

PROGRAM

November 7 (Monday) at Okayama Convention Center

12:00-13:00 Registration

13:15-13:30 Opening Remarks

Session A

Chair: K. Sueoka (Okayama Pref. Univ.)

13:30 ~ 15:30 (Reception Hall)

- 13:30 A-1 Large diameter SiC solution growth assisted by AI technology
Toru UJIHARA (Nagoya Univ., Japan)
- 14:00 A-2 Standardization of Photoluminescence and Infrared Absorption Methods for
Quantifying Low-Level Carbon in Si
Michio TAJIMA (JSNM, Japan)
- 14:30 A-3 Gettering and Hydrogenation of Defects and Impurities in High Efficiency
Silicon Solar Cells (Remote)
Daniel MACDONALD (The Australian National University, Australia)
- 15:00 A-4 Ga₂O₃ and beyond Ga₂O₃ material of GeO₂ for power device
Kentaro KANEKO (Ritsumeikan Univ.)
- 15:30 **Coffee Break** (Robby)
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Session P “Short Presentation for Posters”

Chair: S. Nishizawa (Kyushu Univ.)

15:50 ~ 17:00 (Reception Hall)

- 15:50 P-1 Theoretical Study on Binding of Vacancy–Oxygen Complex (VOX) to Metals
in RTP Wafers
H. Iwashiro (GlobalWafers Japan. Corp., Japan)
- 15:53 P-2 Numerical Modeling and Evaluation of Constitutional Supercooling during
Silicon Single Crystal Growth by Cz Method

Y. Mukaiyama (STR Japan, Japan)

- 15:56 P-3 First-principles Calculation on N-V Complex Formation in Si Crystal Growth
A.Sada (Okayama Pref.Univ., Japan)
- 15:59 P-4 Theoretical verification of constitutional supercooling and growth conditions in heavily B-doped Si crystal growth by the Czochralski method
Y. Fukui (Shinshu Univ., Japan)
- 16:02 P-5 A statical study of the effect of interface shape and growth time on dislocation density in multicrystalline Si
H. Tanaka (Nagoya Univ.)
- 16:05 P-6 Formation of micro roughness during plasma chemical vaporization machining of silicon wafer and a way to reduce it
D. Takeuchi (Osaka Univ., Japan)
- 16:08 P-7 The different Change of Dislocation Propagation in Si Wafer during High Thermal Budget Process of Impurity Doping with different Diffusion Temperatures
J. Yuan (Kyushu Univ., Japan)
- 16:11 P-8 Evaluation of Crystal Quality by High-Speed, High-Resolution Hybrid X-ray Topography System
K. Omote (RIGAKU Corp., Japan)
- 16:14 P-9 A TCAD Simulation Study for a New Technique to Calculate Carrier Recombination Lifetime Based on Open Circuit Voltage Decay Method
S. Sasaki (SUMCO Corp., Japan)
- 16:17 P-10 Analysis of metal gettering in p–n junctions and effect of gettering sites inside Si wafers as starting materials for electronic device processing
E. Kamiyama (GlobalWafers Japan, Japan)
- 16:20 P-11 Properties of a Nickel-related electronic level in multi-crystalline silicon for solar cells
Y. Terada (Okayama Pref.Univ., Japan)
- 16:23 P-12 Effect of thermal treatment on bulk lifetime of CZ silicon wafer of solar cell

K. Tanahashi (AIST, Japan)

- 16:26 P-13 Fabrication of tensile-strained single-crystalline GeSn wires on amorphous quartz substrates by local liquid-phase crystallization
T. Shimura (Osaka Univ., Japan)
- 16:29 P-14 Electron spin resonance study of Si dangling bond defects in stacks of LPCVD-SiN film on Si (100) substrate
H. Miyagawa (Kagawa Univ., Japan)
- 16:32 P-15 Effect of Contact Angle between SiC and Metal Solvents on Growth Surface Morphology in Solution Growth of SiC
T. Iwai (Shinshu Univ., Japan)
- 16:35 P-16 Evaluation of Thermal Conductivity Characteristics near Insulator/SOI Interface by Raman Spectroscopy
K. Sahara (Meiji Univ., Japan)
- 16:38 P-17 PL spectra analyses of strain-free GeSn with high-Sn composition
Y. Ito (Meiji Univ., Japan)
- 16:41 P-18 A linear-regression machine-learning model for predicting total energies of silicon crystal structures
Y. Noda (Okayama Pref. Univ., Japan)
- 16:44 P-19 Development of ANN potential for Si(100) surface and validation of calculation accuracy
M. Sato (Okayama Pref. Univ., Japan)
- 16:47 P-20 Artificial Neural Network potential analysis on self-interstitial atoms in Si
K. Yamanaka (Okayama Pref. Univ., Japan)
- 16:50 P-22 Extension of Zeller's Silicon Power Device SEB Failure Rate Calculation method to Aviation Altitude
S. Gollapudi (Kyushu Inst. Tech., Japan)
- 16:53 P-23 Evaluation of β -Ga₂O₃ crystalline quality grown by crucible-free techniques
I. Takahashi (C&A Co., Japan)
- 17:00 **Coffee Break** (Robby)

Session P “Poster Session”

Chair: S. Nishizawa (Kyushu Univ.)

17:20 ~ 19:50 (Robby)

November 8 (Tuesday) at Okayama Convention Center

Session B

Chair: T. Taishi (Shinshu Univ.)

9:30 ~ 10:30 (Reception Hall)

9:30 B-2 β -Ga₂O₃ crystal growth and device processing
Kohei SASAKI (*Novel Crystal Technology Corp., Japan*)

10:00 B-3 Phonon properties of bulk silicon-germanium analyzed by inelastic X-ray scattering
Ryo YOKOGAWA (*Meiji Univ., Japan*)

10:30 **Coffee Break** (Robby)

Session C

Chair: S. Nishizawa (Kyushu Univ.)

11:00 ~ 12:00 (Reception Hall)

11:00 C-1 Evolution of SiC material and device technologies (TBD)
Cengiz Balkas (*Wolfspeed, USA*)

11:30 C-2 Contributions of Synchrotron X-ray Topography to the Understanding of Dislocation Configurations in SiC substrates and Epilayers
Michael DUDLEY (*Stony Brook Univ. USA*)

12:00 Photo Session

12:15 Lunch Break

Session D

Chair: K. Kakimoto (Tohoku Univ.)

14:00 ~ 15:00 (Reception Hall)

14:00 D-2 Precipitation of suboxides in silicon and its impact on gettering and carrier recombination
Gudrun KISSINGER (*IHP- Leibniz Institute for High Performance*

Microelectronics, Germany)

14:30 D-3 Formation Behavior of Oxygen Precipitates in Silicon Wafers Subjected to Ultra-High-Temperature Rapid Thermal Process
Haruo SUDO (*GlobalWafers Japan, Japan*)

15:00 **Coffee Break** (Robby)

Session E

Chair: E.Kamiyama (GlobalWafers Japan)

15:30 ~ 17:30 (Reception Hall)

15:30 E-1 In situ and real-time investigation of the solidification of silicon by X-ray imaging (Remote)
Nathalie MANGELINCK-NOËL (*Institute of Materials Microelectronics and Nanosciences of Provence, CNRS, France*)

16:00 E-2 Defect in cast-mono silicon (Remote)
Deren YANG (*State Key Lab of Silicon Materials, Zhejiang University, China*)

16:30 E-3 III-N optical devices: physical processes limiting efficiency and reliability (Remote)
Matteo MENEHINI (*University of Padova, Italy*)

17:00 E-4 Mitigation of bulk and surface recombination losses in silicon photovoltaic materials
John MURPHY (*University of Warwick, UK*)

18:00-20:00 Optional Dinner (ANA Hotel 19th floor “Sola”)

November 9 (Wednesday) at Tenjin9

Session F

Chair: N. Fukata (NIMS)

9:30 ~ 11:30 (Noh Theater Hall “Tenjin9”)

9:30 F-1 Creation of Spin Defects in Silicon Carbide by Particle Irradiation for Quantum Applications

Takeshi OHSHIMA (QST, Japan)

10:00 F-2 Artificial-neural-network potential for accurately predicting atomic structure and physical properties of lattice defects in semiconductors

Tatsuya YOKOI (Nagoya Univ., Japan)

10:30 F-3 Characteristics and its control of white spot defects on Image Sensors

Nobuhiko SATO (Canon Inc., Japan)

11:00 F-4 Toward Silicon Quantum Computers: Challenges in Devices, Integration, and Circuits

Takahiro MORI (AIST, Japan)

11:30 **Lunch Break**

Session G

Chair: S. Nishizawa (Kyushu Univ.)

13:00 ~ 14:00 (Noh Theater Hall “Tenjin9”)

13:00 G-1 Silicon wafer cleaning technology

Yuji NAGASHIMA (Shibaura Mechatronics Corp., Japan)

13:30 G-2 Global electronics and semiconductor trend ~ Carbon neutral and DX change the trend~

Akira MINAMIKAWA (OMDIA, Japan)

14:00-14:15 Closing Remarks

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