International Conference Hall I

**Saturday Afternoon, July 29**

**12:10 Opening Session (12:10-14:00)**

<table>
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<tr>
<th>Time</th>
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<tr>
<td>12:10-12:20</td>
<td>Opening Session</td>
<td>Opening address</td>
</tr>
</tbody>
</table>
| 12:20-13:00 | A-1 Keynote Lecture | Silicides and Related-Materials for ULSI Applications  
S. Zaima, A. Sakai and M. Ogawa (Nagoya University) |
| 13:00-13:30 | A-2 Invited | Addressing materials and integration issues for silicide contact metallization in nano-scale CMOS devices  
| 13:30-13:50 | A-3 Invited | Dislocation engineered light emitting devices  
K. P. Homewood (University of Surrey) |
| 13:50-14:10 | A-4 Invited | Semiconducting β-FeSi₂ towards Optoelectronics and Photonics  
Y. Maeda (Professional Group on Semiconducting Silicides and Related Materials, The Japan Society of Applied Physics, Kyoto University) |

**Coffee Break (14:10-14:20)**
14:20 Semiconducting FeSi₂: Light emission and Interface Control I (14:20-15:50)

14:20-14:50 B-1 Invited Structures and Light Emission Properties of Nanocrystalline FeSi₂/Si Formed by Ion Beam Synthesis with a MEVVA Ion Source
S.P. Wong, C.F. Chow, Judith Roller, Y.T. Chong, Q. Li, M.A. Lourenco and K.P. Homewood (The Chinese University of Hong Kong, University of Surrey, University of Karlsruhe)

14:50-15:10 B-2 Nondestructive Investigation of β-FeSi₂/Si Interface by Photoluminescence Measurements
Y. Terai, Y. Maeda, Y. Fujiwara (Osaka University, Kyoto University)

15:10-15:30 B-3 Photoluminescence enhancement by isolating β-FeSi₂ layer from defective layer
Y. Ando, A. Imai, K. Akiyama, Y. Terai and Y. Maeda (Kyoto University, Japan, Kanagawa Industrial Technology Research Institute, Osaka University)

15:30-15:50 B-4 Investigation of current injection in β-FeSi₂/Si double-heterostructures light-emitting diodes by molecular beam epitaxy
Y. Ugaixin, T. Sunohara and T. Suemasu (University of Tsukuba)

Coffee Break (15:50-16:10)

16:10 Semiconducting FeSi₂: Light emission and Interface Control II (16:10-18:00)

16:10-16:40 B-5 Invited Nanoscale Iron Disilicides
L. J. Chen, S.Y. Chen and H.C. Chen (National Tsing Hua University)

16:40-17:00 B-6 Epitaxial orientation and morphology of β-FeSi₂ produced on a flat and a patterned Si(001) substrates
M. Itakura, N. Kishikawa, R. Kawashita and N. Kuwano (Kyushu University)

17:00-17:20 B-7 Control of β-FeSi₂/Si Interface Structure by Cu Layer
K. Akiyama, M. Itakura, S. Kaneko, H. Funakubo and Y. Maeda (Kanagawa Industrial Technology Research Institute, Kyushu University, Tokyo Institute of Technology, Kyoto University)

17:20-17:40 B-8 Effect of Oblique Angle Deposition on Early Stage of Fe-Si Growth
H. Harada, S. Jomori, M. Suzuki, K. Nakajima and K. Kimura (Kyoto University)

17:40-18:00 B-9 Carrier control of β-FeSi₂ by 1.2 MeV-Au⁺⁺ ion implantation
T. Jonishi, T. Saiki, Y. Ando, A. Imai, and Y. Maeda (Kyoto University)
**Sunday Morning, July 30**

**9:30 Exotic Silicides : New Materials and Nanostructure I (9:30-10:50)**

9:30-10:00  C-1  Invited  Approaches to growth and study of properties of multilayer silicon — silicide heterostructures with buried semiconductor silicide nanocrystallites  N.G. Galkin (Institute for Automation and Control Processes Far Eastern Branch of Russian Academy of Sciences)

10:00-10:30  C-2  Invited  Interconnect and Contact for Nanoelectronics: Metallic TaSi2 Nanowires  L. J. Chou, Y. L. Chueh and M. T. Ko (National Tsing Hua University)

10:30-10:50  C-3  Crystallization of β-FeSi2 Droplets on Silicon Substrates by Room Temperature Pulsed Laser Deposition  M. Ashitomi, T. Shishido, M. Kishi, H. Sugawara, R. Katouf, and M. Tsuchiya (Tokyo Metropolitan University, University of Tokyo, National Institute of Information and Communications Technology)

**Coffee Break (10:50-11:10)**

**11:10 Exotic Silicides : New Materials and Nanostructure II (11:10-12:30)**

11:10-11:30  C-4  Temperature dependence of adsorption and silicidation kinetics at the Mg/Si(111)  K.N. Galkin, Mahesh Kumar, Govind, S.M. Shiva Prasad, V.V. Korobtsov, N.G. Galkin (Institute for Automation and Control Processes Far Eastern Branch of Russian Academy of Sciences, National Physical Laboratory India)

11:30-11:50  C-5  Effect of Sr addition on the crystallinity and optical absorption edges in ternary semiconducting silicide Ba1-xSrxSi2  K. Morita, M. Kobayashi and T. Suemasu (University of Tsukuba)

11:50-12:10  C-6  Consideration on the band-gap tunability of BaSi2 by alloying with Ca or Sr based on the electronic structure calculations  Y. Imai and A. Watanabe (National Institute of Advanced Industrial Science and Technology)

12:10-12:30  C-7  Preparation and electrical property of Ca5Si3 and Sr5Si3 powders  T. Inaba, A. Kato, K. Miura, Y. Momose and H. Tatsuoka (Shizuoka University, FDK Corporation)

**Lunch (12:30-13:30)**
### Sunday Afternoon, July 30

**13:30 Bulk crystals : Growth and Characterizations (13:30-16:00)**

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<tr>
<td>13:30-14:00</td>
<td>D-1</td>
<td>Invited Thermoelectric Prospects of Semiconducting Silicides</td>
<td>A. B. Filonov, V. L. Shaposhnikov, L. I. Ivanenko, V. E. Borisenko (Belarusian State University of Informatics and Radioelectronics)</td>
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<tr>
<td>14:00-14:20</td>
<td>D-2</td>
<td>Growth of Plate-type $\beta$-FeSi$_2$ Single Crystals by Optimization of Composition Ratio of Source Materials</td>
<td>Y. Hara, M. Tobita, S. Ohuchi and K. Nakaoka (Ibaraki National College of Technology)</td>
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<tr>
<td>14:20-14:40</td>
<td>D-3</td>
<td>Single crystalline $\beta$-FeSi$_2$ grown using high purity FeSi$_2$ source</td>
<td>K. Gotoh, H. Suzuki, H. Udono, I. Kikuma, M. Uchikoshi and M. Isshiki (Ibaraki University, Tohoku University)</td>
</tr>
<tr>
<td>14:40-15:00</td>
<td>D-4</td>
<td>Growth of bulk $\beta$-FeSi$_2$ by peritectoid reaction of faceted $\varepsilon$-FeSi and $\alpha$-Fe$_2$Si$_3$ single crystals</td>
<td>Y. Terai, A. Mishina, I. Yamauchi and Y. Fujiwara (Osaka University)</td>
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<tr>
<td>15:00-15:20</td>
<td>D-5</td>
<td>Preparation of $\beta$-FeSi$_2$ Substrates by Molten Salt Method</td>
<td>M. Okubo, T. Ohishi, A. Mishina, I. Yamauchi, H. Udono, T. Suemasu, T. Matsuyama and H. Tatsuoka (Shizuoka University, Osaka University, Ibaraki University, University of Tsukuba, Pulstec Industrial Co., Ltd.)</td>
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<tr>
<td>15:20-15:40</td>
<td>D-6</td>
<td>Mössbauer Spectroscopy on single crystals of $\alpha$-Si$_2$Fe and $\beta$-Si$_2$Fe</td>
<td>S. Nishino, K. Suzuki, H. Udono, and Y. Yoshida (Shizuoka Institute of Science and Technology, Ibaraki University)</td>
</tr>
<tr>
<td>15:40-16:00</td>
<td>D-7</td>
<td>Melt growth and characterization of Mg$_2$Si bulk crystals</td>
<td>D. Tamura, R. Nagai, K. Sugimoto, H. Udono, I. Kikuma and H. Tajima (Ibaraki Univ., Univ. of Tokyo)</td>
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**16:00 Poster Session (Hall III) (16:00-18:30)**

### Monday Morning, July 31

**9:30 Ferromagnetic Silicides: Epitaxial Growth and Properties (9:30-10:30)**

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<th>Time</th>
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<tbody>
<tr>
<td>9:30-9:50</td>
<td>E-1</td>
<td>Influence of Substrate Orientation on Low-Temperature Epitaxial Growth of Ferromagnetic Silicide Fe₅Si on Si</td>
<td>K. Ueda, R. Kizuka, H. Takeuchi, A. Kenjo, T. Sadoh, and M. Miyao (Kyushu University)</td>
</tr>
<tr>
<td>9:50-10:10</td>
<td>E-2</td>
<td>Epitaxial growth of Fe₅Si/CaF₂/Fe₅Si magnetic tunnel junction structures on CaF₂/Si(111) by molecular beam epitaxy</td>
<td>K. Kobayashi, T. Suemasu, N. Kuwano, D. Hara and H. Akinaga (University of Tsukuba, Kyushu University, National Institute of Advanced Industrial Science and Technology)</td>
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<tr>
<td>10:10-10:30</td>
<td>E-3</td>
<td>Magnetic properties of ferromagnetic Fe₅Si / semiconducting nanocrystalline FeSi₀ superlattices</td>
<td>K. Takeda, T. Yoshitake, T. Ogawa, D. Nakagauchi, D. Hara, M. Itakura, N. Kuwano, Y. Tomokiyo, T. Kajiwara and K. Nagayama (Fukuoka Inst. of Tech., Kyushu Univ.)</td>
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**Coffee Break (10:30-10:50)**


<table>
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<tr>
<td>10:50-11:10</td>
<td>F-1</td>
<td>Computation of photonic band structures and light propagation in β-FeSi₂ photonic crystals</td>
<td>S. Kunimatsu, A. Imai, Y. Ando and Y. Maeda (Kyoto University)</td>
</tr>
<tr>
<td>11:10-11:30</td>
<td>F-2</td>
<td>Submicron dry-etching behavior of β-FeSi₂ thin films towards fabrication of photonic crystals</td>
<td>A. Imai, S. Kunimatsu, K. Akiyama, Y. Terai and Y. Maeda (Kyoto University, Kanagawa Industrial Technology Research Institute, Osaka University)</td>
</tr>
<tr>
<td>11:30-11:50</td>
<td>F-3</td>
<td>Reactive Ion Etching of β-FeSi₂ film in Inductively Coupled Plasma</td>
<td>T. Wakayama, T. Suemasu, T. Kanazawa and H. Akinaga (National Institute of Advanced Industrial Science and Technology, University of Tsukuba)</td>
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</table>

**11:50 Closing Session (11:50-12:00)**
International Conference Hall III

Sunday Afternoon, July 30

Poster Session (16:00-18:30)

P-1 Growth Evolution of Iron Silicide Layers on Si Substrates Using FeCl₂ Source
M. Nishiura, Y. Momose, T. Matsuyama and H. Tatsuoka (Shizuoka University, Pulstec Industrial Co., Ltd.)

P-2 Two-step annealing dependent of β-FeSi₂ thin-films grown by electron beam deposition
Y. Hosokawa, K. Monma, H. Takada, S. Uekesa (Meiji University)

P-3 Diffusion of the Atoms on Fe and Si In Laser—Ablated β—FeSi₂ Thin-Films
M. Z. Hossain, K. Aoki, T. Fukuda, N. Miuara and S. Uekusa (Meiji University)

P-4 Structural evolution upon post-annealing of multi-layer Si/Fe-Si thin films prepared by magnetron sputtering
X. Lia, B. Hu, C. DONG (Dalian University of Technology)

P-5 Growth of β-FeSi₂ thin film on β-FeSi₂ (110) substrate by MBE

P-6 Sub-surface Structures at Initial Stage of FeSi₂ Growth Studied by High Resolution Rutherford Backscattering Spectroscopy
M. Suzuki, K. Kinoshita, S. Jomori, M. Harada, K. Nakajima and K. Kimura (Kyoto University)

P-7 Formation of iron silicide islands at the Si(111)7x7 and Si(111)√3x√3 R30˚-B surfaces
M. Ivanchenko, E. Borisenko, V. Kotlyar, O. Utas, A. Zotov and A. Saranin (Institute for Automation and Control Processes Far Eastern Branch of Russian Academy of Sciences)

P-8 Structural Property of β-FeSi₂ Layers Deposited on FeSi from a Molten Salt
T. Ohishi, M. Okubo, A. Mishina, I. Yamauchi, T. Matsuyama and H. Tatsuoka (Shizuoka University, Osaka University, Pulstec Industrial Co., Ltd.)

P-9 Interface Structure of IBSD-β-FeSi₂ Thin Film Fabricated on Si and Silicon-on-Insulator Substrates
P-10 Growth and Structural Properties of $\beta$-FeSi$_2$ layers on Glass Substrates

P-11 Facing Target Sputtered Iron-silicide Thin Film
K. Takarabe, T. Kittaka, R. Hakamata, K. Tabuchi, S. Nakamura, T. Aoki and S. Kunitsugu (Okayama University of Science, Tsuyama National College of Technology, Industrial Technology Center of Okayama Prefecture)

P-12 Toward the $\beta$-FeSi$_2$ p-n Homo-junction Structure
N. Momose, J. Shirai, H. Tahara, Y. Todoroki, T. Hara and Y. Hashimoto (Shinshu University, Nagano National College of Technology)

P-13 In-situ observation of the formation process of $\beta$-Si$_2$Fe by Mössbauer Spectroscopy
Y. Yoshida, S. Ogawa and K. Arikawa (Shizuoka Institute of Science and Technology)

P-14 Silicon molecular beam epitaxy on silicon layers implanted by Fe$^+$ ions: structure, morphology and optical properties

P-15 Optical properties of amorphous Iron Disilicide fabricated by Ion Beam Assisted Deposition Sputtering
Lewis Wong, M. Milosavljevi, R. Gwilliam, R. Valizadeh, J. Colligon and K.P. Homewood (University of Surrey, Institute of Nuclear Sciences, Manchester Metropolitan University)

P-16 Photoluminescence Characteristics of $\beta$-FeSi$_2$ Films on SOI Substrate
K. Shimura, A. Zhuravlev, H. Yamamoto, K. Yamaguchi, S. Shamoto, K. Hojou, T. Terai (The University of Tokyo, Japan Atomic Energy Agency)

P-17 Photoluminescence Characterization of $\beta$-FeSi$_2$ Prepared by Ion Beam Sputter Deposition (IBSD) Method
P-18 Optical constants of beta-FeSi$_2$ thin film on Si substrate obtained by simultaneous equations from reflection and transmission spectra

H. Kakemoto, T. Higuchi, H. Shibata, S. Wada and T. Tsurumi
(Tokyo Institute of Technology, Tokyo University of Science, National Institute of Advanced Industrial Science and Technology)

P-19 Optical properties of $\beta$-FeSi$_2$ nanodots synthesised onto Si substrate: changes with annealing conditions

N. Dmitruk, S. Mamykin, O. Kondratenko, L. Dozsa, G. Molnar
(Institute of Semiconductor Physics of NAS of Ukraine, Research Institute for Technical Physics and Material Science)

P-20 Optical Properties of $\beta$-FeSi$_2$ and Its Surface Reconstruction

S.A. Dotsenko, N.G. Galkin and L.V. Koval (Institute for Automation and Control Processes Far Eastern Branch of Russian Academy of Sciences, Far Eastern State University)

P-21 Electrical Conduction on Ion Beam Synthesized $\beta$-FeSi$_2$ thin films.

R. Sathyamoorthy, S. Senthilarasu (Kongunadu Arts and Science College)

P-22 Surface Characterizations on $\beta$-FeSi$_2$ Thin Films Formed by Swift Heavy Ion Beam Irradiation

R. Sathyamoorthy, S. Senthilarasu, S. Balakumar (Kongunadu Arts and Science College, Institute of Microelectronics)

P-23 Photovoltaic properties of p-type Si / n-type $\beta$-FeSi$_2$ hetero-junction

Shaban. A. R. A. Mahmoud, K. Nakashima, W. Yokoyama, and T. Yoshitake (Kyushu University)

P-24 The Direct Influence of Fe 3d orbitals on EFG of $\beta$-FeSi$_2$

S. Kondo, M. Hasaka and T. Morimura (Nagasaki University)

P-25 Solid phase growth and properties of Mg$_2$Si films on Si(111)


P-26 Optical properties, phonon and electron structure of Si(111)/NC Mg$_2$Si/Si multilayer heterostructures

P-27 Thermoelectric properties of acceptor impurity incorporated Mg$_2$Si grown by the vertical Bridgman method

P-28 Manifestation of Spin-Orbit Effects in Si/Si$_{0.87}$Ge$_{0.13}$ p-type Heterostructure
I.B. Berkutov, Y.F. Komnik, V.V. Andrievskii, O.A. Mironov, M. Myronov, D.R. Leadley (Institute for Low Temperature Physics and Engineering of NAS of Ukraine, Kyushu University, National Nanotechnology Center, NSTDA, Musashi Institute of Technology, University of Warwick)

P-29 Investigation of the Quantum Oscillations in High Mobility SiGe/Ge/SiGe p-type Quantum Well
I.B. Berkutov, Y.F. Komnik, V.V. Andrievskii, D.R. Leadley, O.A. Mironov (B.I. Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, University of Warwick, National Nanotechnology Center, NSTDA)

P-30 Composition dependent thermoelectric properties of sintered Mg$_2$Si$_{1-x}$Ge$_x$ (x= 0 to 1) initiated from melt-grown polycrystalline source
M. Akasaka, T. Iida, K. Nishio and Y. Takanashi (Tokyo University of Science, Japan Society for the Promotion of Science Research Fellow)

P-31 Structural and Thermoelectric Properties of Mg$_2$Si$_{0.6}$Ge$_{0.4}$ Processed by Spark Plasma Sintering Method
Y. Mizuyoshi, M. Akasaka, T. Iida, T. Matsuyama and H. Tatsuoka (Shizuoka University, Tokyo University of Science, Pulstec Industrial Co., Ltd.)

P-32 Pressure Effect on the Electrical Resistance of SrSi$_2$
M. Imai, T. Naka and H. Abe (National Institute for Materials Science, Tohoku University)

P-33 Growth and characterization of group-III impurity-doped semiconducting BaSi$_2$ films grown by molecular beam epitaxy
M. KOBAYASHI, K. MORITA and T. SUEMASU (University of Tsukuba)

P-34 Growth of MnSi$_{1.7}$ Layers on Si Substrates in MnCl$_2$ Vapor
T. Kurokawa, T. Matsuyama and H. Tatsuoka (Shizuoka University, Pulstec Industrial Co., Ltd.)
P-35  CrSi$_2$ nanoisland formation on Si(111) and Si(111)/QD CrSi$_2$/Si heterostructure growth and properties

P-36  Chemical Vapor Deposition of NiSi using Ni(PF$_3$)$_4$ and Si$_3$H$_8$
M. Ishikawa, I. Muramoto, H. Machida, S. Imai, Y. Ohshita and A, Ogura (Tri Chemical laboratories Inc., Meiji University, Toyota Technological Institute)

P-37  Synthesis of SiO$_x$ Nano-Fibers using FeSi and $\beta$-FeSi$_2$ Substrates with Ga Droplets
T. Inaba, Y. Saito, H. Kominami, Y. Nakanishi, K. Murakami, T. Matsuyama and H. Tatsuoka (Shizuoka University, Pulstec Industrial Co., Ltd.)

P-38  Synthesis and Characterization of TiO$_2$ films supported on AZ31 Mg alloy
J. Hu, S. Guan, C. Ren, C. Wen (Zhengzhou University)

P-39  Amorphous Carbon Thin Films Synthesis using CH$_4$ and C$_2$H$_2$ as Plasma Source
H. R. Aryal, S. Adhikari, S. Adhikary, H. Uchida, M. Umeno (Chubu University, Tribhuvan University)

P-40  Thin Film deposition of Amorphous Carbon Nitrided by Surface-wave Mode Microwave Plasma CVD
S. Adhikari, H. R. Aryal, D. C. Ghimire, S. Adhikary, H. Uchida, M. Umeno (Chubu University, Tribhuvan University)

P-41  Structural evolution of thermally evaporated silicon on a Cu(111) surface
A.B. Yang, J.S. Tsay, C.N. Wu, and F.S. Shiu (Tunghai University, National Taiwan Normal University)

P-42  The behavior of Co atoms on Si(111)-7×7 surfaces at low temperatures
T.Y. Fu, C.Y. Kuo and S.L. Tsay (National Taiwan Normal University)

P-43  Optical-beam profiling by bias-controlled metal-semiconductor-metal structures
S. Khunkhao, S. Niemcharoen, K. Kitagawa, K. Sato (Sripatum University, King Mongkut's Institute of Technology, Tokai University)

P-44  Fabrication of photonic crystals in several kinds semiconductor materials by using focus-ion-beam method