

Tue., Oct. 12

CONFERENCE SCIENTIFIC PROGRAM

Tuesday, October 12

13:30 - 14:10 **[Introductory]**

National Project on New Group IV (Si-Ge-C) Semiconductors; Control of Properties and Applications to Ultrahigh Speed and Opto-Electronic Devices

- Yasuhiro Shiraki (Musashi Institute of Technology)

Session I : Invited Talks

14:10 - 14:40 **New VLSI Architecture-High Mobility Metal-Gate/High-k GOI CMOSFETs and High RF Performance Passive Devices on Si**
Invited

- A. Chin^{*}, D. S. Yu^a, C. C. Laio^a, C. F. Cheng^a, W. J. Chen^b, C. Zhu^c, M.-F. Li^{c,d}, Y. C. Yeo^c, Won Jong Yoo^c, and D. L. Kwong^e (^{*} Si Nano Devices Lab., Dept. of Electrical & Computer Eng., National University of Singapore and Institute of Microelectronics, ^aNano Sci. Tech. Ctr., Dept. of Electronics Eng., Nat'l Chiao-Tung Univ., ^bGraduate Inst. of Materials Eng., National Pingtung University of Science and Technology, ^cSi Nano Device Lab., Dept. of Electrical & Computer Eng., National Univ. of Singapore, ^dInstitute of Microelectronics, ^eDept. of Electrical & Computer Engineering, The Univ. of Texas)

14:40 - 15:10 **Very high mobility hole channels in Ge/SiGe/Si heterostructures**
Invited

- H. von Känel¹, B. Rössner², D. Chrastina¹, G. Isella¹, J.P. Hague³ (¹L-NESS and INFN-Dip., ²Laboratorium für Festkörperphysik, ETH Zürich, ³Department of Physics and Astronomy, University of Leicester)

15:10 - 15:25 **Break**

15:25 - 15:55 **Fabrication of strained SiGe-on-Insulator and Ge-on-Insulator layers by Ge-condensation technique for high performance pMOSFETs**
Invited

- T. Tezuka, S. Nakaharai, Y. Moriyama, N. Sugiyama and ***S. Takagi (MIRAI-ASET, *MIRAI-AIST, **The University of Tokyo)

15:55 - 16:25 **Recent Advances in SiGe HBT and BiCMOS Technologies**
Invited

- K. Washio (Central Research Laboratory, Hitachi Ltd.)

16:25 - 16:55 **SiGe-MMIC direct converters for broad-band wireless communication**
Invited

- N. Suematsu, K. Nakajima and C. Kageyama (Mitsubishi Electric Corp.)

16:55 - 17:10 **Break**

Session II : Short Presentation (1)

- 17:10 - 17:14 **Strain field fluctuation in Strained-Si/SiGe heterostructures**
Short - K. Sawano¹, N. Usami², K. Arimoto³, S. Koh², K. Nakagawa³, and Y. Shiraki⁴
(¹Department of Applied Physics, The University of Tokyo, ²Institute for Material Research, Tohoku University, ³Center for Crystal Science and Technology, University of Yamanashi, ⁴Musashi Institute of Technology)
- 17:14 - 17:18 **Fabrication of strained Ge channel structures with extremely high hole mobility**
Short - T. Irisawa, K. Sawano, S. Koh, K. Nakagawa¹, Y. Shiraki² (Department of Applied Physics, The University of Tokyo, ¹Center for Crystal Science and Technology, University of Yamanashi, ²Musashi Institute of Technology)
- 17:18 - 17:22 **Elastic Strain Distribution in Narrow Strained Si Channels**
Short - K. Arimoto, D. Furukawa, J. Yamanaka, K. Nakagawa, K. Sawano¹, S. Koh², Y. Shiraki³, and N. Usami² (Center for Crystal Science and Technology, Univ. of Yamanashi, ¹Department of Applied Physics, The University of Tokyo, ²Institute for Materials Research, Tohoku Univ, ³Musashi Institute of Technology)
- 17:22 - 17:26 **Formation of High-Quality Thin Strain-Relaxed SiGe Buffer Layers by Ion Implantation**
Short - Y. Ozawa¹, K. Sawano², J. Yamanaka³, N. Usami⁴, K. Suzuki³, K. Arimoto³, S. Koh⁴, K. Nakagawa³, T. Hattori¹, and Y. Shiraki¹ (¹Musashi Institute of Technology, ²Department of Applied Physics, ³Center for Crystal Science and Technology, University of Yamanashi, ⁴Institute for Material Research, Tohoku University)
- 17:26 - 17:30 **Fabrication of p-i-n Si_{0.5}Ge_{0.5} photodetectors on SiGe-on-Insulator Substrates**
Short - S. Koh^[1,2], K. Sawano^[1], N. Usami^[2], J. Yamanaka^[3], K. Nakagawa^[3], K. Nakajima^[2], X. Huang^[2], S. Uda^[2], and Y. Shiraki^[1] (^[1]Department of Applied Physics, Univ. of Tokyo, ^[2]Institute for Materials Research, Tohoku Univ., ^[3]Center for Crystal Science and Technology, Univ. of Yamanashi)
- 17:30 - 17:34 **Growth of SiGe bulk crystal with uniform composition**
Short - N. Usami, Y. Azuma, K. Fujiwara, G. Sazaki and K. Nakajima (Institute for Materials Research (IMR), Tohoku University)
- 17:34 - 17:38 **Autocatalytic-Reaction Model and Kinetic Monte-Carlo Simulation in Thin film growth dynamics**
Short - H. Togashi, M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)
- 17:38 - 17:42 **TPD and MIR-FTIR studies on Si_{1-y}C_y epitaxy using monomethylsilane**
Short - A. Konno, T. Murata, M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)
- 17:42 - 17:46 **Effects of carbon predeposition using monomethylsilane on the formation of Ge nanodots at Si surfaces**
Short - T. Murata, Y. Narita, M. Sakai and M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)

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- 17:46 - 17:50 **Scanning tunneling microscopy observation of C adsorption behavior in the initial growth of SiGeC on Si(001)**
Short
- Y. Wakazono¹, S. Takeuchi¹, O. Nakatsuka², A. Sakai¹, S. Zaima¹, M. Ogawa², and Y. Yasuda^{1†} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present affiliation: Research Institute of KUT, Kochi University of Technology)
- 17:50 - 17:54 **Evolution of surface morphology in the initial growth of Si_{1-x-y}Ge_xC_y layers**
Short
- S. Takeuchi¹, O. Nakatsuka², Y. Wakazono¹, A. Sakai¹, M. Ogawa², S. Zaima¹, and Y. Yasuda^{1†} (¹Dept. of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present: Research Institute of KUT, Kochi University of Technology)
- 17:54 - 17:58 **Anisotropic strain-relaxation mechanism in SiGe/Si(001) heterostructures with 60° misfit dislocations**
Short
- S. Mochizuki¹, T. Egawa^{1†}, A. Sakai¹, N. Taoka¹, O. Nakatsuka², M. Ogawa², S. Zaima¹ and Y. Yasuda^{1,††} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present affiliation: Sharp Corporation, ^{††}Present affiliation: Research Institute of KUT, Kochi University of Technology)
- 17:58 - 18:02 **Ultraclean Hot-Wall LPCVD Epi System Application for Strained-Si on Insulator Substrates**
Short
- Y. Kunii, Y. Hashiba, A. Moriya, Y. Inokuchi, and H. Kurokawa (Hitachi Kokusai Electric Inc.)
- 18:45 - 20:45 **Banquet (at Hotel Bel Air)**

Wednesday, October 13

Session III : Short Presentation (2)

- 9:00 - 9:04 **Analysis of microstructures in strain-relaxed SiGe buffer layers on SOI substrates with pure-edge dislocation networks**
Short
- N. Taoka¹, A. Sakai¹, S. Mochizuki¹, O. Nakatsuka², S. Zaima¹, M. Ogawa², Y. Yasuda¹, T. Tezuka³, N. Sugiyama³ and S. Takagi³ (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, ³MIRAI Project, Association of Super-Advanced Electronics Technology)
- 9:04 - 9:08 **Control of initial growth of epitaxial NiSi₂ on Si(001) with C incorporation**
Short
- O. Nakatsuka⁽¹⁾, E. Okada⁽²⁾, D. Ito⁽²⁾, A. Sakai⁽²⁾, S. Zaima⁽²⁾, M. Ogawa⁽¹⁾, and Y. Yasuda⁽²⁾ (⁽¹⁾ EcoTopia Science Institute, Nagoya University, ⁽²⁾ Dept. of Crystalline Materials Science, Graduate School of Engineering, Nagoya University)

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- 9:08 - 9:12
Short **Improvement in the Ni silicide/Si contact properties by C implantation**
- K. Okubo¹, O. Nakatsuka², A. Sakai¹, M. Ogawa², S. Zaima¹, J. Murota³, and Y. Yasuda^{1*} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagouya University, ³Research Institute of Electrical Communication, Tohoku University, *Present affiliation: Research Institute of KUT, Kochi University of Technology)
- 9:12 - 9:16
Short **Sputter Growth SiGe Films - Epitaxy, Strain and Thermoelectric Properties**
- K. Sasaki and T. Hata (Graduate School of Science & Technology, Kanazawa University)
- 9:16 - 9:20
Short **Etching Characteristics of B-Doped Si_{1-x}Ge_x Epitaxial Films Using Electron-Cyclotron-Resonance Chlorine Plasma**
- H. Cho, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:20 - 9:24
Short **Sidewall Protection by Nitrogen in Anisotropic Etching of P-Doped Poly-Si_{1-x}Ge_x Using Cl₂/N₂/SiCl₄ Plasma**
- H. Cho, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:24 - 9:28
Short **Electrical Properties of Impurity-doped Polycrystalline Si_{1-x-y}Ge_xC_y Film Deposited on SiO₂ by Ultraclean LPCVD**
- H. Shim, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:28 - 9:32
Short **Light Emission and Photo Detection Using Si p-i-n Diodes Integrated with Optical Waveguides**
- A. Yamada, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:32 - 9:36
Short **Epitaxial Growth of Strained Ge Film on Si(100) by ECR Plasma CVD Using GeH₄ Gas**
- K. Sugawara, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:36 - 9:40
Short **Thermal Stability of Si/Si_{1-x}Ge_x/Si Heterointerface with C Atomic Order Doping Using Ultraclean LPCVD**
- K. Takahashi, T. Kobayashi, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:40 - 9:44
Short **Epitaxial Growth and Electrical Properties of W Delta Doped Si Films on Si(100) by Ultraclean LPCVD**
- T. Komatsu, T. Kurosawa, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)

- 9:44 - 9:48
Short **Epitaxial Growth and Electrical Properties of N Atomic Layer Doped Si Films on Si(100) by Ultraclean LPCVD**
- Y. Jeong, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:48 - 9:52
Short **Epitaxial Growth of N Delta Doped Si Films on Si(100) by ECR Plasma CVD Using N₂ and SiH₄**
- M. Mori, T. Seino, D. Muto, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- 9:52 - 9:56
Short **High Performance Strained SiGe Channel pMOSFETs with Selective CVD B-Doped SiGe Source/Drain Electrode**
- S. Takehiro ^a, D. Lee ^a, M. Sakuraba ^a, J. Murota ^a and T. Tsuchiya ^b (^aLaboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, ^bInterdisciplinary Faculty of Science and Engineering, Shimane University)
- 9:56 - 10:00
Short **Ultra shallow Junction with Elevated SiGe Source/ Drain Formed by Laser Induced Atomic Layer Doping**
- J.C. Bea, K.W. Koh, H.J. Oh, H. Choi, M.G. Lee, T. Tanabe, T. Hirose, K.T. Park, H. Kurino, and M. Koyanagi (Dept. of Bioengineering and Robotics, Tohoku University)
- 10:00 - 10:04
Short **Nickel Silicide Formation of SiGe selectively epitaxial growth layer on Silicon-on-Insulator**
- T. Sakaguchi, H.J. Oh, H. Choi, J.C. Bea, J.C. Shim, T. Fukushima, H. Kurino and M. Koyanagi (Department of Bioengineering and Robotics, Tohoku University)
- 10:04 - 10:08
Short **Novel SOI MOSFETs with Buried Back Gate Control**
- H. Choi, H.J. Oh, T. Sakaguchi, M. Park, J.C. Bea, T. Fukushima, H. Kurino, and M. Koyanagi (Dept. of Bioengineering and Robotics, Tohoku University)
- 10:08 - 10:12
Short **Ni-Mediated Crystal Growth in Ge/Si/SiO₂ Heterostructures**
- H. Kanno, T. Sadoh, and M. Miyao (Department of Electronics, Kyushu University)
- 10:12 - 10:16
Short **Annealing Characteristics of Poly-SiGe(B) on Insulating Film**
- I. Tsunoda, T. Sadoh, and M. Miyao (Department of Electronics, Kyushu University)
- 10:16 - 10:20
Short **Novel SOI Fabrication Process Utilizing the Selective Etching for Si/SiGe Stacked Layers: Separation by Bonding Si Islands Technology (SBSI)**
- S. Ohmi, H. Ohri, T. Yamazaki, M. Sakuraba*, J. Murota* and T. Sakai (Dept. of Information Processing, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, *Research Institute of Electrical Communication, Tohoku University)

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10:20 - 10:24 **A Study on Selective Etching of SiGe Layers and Electrical Characteristics of MOS Diodes Formed after Selective Etching in SBSI Process**
Short

- H. Ohri, T. Yamazaki, S. Ohmi, and T. Sakai (Dept. of Information Processing, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology)

10:24 - 10:28 **Electron-Tunneling Si/Si_{1-x}Ge_x RTD Fabricated by New Sputter Epitaxy**
Short

- J. Kubota, A. Hashimoto and Y. Suda (Graduate School of Engineering, Tokyo University of Agriculture and Technology)

10:28 - 10:32 **Epitaxial Growth of In-situ Phosphorus-doped Si_{1-x}Ge_x by Cold-wall UHV/CVD**
Short

- I. Suzumura and K. Oda (Central Research Laboratory, Hitachi, Ltd.)

10:32 - 10:45 **Break [Poster Setting]**

10:45 - 12:30 **Session IV : Poster Session** (5F hallway)
(see the page " vii ")

12:30 - 14:00 **Lunch**

Session V : Regular Talks

14:00 - 14:20 **Study on junction formation in strained-Si MOSFETs**
Regular

- N. Sugii, J. Morioka¹, Y. Ishidoya¹, and T. Inada¹ (Central Research Laboratory, Hitachi, Ltd, ¹Graduate School of Engineering, Hosei University.)

14:20 - 14:40 **Alignment of Dislocations during the Ge Condensation of SiGe-On-Insulator Structures with a (110) Surface**
Regular

- N. Sugiyama¹, N.Hirashita¹, T. Mizuno², Y. Miyamura³, Y. Moriyama¹, E. Toyoda⁴, S. Nakaharai¹, T.Tezuka¹, K.Usuda¹ and S. Takagi^{2,5} (MIRAI –ASET¹, MIRAI-AIST², Komatsu Electronic Metal³, Toshiba Ceramics⁴,University of Tokyo⁵)

14:40 - 15:00 **Hetero-interface traps and hot carrier reliability of SiGe/Si heterostructure and low frequency noise in SiGe-channel pMOSFETs**
Regular

- T. Tsuchiya, M. Sakuraba^{*} and J. Murota^{*} (Interdisciplinary Faculty of Science and Engineering, Shimane University, ^{*}Research Institute of Electrical Communication, Tohoku University)

15:00 - 15:10 **Closing Session**

Poster

Poster Session (5F hallway)

10:45 - 12:30 Wednesday, October 13

- P-01 **Strain field fluctuation in Strained-Si/SiGe heterostructures** - K. Sawano¹, N. Usami², K. Arimoto³, S. Koh², K. Nakagawa³, and Y. Shiraki⁴ (¹Department of Applied Physics, The University of Tokyo, ²Institute for Material Research, Tohoku University, ³Center for Crystal Science and Technology, University of Yamanashi, ⁴Musashi Institute of Technology)
- P-02 **Fabrication of strained Ge channel structures with extremely high hole mobility** - T. Irisawa, K. Sawano, S. Koh, K. Nakagawa¹, Y. Shiraki² (Department of Applied Physics, The University of Tokyo, ¹Center for Crystal Science and Technology, University of Yamanashi, ²Musashi Institute of Technology)
- P-03 **Elastic Strain Distribution in Narrow Strained Si Channels** - K. Arimoto, D. Furukawa, J. Yamanaka, K. Nakagawa, K. Sawano¹, S. Koh², Y. Shiraki³, and N. Usami² (Center for Crystal Science and Technology, Univ. of Yamanashi, ¹Department of Applied Physics, The University of Tokyo, ²Institute for Materials Research, Tohoku Univ, ³Musashi Institute of Technology)
- P-04 **Formation of High-Quality Thin Strain-Relaxed SiGe Buffer Layers by Ion Implantation** - Y. Ozawa¹, K. Sawano², J. Yamanaka³, N. Usami⁴, K. Suzuki³, K. Arimoto³, S. Koh⁴, K. Nakagawa³, T. Hattori¹, and Y. Shiraki¹ (¹Musashi Institute of Technology, ²Department of Applied Physics, ³Center for Crystal Science and Technology, University of Yamanashi, ⁴Institute for Material Research, Tohoku University)
- P-05 **Fabrication of p-i-n Si_{0.5}Ge_{0.5} photodetectors on SiGe-on-Insulator Substrates** - S. Koh^[1,2], K. Sawano^[1], N. Usami^[2], J. Yamanaka^[3], K. Nakagawa^[3], K. Nakajima^[2], X. Huang^[2], S. Uda^[2], and Y. Shiraki^[1] (^[1]Department of Applied Physics, Univ. of Tokyo, ^[2]Institute for Materials Research, Tohoku Univ., ^[3]Center for Crystal Science and Technology, Univ. of Yamanashi)
- P-06 **Growth of SiGe bulk crystal with uniform composition** - N. Usami, Y. Azuma, K. Fujiwara, G. Sazaki and K. Nakajima (Institute for Materials Research (IMR), Tohoku University)
- P-07 **Autocatalytic-Reaction Model and Kinetic Monte-Carlo Simulation in Thin film growth dynamics** - H. Togashi, M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)
- P-08 **TPD and MIR-FTIR studies on Si_{1-y}C_y epitaxy using monomethylsilane** - A. Konno, T. Murata, M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)

Poster

- P-09 Effects of carbon predeposition using monomethylsilane on the formation of Ge nanodots at Si surfaces** - T. Murata, Y. Narita, M. Sakai and M. Suemitsu (Center for Interdisciplinary Research, Tohoku University)
- P-10 Scanning tunneling microscopy observation of C adsorption behavior in the initial growth of SiGeC on Si(001)** - Y. Wakazono¹, S. Takeuchi¹, O. Nakatsuka², A. Sakai¹, S. Zaima¹, M. Ogawa², and Y. Yasuda^{1†} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present affiliation: Research Institute of KUT, Kochi University of Technology)
- P-11 Evolution of surface morphology in the initial growth of Si_{1-x-y}Ge_xC_y layers** - S. Takeuchi¹, O. Nakatsuka², Y. Wakazono¹, A. Sakai¹, M. Ogawa², S. Zaima¹, and Y. Yasuda^{1†} (¹Dept. of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present: Research Institute of KUT, Kochi University of Technology)
- P-12 Anisotropic strain-relaxation mechanism in SiGe/Si(001) heterostructures with 60° misfit dislocations** - S. Mochizuki¹, T. Egawa^{1,†}, A. Sakai¹, N. Taoka¹, O. Nakatsuka², M. Ogawa², S. Zaima¹ and Y. Yasuda^{1,††} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, [†]Present affiliation: Sharp Corporation, ^{††}Present affiliation: Research Institute of KUT, Kochi University of Technology)
- P-13 Analysis of microstructures in strain-relaxed SiGe buffer layers on SOI substrates with pure-edge dislocation networks** - N. Taoka¹, A. Sakai¹, S. Mochizuki¹, O. Nakatsuka², S. Zaima¹, M. Ogawa², Y. Yasuda¹, T. Tezuka³, N. Sugiyama³ and S. Takagi³ (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, ³MIRAI Project, Association of Super-Advanced Electronics Technology)
- P-14 Control of initial growth of epitaxial NiSi₂ on Si(001) with C incorporation** - O. Nakatsuka⁽¹⁾, E. Okada⁽²⁾, D. Ito⁽²⁾, A. Sakai⁽²⁾, S. Zaima⁽²⁾, M. Ogawa⁽¹⁾, and Y. Yasuda⁽²⁾ (⁽¹⁾ EcoTopia Science Institute, Nagoya University, ⁽²⁾ Dept. of Crystalline Materials Science, Graduate School of Engineering, Nagoya University)
- P-15 Improvement in the Ni silicide/Si contact properties by C implantation** - K. Okubo¹, O. Nakatsuka², A. Sakai¹, M. Ogawa², S. Zaima¹, J. Murota³, and Y. Yasuda^{1*} (¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, ²EcoTopia Science Institute, Nagoya University, ³Research Institute of Electrical Communication, Tohoku University, ^{*}Present affiliation: Research Institute of KUT, Kochi University of Technology)
- P-16 Sputter Growth SiGe Films - Epitaxy, Strain and Thermoelectric Properties** - K. Sasaki and T. Hata (Graduate School of Science & Technology, Kanazawa University)

Poster

- P-17 **Ultraclean Hot-Wall LPCVD Epi System Application for Strained-Si on Insulator Substrates** - Y. Kunii, Y. Hashiba, A. Moriya, Y. Inokuchi, and H. Kurokawa (Hitachi Kokusai Electric Inc.)
- P-18 **Etching Characteristics of B-Doped $\text{Si}_{1-x}\text{Ge}_x$ Epitaxial Films Using Electron-Cyclotron-Resonance Chlorine Plasma** - H. Cho, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-19 **Sidewall Protection by Nitrogen in Anisotropic Etching of P-Doped Poly- $\text{Si}_{1-x}\text{Ge}_x$ Using $\text{Cl}_2/\text{N}_2/\text{SiCl}_4$ Plasma** - H. Cho, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-20 **Electrical Properties of Impurity-doped Polycrystalline $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$ Film Deposited on SiO_2 by Ultraclean LPCVD** - H. Shim, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-21 **Light Emission and Photo Detection Using Si p-i-n Diodes Integrated with Optical Waveguides** - A. Yamada, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-22 **Epitaxial Growth of Strained Ge Film on Si(100) by ECR Plasma CVD Using GeH_4 Gas** - K. Sugawara, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-23 **Thermal Stability of Si/ $\text{Si}_{1-x}\text{Ge}_x$ /Si Heterointerface with C Atomic Order Doping Using Ultraclean LPCVD** - K. Takahashi, T. Kobayashi, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-24 **Epitaxial Growth and Electrical Properties of W Delta Doped Si Films on Si(100) by Ultraclean LPCVD** - T. Komatsu, T. Kurosawa, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-25 **Epitaxial Growth and Electrical Properties of N Atomic Layer Doped Si Films on Si(100) by Ultraclean LPCVD** - Y. Jeong, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-26 **Epitaxial Growth of N Delta Doped Si Films on Si(100) by ECR Plasma CVD Using N_2 and SiH_4** - M. Mori, T. Seino, D. Muto, M. Sakuraba and J. Murota (Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University)
- P-27 **High Performance Strained SiGe Channel pMOSFETs with Selective CVD B-Doped SiGe Source/Drain Electrode** - S. Takehiro^a, D. Lee^a, M. Sakuraba^a, J. Murota^a and T. Tsuchiya^b (^aLaboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, ^bInterdisciplinary Faculty of Science and Engineering, Shimane University)

Poster

- P-28 **Ultra shallow Junction with Elevated SiGe Source/ Drain Formed by Laser Induced Atomic Layer Doping** - J.C. Bea, K.W. Koh, H.J. Oh, H. Choi, M.G. Lee, T. Tanabe, T. Hirose, K.T. Park, H. Kurino, and M. Koyanagi (Dept. of Bioengineering and Robotics, Tohoku University)
- P-29 **Nickel Silicide Formation of SiGe selectively epitaxial growth layer on Silicon-on-Insulator** - T. Sakaguchi, H.J. Oh, H. Choi, J.C. Bea, J.C. Shim, T. Fukushima, H. Kurino and M. Koyanagi (Department of Bioengineering and Robotics, Tohoku University)
- P-30 **Novel SOI MOSFETs with Buried Back Gate Control** - H. Choi, H.J. Oh, T. Sakaguchi, M. Park, J.C. Bea, T. Fukushima, H. Kurino, and M. Koyanagi (Dept. of Bioengineering and Robotics, Tohoku University)
- P-31 **Ni-Mediated Crystal Growth in Ge/Si/SiO₂ Heterostructures** - H. Kanno, T. Sadoh, and M. Miyao (Department of Electronics, Kyushu University)
- P-32 **Annealing Characteristics of Poly-SiGe(B) on Insulating Film** - I. Tsunoda, T. Sadoh, and M. Miyao (Department of Electronics, Kyushu University)
- P-33 **Novel SOI Fabrication Process Utilizing the Selective Etching for Si/SiGe Stacked Layers: Separation by Bonding Si Islands Technology (SBSI)** - S. Ohmi, H. Ohri, T. Yamazaki, M. Sakuraba*, J. Murota* and T. Sakai (Dept. of Information Processing, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, *Research Institute of Electrical Communication, Tohoku University)
- P-34 **A Study on Selective Etching of SiGe Layers and Electrical Characteristics of MOS Diodes Formed after Selective Etching in SBSI Process** - H. Ohri, T. Yamazaki, S. Ohmi, and T. Sakai (Dept. of Information Processing, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology)
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