

第 16 回 赤崎記念研究センターシンポジウム
第 21 回 CIRFE セミナー
「窒化物半導体研究の新展開：新規デバイスの創出をめざして」

16th Akasaki Research Center Symposium
21st CIRFE Seminar
"To the New Horizon of the Nitride Research"

主催：名古屋大学 赤崎記念研究センター
共催：名古屋大学未来材料・システム研究所 未来エレクトロニクス集積研究センター

協賛：名古屋大学 ベンチャー・ビジネス・ラボラトリー
日本学術振興会「ワイドギャップ半導体光・電子デバイス第 162 委員会」
名城大学・窒化物半導体基盤技術研究センター
応用物理学会東海支部
一般社団法人 G a N コンソーシアム

Organized by
Nagoya University Akasaki Research Center
and
Center for Integrated Research of Future Electronics (CIRFE), IMASS, Nagoya University

In cooperation with
Nagoya University Venture Business Laboratory
JSPS 162nd Committee on Wide Bandgap Semiconductor Photonic and Electronic Devices
Meijo University Research Center for Nitride Semiconductors
Japan Society for Applied Physics, Tokai Chapter
Consortium for GaN Research and Applications

1. 日時：令和元年 11 月 29 日（金）
9：30～17：15 研究会
17：20～19：00 懇親会

2. 場所：名古屋大学 E S 館 E S ホール（研究会）
NIC Idea Stoa（懇親会）
名古屋市千種区不老町
<http://www.nagoya-u.ac.jp/access-map/index.html>
地下鉄名城線名古屋大学駅下車 3 番出口より信号渡ってすぐ

3. 申し込み：名古屋大学未来材料・システム研究所 天野研究室
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参加申込書の内容をメールにてご連絡いただければ幸いです。

Program

[1] Memorial of Professor Shingo Fuchi and Annual reports from the ARC members

9:30-10:00 **A memorial address** Y. Nanai, A. Fuchi, and Y. Takeda

10:00-10:20 **In situ x-ray monitoring of ammonothermal reaction processes for advancing the understanding of ammonothermal GaN growth**

S. Schimmel^{1,6}, T. Steigerwald^{2,3}, M. Koch¹, P. Macher¹, P. Duchstein⁴, A.-C. L. Kimmel², N. S. A. Alt², D. Zahn⁴, R. Niewa⁵, E. Schlücker², P. Wellmann¹

¹ Crystal Growth Lab, Materials Department 6, FAU Erlangen-Nürnberg, Germany

² Institute of Process Machinery and Systems Engineering, FAU Erlangen-Nürnberg, Germany

³ Erlangen Graduate School in Advanced Optical Technologies (SAOT), FAU Erlangen-Nürnberg, Germany

⁴ Computer Chemistry Center, Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany

⁵ Institute of Inorganic Chemistry, University of Stuttgart, Germany

⁶ Institute of Materials and Systems for Sustainability, Nagoya University, Japan

10:20-10:40 **In-situ analyses of GaN surfaces irradiated by a Cl₂ plasma for atomic layer etching**

Masaki Hasegawa¹, Kenji Ishikawa¹, Takayoshi Tsutsumi¹, Makoto Sekine¹, Hiroki Kondo¹, Atsushi Tanide², and Masaru Hori¹

¹ Center for Low-temperature Plasma Sciences (cLPS), Nagoya University, Japan

² SCREEN Holding Co. Ltd., Japan

10:40-11:00 **High current density operation of UV-B light-emitting devices fabricated on high quality and relaxed AlGaIn**

M. Iwaya¹, S. Yasue¹, K. Sato^{1,2}, Y. Kawase¹, Y. Ogino¹, S. Tanaka¹, S. Teramura¹, S. Iwayama^{1,3}, T. Takeuchi¹, S. Kamiyama¹, I. Akasaki^{1,4}, and H. Miyake³

¹ Faculty of Science and Technology, Meijo University, Japan

² Asahi-Kasei Corporation, Japan

³ Mie University, Japan

⁴ Akasaki Research Center, Nagoya University, Japan

11:00-11:20 **High-temperature annealing of sputtered AlN on sapphire using face-to-face configuration**

Hideto Miyake¹, Kenjiro Uesugi³, Shiyu Xiao¹, Kanako Shojiki², Haruhiko Koizumi³, and Shigeyuki Kuboya³

¹ Graduate School of Regional Innovation Studies, Mie University, Japan

² Graduate School of Engineering, Mie University, Japan

³ Strategic Planning Office for Regional Revitalization, Mie University, Japan

Lunch Break 11:20-12:50

[2] Invited Speakers Session

12:50-13:50 Micro-pixel LEDs: the effects of size and V pits and its applications

Tae-Yeon Seong, Korea University, Korea

13:50-14:50 The effect of underlying layer on the performance of InGaN QW LEDs

Nicolas Grandjean, EPFL, Switzerland

Coffee Break @NIC Idea Stoa 14:50-15:15

15:15-16:15 High Output Power Deep Ultraviolet Light-Emitting Diodes with Hemispherical Lenses Fabricated Using Direct Bonding Methods (Tentative)

Masatsugu Ichikawa^{1,2}, Tatsuya Kemmochi¹, Takashi Mukai¹, Miyuki Uomoto², Takehito Shimatsu^{2,3}

¹ R&D Development 1. R&D Division, Nichia Corporation, Japan

² Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University, Japan

³ Research Institute of Electrical Communication (RIEC), Tohoku University, Japan

16:15-17:15 Recent progress of vertical GaN power devices on GaN substrates (Tentative)

Tohru Oka, Research and Development Headquarters, TOYODA GOSEI Co., Ltd.

Banquet 17:20-19:00