., Taiwan, ²PlayNitride Inc.,
Taiwan

LED-LDC1-5 : 16:20

Invited

Holographic display and its computational techniques
Tomoyoshi Shimobaba, Takashi Kakue, Tomoyoshi Ito
Chiba Univ., Japan

LED-LDC1-6 : 16:50

Invited

Projection Mapping

Hisayo Yoshida

PICS, Japan

OPIC Reception 18:00-20:00

<Room 501+502>



LDC2017 PROGRAM

■Thursday, April 20

LDC <Room 301>

[Opening] Opening Remarks

9:00-9:10

Kazuo Kuroda

Utsunomiya University, Japan

[LDC1] 9:10-10:30

Plenary Session

co chairs: Tetsuya Yagi

Mitsubishi Electric Corp., Japan

Shevlin Fergal

Dyoptika, Ireland

LDC1-1 : 9:10 Invited

The initiatives of market direction and activation of the Gallium Nitride based Laser Diode for Laser Display

Shigeki Okauchi, Atsutomo Hama

Nichia Corp., Japan

LDC1-2 : 9:50

Laser phosphor based projector

Fei Hu

Appotronics, China

[LDC2] 11:00-12:00

Projection Technology

co chairs: Satoshi Ouuchi

Hitachi, Ltd., Japan

Jae Kwon

LG Electronics, Korea

LDC2-1 : 11:00

Performance of RGB laser based projection for Video walls

Peter Hickl

Barco, Germany

LDC2-2 : 11:15

Laser Beam Scanning Short Throw Displays and an Exploration of Laser-Based Virtual Touchscreens

Jari O. Honkanen, P. Selvan Viswanathan

MicroVision Inc., USA

LDC2-3

11:30

Image Quality of Retinal Projection Laser Eyewear: How to Achieve High Resolution and Free Focus in Proper Balance

Makoto Suzuki, Kenji Yasui, Kinya Hasegawa, Nori Miyauchi and Mitsuru Sugawara

QDLaser, Inc., Japan

LDC2-4 : 11:45

Electro-Optic Bragg Diffraction Type Spatial Light Modulator Using Periodically Poled Structures for Laser Displays

Yuta Hayashi, Toshiyuki Inoue, Hiroshi Murata, Atsushi Sanada

Osaka Univ., Japan

[LDCp3] Poster Session : 13:00-15:00

<Exhibition Hall A>

LDCp3-1

Fiber coupled high-brightness blue direct-diode lasers

Shingo Uno

Shimadzu Corp., Japan

LDCp3-2

Controllable harmonic generation by couplings of horizontal- and vertical- polarized components

Yiqiang Qin, Ding Zhu, Chao Zhang

Nanjing Univ., China

LDCp3-3

The development of protective eyewear for RGB laser

Yoshihisa Ishiba, Shinya Kajiri, Kenta Noda

Yamamoto Kogaku co., ltd., Japan

LDCp3-4

Energy-Harvesting Laser Phosphor Display

Masamichi Ohta, Shunsuke Itaya, Yuuki Hirai, Takamasa Kohmoto, Ichiro Fujieda

Ritsumeikan Univ., Japan



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LDCp3-5

Compact Helmet Display Based on Reflection Type Holograms

Wen-Kai Lin^{1, 2)}, Wei-Ting Liu¹⁾, Ying-Pin Tsai¹⁾, Tsang-Hao Hsu¹⁾, Bor-Shyh Lin²⁾, Fu-Li Hsiao¹⁾, Wei-Chia Su¹⁾

1) National Changhua Univ. of Education, Taiwan, 2) National Chiao Tung Univ., Taiwan

LDCp3-6

3D Display using Optimized Binary Phase Distribution from Computer Graphics(CG) Data

Takahiro Uemae, Koichi Nitta, Osamu Matoba

Kobe Univ., Japan

LDCp3-7

Comparison between Reconstructed Full-color Images by Binary and Grayscale Phase Distributions

Syo Harada, Kouichi Nitta, Osamu Matoba

Kobe Univ., Japan

LDCp3-8

Comparative Study of Blue Laser Diode driven Ce:YAG, Ce:LuAG, Ce:GAGG, and Ce:GdYAG Single Crystal Phosphors in Application of High-Power Lightning and Display Technologies

Mustafa H. Balci¹⁾, Fan Chen¹⁾, A. Burak Cunbul¹⁾, Øyvind Svensen²⁾, M. Nadeem Akram¹⁾, Xuyuan Chen¹⁾

1) Univ. College of Southeast Norway, Norway, 2) Barco Fredrikstad AS, Norway

LDCp3-PDP1

Laser Driven Phosphor Light Engine for High Lumen DMD Projector

A. Burak Cunbul¹⁾, Mustafa H. Balci¹⁾, Xuyuan Chen¹⁾, Øyvind Svensen²⁾, M. Nadeem Akram¹⁾

1) Univ. College of Southeast Norway, Norway, 2) Barco Fredrikstad AS, Norway

LDCp3-PDP2

An Instrument to Measure the Photometric Quantity and Color of RGB Laser Displays

K. Hieda, T. Maruyama, T. Takesako, F. Narusawa

HIOKI E. E. CORP., Japan

LDCp3-PDP3

Spectroradiometric Measurements of Laser Projector and Tablet Display Chromaticity Coordinates

Alexandre Y. Fong and Austin Dowd

Gooch and Housego, USA

[LDC4]15:30-17:00 <Room 301>

Laser Diode & LED

co chairs: Tomoyuki Miyamoto

Tokyo Inst. Tech., Japan

Charles Li

PlayNitride Inc., Taiwan

LDC4-1 : 15:30 Invited

GaN-based VCSELs towards high efficiency

T. Takeuchi¹⁾, S. Kamiyama¹⁾, M. Iwaya¹⁾, I. Akasaki^{1), 2)}

1) Meijo Univ., Japan, 2) Nagoya Univ., Japan

LDC4-2 : 16:00

High-power and highly-reliable 638 nm band BA-LD for CW operation

T. Nishida, K. Kuramoto, S. Abe, M. Kusunoki, M. Miyashita, T. Yagi

Mitsubishi Electric Corp., Japan

LDC4-3 : 16:15

Master Oscillator Power Amplifier Concepts with Nearly Diffraction-Limited Watt-Level Continuous Wave Emission at 635 nm for Laser Projection

N. Werner, G. Blume, D. Feise, J. Pohl, P. Ressel, D. Prasai, K. Paschke, G. Tränkle

Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany

LDC4-4 : 16:30

Improvement of WPE of Laser Diode by Conversion of Spontaneous Surface-emission to Edge-emission via Radiation Mode

Junichi Kinoshita

Osaka Univ., Japan



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LDC4-5 : 16:45

Study on AlGa_N-Based High-Voltage Ultraviolet Light-Emitting Diodes for White Light Applications
Ray-Hua Horng, Chen-Hao Kuo, Ching-Ho Tien, Dong-Sing Wu
National Chiao Tung Univ., Taiwan

LDC5-4 : 10:00

A New Measurement Method Suitable for Color and Photometric Quantity of Laser Displays
K.Hieda, T.Maruyama
HIOKI E.E. CORP., Japan

LDC4-6 : 17:00 Invited

Building the ECO-System for the Digital Electro-optics Platform (X-on Silicon)
Kenneth Tai
Jasper Display Corp., Taiwan

LDC5-5 : 10:15

Efforts to realize wide color gamut, high brightness projector
Masaya Masuda, Daisuke Hayashi, Shunji Kamijima
Seiko Epson Corp., Japan

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----- 10:30-10:45 Break -----

■Friday, April 21

[LDC5] 9:00-10:30 <Room 301>

Color Speckle & Management

co chairs: Shigeo Kubota
Oxide Corp., Japan
Young-Joo Kim
Yonsei Univ., Korea

[LDC6] 10:45-11:45

Speckle Reduction

co chairs: Hiroshi Murata
Osaka Univ., Japan
Lung-Han Peng
National Taiwan Univ., Taiwan

LDC5-1 : 9:00 Invited

Direct Measurement of Color Speckle II Modification of 2D Colorimeter
Kazuo Kuroda¹⁾, Junichi Kinoshita²⁾, Hiroyuki Tanaka³⁾, Ryushi Fujimura¹⁾, Kazuhisa Yamamoto²⁾
1) Utsunomiya Univ., Japan, 2) Osaka Univ., Japan, 3) Topcon Technohouse, Japan

LDC6-1 : 10:45 Invited

Simulation and Fabrication to the Speckle Reduction in Compact Optical Engine for Laser Projection Displays
Young-Joo Kim, Jae-Yong Lee, Se-Hwan Jang, Sungbin Jeon, No-Cheol Park
Yonsei Univ., Korea

LDC5-2 : 9:30

Color Speckle Measurement Errors for Uncorrelated XYZ Filter-Sensor System
Junichi Kinoshita¹⁾, Kazuhisa Yamamoto¹⁾, Kazuo Kuroda²⁾
1) Osaka Univ., Japan, 2) Utsunomiya Univ., Japan

LDC6-2 : 11:15

Speckle Contrast Measurement Rigorously in Human Eye Response Time
Koji Suzuki, Shigeo Kubota
Oxide Corp., Japan

LDC5-3 : 9:45

Measurement of Angular Characteristics of Speckle Contrast
Shogo Kubota, Makio Kurashige, Kazutoshi Ishida
Dai Nippon Printing Co., Ltd., Japan

LDC6-3 : 11:30

Laser Speckle Reduction by Using Motionless Image Conduits
Zhaomin Tong¹⁾, Wenzhi Cheng¹⁾, Shaohua Song¹⁾, Zhuo Cai¹⁾, Yifei Ma¹⁾, Xuyuan Chen^{1),2)}, Weiguang Ma¹⁾, Liantuan Xiao¹⁾, Suotang Jia¹⁾
1) Shanxi Univ., China, 2) Univ. College of Southeast Norway, Norway



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[LDC7]13:15-15:15

Advanced Laser & Lighting

co chairs: Tetsuya Yagi

Mitsubishi Electric Corp., Japan

Masafumi Ide

Magic Leap, Japan

LDC7-1 : 13:15 Invited

Compact RGB laser sources

K. Paschke, G. Blume, N. Werner, J. Hofmann, R. Bege,

D. Feise, A. Sahm

Ferdinand-Braun-Institut, Leibniz-Institut für
Höchstfrequenztechnik, Germany

LDC7-2

13:45

30 W CW Red fiber Laser for RGB laser system

Surin A.A., Borisenko T.E., Stirmanov Y.S.

“IRE-Polus” Ltd (IPG Photonics Russian department),
Russia

LDC7-3 : 14:00

Speckle Reduction Using Fiber-laser Pumped $\chi^{(2)}$

Nonlinear Photonic Crystals with Double-slit Structures

Seong-Jin Son¹⁾, Hsin-Jung Lee²⁾, Ya-Ching Huang²⁾, Do-
Kyeong Ko¹⁾, Lung-Han Peng²⁾, Nan Ei Yu¹⁾

1) Gwangju Institute of Science and Technology, South
Korea, 2) National Taiwan Univ., Taiwan

LDC7-4 : 14:15

Compact Microchip-seeded Multistage MOPA System
for Laser Induced Breakdown Applications

V. Yahia, T. Taira

Institute for Molecular Science, Japan

LDC7-5 : 14:30 Invited

Liquid Crystal Display with RGB Laser Backlight

Y. Fujii, E. Niikura, N. Okimoto, S. Maeda, H. Yasui, A.
Heishi

Mitsubishi Electric Corp., Japan

LDC7-6 : 15:00

Simple and Small Holographic RGB Illumination Unit
~ Egarim ~

Toshihiro Kasezawa¹⁾, Hideyoshi Horimai¹⁾, Hiroshi
Tabuchi²⁾, Toshitaka Nara²⁾, Tsutomu Shimura³⁾

1) Egarim Co., Ltd, Japan, 2) Okamoto Glass Co., Ltd.,
Japan, 3) The Univ.of Tokyo, Japan

----- 15:15-15:30 Break -----

[LDC8] **Postdeadline session** 15:30-15:50

Chair: Sunao Kurimura

National Inst. for Materials Science, Japan

LDC8-1 : 15:30

Fibrance® Enables Laser For Everyday Light and
Decoration

Qing Tan¹⁾, Mario Pannicia¹⁾, Kevin Sullivan¹⁾ Kevin
Sullivan¹⁾, Gerald Schmidt²⁾, Carl Crossland²⁾, Peter
Wigley²⁾, and Yasuyuki Kagawa³⁾

1) Versalume LLC, USA, 2) Corning Incorporated, USA,
3) Corning International K.K, Japan

LDC8-2 : 15:40

A high efficiency laser spotlight illuminator

T. Miwa¹⁾, A.Takamori²⁾

1) IDEC Corp., Japan, 2) Osaka Univ., Japan

[Award & Closing] 15:50-16:10

Award Ceremony 15 : 50

Closing Remarks 16:00

Sunao Kurimura

NIMS, Japan