Program Track 3

3. Environmental Material (Room A4)

3-1. Solar Cells (1) Chair; Atsushi Ogura

3-1-1. (9:45-10:15) -Inveited

Recent Progress in Crystalline Silicon Solar Cells

Yoshio Ohshita

Toyota Technological Institute

3-1-2 (10:15-10:35) -Invited

The Present Situation For Solar Grade Silicon Feed Stock

Satoru Wakamatsu

Tokuyama Corporation Silicon Development Dept.

3-1-3. (10:35-10:55) -Invited

Development of high-efficiency HIT(Heterojunction with Intrinsic Thin-layer) solar cells

Makoto Tanaka

Advanced Energy Research Center, SANYO Electric Co., Ltd.

3-1-4. (10:55-11:15)

Development of GaAsN semiconductor alloys for high efficiency solar cells

Hideaki Suzuki, Kenichi Nishimura, Yoshio Ohshita, and Masafumi Yamaguchi

Toyota Technological Institute

3-2. Solar Cells (2) Chair; Yoshio Ohshita

3-2-1. (11:30-12:00) -Invited

An Investigation of Temperature and impurities distributions in a solidified Si by Unidirectional Solidification Method by using a Dynamic Global Model

Koichi Kakimoto, Lijun Liu and Satoshi Nakano

Research Institute for Applied Mechanics, Kyushu University

3-2-2. (12:00-12:20)

Analysis of Multicrystalline Silicon Wafers for Solar Cells by Photoluminescence Mapping and Spectroscopy

Masaaki Inoue[1, 2], Hiroki Sugimoto[1], Michio Tajima[1], Yoshio Ohshita[3] and Atsushi Ogura[2]

1)The Institute of Space and Astronautical Science (ISAS)/ Japan Aerospace Exploration Agency (JAXA), 2)School of Science and Technology, Meiji University, 3)Toyota Technological Institute

3-2-3. (12:40-12:40)

Advantage of stress analysis by second order Raman scattering from multi-silicon crystals

Hitoshi Matsuo, Takahiro Kawamura, Koichi Kakimoto

Research Institute for Applied Mechanics,Kyushu University

3-2-4. (12:40-13:00)

Evaluation of crystal quality of multicrystalline silicon for solar cells by p-n diode array

Satoshi Tanaka[1], Keita Imai[1], Atsushi Ogura[1], Koji Arafune[2], Hideaki Kawai[2], Futoshi Kusuoka[2], Yoshio Ohshita[2], Masaaki Inoue[3], Michio Tajima[3]

1)School of Science and Technology, Meiji University, 2)Toyota Technological Institute, 3)The Institute of Space and Astronautical Science (ISAS)/ Japan Aerospace Exploration Agency (JAXA)

3-3. Semiconductor Silicide Chair; Hiroshi Yamamoto

3-3-1. (14:00-14:30) -Invited

Nanoscale Metal Silicides on Si and Si-Ge

L.J. Chen, W.W. Wu, S.Y. Chen, and H.C. Chen

Department of Materials Science and Engineering, National Tsing Hua University

3-3-2. (14:30-14:50) -Invited

Novel Growth Techniques for a Variety of Group II Metal Silicides

K. Miura[a], T. Inaba[b], Y. Mizuyoshi[a], N. Takagi[a], Y. Momose[c] and H. Tatsuoka[d],*,

a)Graduate School of Science and Engineering, Shizuoka University, b)Graduate School of Science and technology, Shizuoka University, c)Research Institute of Electronics, Shizuoka University, d)Faculty of Engineering, Shizuoka University,

3-3-3. (14:50-15:10) -Invited

Photoluminescence properties of ion-beam synthesized β-$FeSi_2$/Si interface

Yoshikazu Terai, Yoshihito Maeda, Yasufumi Fujiwara

Graduated School of Engineering, Osaka University

3-3-4. (15:10-15:30)

Optical and crystalline properties in Er, Yb-implanted $Al_{0.70}Ga_{0.30}As$ epitaxial layer on GaAs Substrates

Tomoyuki Arai[a], Akira Uedono[b] and Shin-ichiro Uekusa[a]

a)School of Science and Technology, Meiji University, b)Institute of Applied Physics, Tsukuba Univ

3-4. Magnetic and other materials Chair; Ken-ichi Tanaka

3-4-1. (17:30-18:00) -Invited

Visualization of underwater microbe using high depth of field aspheric lens.

Hideaki Ishizuki

Opt-High Tech., Co. Ltd

3-4-2. (18 :00-18 :20)

Magnetic Properties of Melt-Spun Didymium-Fe-Co-Nb-B System Ribbons and Their Bonded Magnets

Naoyuki Miyashita, Hiroshi Yamamoto and *Fumitoshi Yamashita

School of Science andTechnology, Meiji University

3-4-3. (18 :20-18 :40)

Magnetic Properties of Anisotropic Sintered $BaFe_2$-W type Ferrite Magnets

Yoshihito Sawayama, Hiroshi Yamamoto, and Hiroaki Nishio

School of Science and Technology, Meiji University

3-p. Poster Session (15:45-17:15) Room A5&A6

3-p-1. **PL Mapping Tomography of Intra-grain Defects in Multicrystalline Silicon Wafers**

Kiyoto Araki [1], Hiroki Sugimoto [1], Michio Tajima [1], Takeshi Eguchi [2], Isao Yamaga [2], Dhamrin Marwan [3], Tadashi Saito [3]

1)The Institute of Space and Astronautical Science (ISAS)/ Japan Aerospace Exploration Agency (JAXA), 2)Dai-ichi Dentsu Co. , 3)Tokyo Univ. of Agriculture and technology

3-p-2 **Photoluminescence Analysis of Kankyo Semiconductor β-FeSi2**

Hiroki Kino[1], Michio Tajima[1], Yasuhiro Fukuzawa[2], Masato Osamura[2], Zhengxin LIU[3], Teruhisa Ootsuka[3], and Yunosuke Makita[2, 3]

1)The Institute of Space and Astronautical Science (ISAS)/ Japan Aerospace Exploration Agency (JAXA), 2)Kankyo Semiconductors Co., Ltd., 3)Tateyama Kagaku Ind. Co., Ltd.,

3-p-3. **Growth of Nanofibers using β-$FeSi_2$, β-$FeSi_2$/Si and Mg_2Si Substrates with Ga Droplets**

K. Shiozawa, S. Honda, K. Ogino, Y. Saito1, and H. Tatsuoka*

Faculty of Engineering, Shizuoka University,

3-p-4. **Growth Time Dependence of Layer Morphology on $MnSi_{1.7}$ Layers Grown in $MnCl_2$ Vapor**

T. Kurokawa [1], T. Matsuyama [2] and H. Tatsuoka* [1]

1)Faculty of Engineering, Shizuoka University, 2)Pulstec Industrial Co., Ltd.

3-p-5. **TEM Observations of β-$FeSi_2$ Layers Grown on Glass Substrates**

T. Satake [1], K. Yamaguchi [2], H. Yamamoto [2], T. Matsuyama [3], and H. Tatsuoka* [1]

1)Faculty of Engineering, Shizuoka University, 2)Quantum Beam Science Directorate, Japan Atomic Energy Agency, 3)Pulstec Industrial Co., Ltd.,

3-p-6. **Growth Temperature dependence of structural properties on Iron Silicide Layers Grown Using $FeCl_2$ Source**

M. Nishiura[1], Y. Momose [2], T. Matsuyama[3] and H. Tatsuoka*[1]

1) Faculty of Engineering, Shizuoka University, 2) Research Institute of Electronics, Shizuoka University, 3) Pulstec Industrial Co., Ltd.,

3-p-7. **Room-temperature growth of silicon oxide films by plasma-enhanced chemical vapor deposition**

Keisuke Yamaoka, Daisuke Tsukiyama, Yuji Yoshizako, Yoshikazu Terai and Yasufumi Fujiwara

Graduated School of Engineering, Osaka University

3-p-8. **Magnetic Properties of Co-Ni-Y Spinel Ferrite Fine Particles With High Coercivity Prepared by the Chemical Coprecipitation Method**

Atsushi Matsuzawa and Hiroshi Yamamoto

School of Science and& Technology, Meiji University,

3-p-9. **Magnetic Properties of $TbCu_7$-Type Sm-Fe-Co-Cr-Y System Nitrided Compounds**

Naohiro Mitani and Hiroshi Yamamoto

School of Science and Technology, Meiji University

3-p-10. **Magnetic Properties of Melt-Spun Pr(Nd)-Fe-Co-Nb-Cu-Si-B System Ribbons and Their Bonded Magnets**

Hiroki Shinagawa and Hiroshi Yamamoto

School of Science and Technology, Meiji University

3-p-11. **W-CVD using $(i\text{-}PrCp)_2WH_2$**

S. Imai[1], T. Kagawa[1], H. Kurozaki[1], A. Ogura[1], M. Ishikawa[1,2], I. Muramoto[2], H. Machida[2], and Y. Ohshita[3]

1) School of Science and Technology, Meiji University, 2)Tri Chemical Laboratories Inc, 3)Toyota Technological Institute

3-p-12. **Evaluation of strained-Si substrates by means of UV-Raman spectroscopy**

Kosuke Yamasaki, Daisuke Kosemura, Yasuto Kakemura, Tetsuya Yoshida and Atsushi Ogura

School of Science and Technology, Meiji University

3-p-13. **Evaluation of strain at Si_3N_4/Si interface by In-plane X-ray diffraction and UV-Raman spectroscopy**

Yasuto Kakemura, Kosuke Yamasaki, Daisuke Kosemura,Tetsuya Yoshida and Atsushi Ogura

School of Science and Technology, Meiji University

3-p-14. **Measurement of strain at HfSiO(N)/Si interface by UV Raman spectroscopy**

Tetsuya Yoshida, Daisuke Kosemura, Kosuke Ymamasaki, Hirotaka Kurozaki, Atsushi Ogura

School of Science and Technology, Meiji University

3-p-15. Properties of Ni and Ni-silicide deposition using $Ni(PF_3)_4$ and Si_3H_8

M. Ishikawa[1, 2], I. Muramoto[1], H. Machida[1], S. Imai[2], A. Ogura[2], Y. Ohshita[3]

12)Tri Chemical Laboratories Inc, 2)School of Science and Technology, Meiji University, 3)Toyota Technological Institute

3-p-16. **Relative oxidation rates of various oriented silicon substrates in high-pressure water vapor**

Naoya Yamamoto[1, 3], Ryusuke Imai[2], Hidetoshi Suzuki[2], Yoshio Oshita[2], and Atsushi Ogura[3]
1)Ishikawajima Heavy Industry, 2) Toyota Technological Institute, 3)School of Science and Technology, Meiji University,

3-p-17 **Optical properties of Ge nanocrystals in silicon oxide**

Atsuhiko Kushida and Shin-ichiro Uekusa
School of Science and Technology, Meiji University

3-p-18 **Effect of one and two-step annealing methods for optical and crystalline properties of β-$FeSi_2$ thin film**

Hiroyasu Takada, Yasuhiro Hosokawa and Shin-ichiro Uekusa
School of Science and Technology, Meiji University

3-p-19 **Evaluation on Crystal Properties of AlN by RF Magnetron Sputtering Method**

Takahiko Ohno, Hiroshi Miura, Satoru Enjyoji and Shin-ichiro Uekusa
School of Science and Technology, Meiji University