

International 21st Century COE Symposium on Atomistic Fabrication Technology 2007

October 15-17, 2007
Icho-Kaikan, Osaka University, Japan

Monday, October 15, 2007

9:00 AM Opening Remarks K. Endo *Osaka University*

Session 1: Electronic Materials and Thin Films

Chairperson H. Kakiuchi (Osaka Univ.)

- 9:10 AM 1.1 *Invited* – Plasma-bullets, Plasma-labels, and Piezo-plasmas: Paving the Way for Advanced Plasma Engineering J. Engemann *University of Wuppertal*
- 9:50 AM 1.2 *Invited* – Organic Catalytic CVD of a New Types of Insulators, SiOC and SiCN, for Nano-electronics H. Nakayama *Material Design Factory Co., Ltd., Osaka City University*
- 10:20 AM 1.3 *Invited* – Thin Film Nanocrystalline Silicon and Nanostructured Interfaces for Multibandgap Triple Junction Solar Cells R. E. I. Schropp, H. Li, J. K. Rath, and C. H. M. van der Werf *Utrecht University*
- 11:00 AM break
- Chairperson T. Shimura (Osaka Univ.)
- 11:15 AM 1.4 Low-temperature Oxidation of Crystalline and Hydrogenated Amorphous Si Using Very High Frequency Plasma at Atmospheric Pressure H. Kakiuchi, H. Ohmi, M. Harada, H. Watanabe, and K. Yasutake *Osaka University*
- 11:35 AM 1.5 Atmospheric-pressure Plasma Enhanced Chemical Transport as Earth-conscious Manufacturing Technology H. Ohmi, H. Kakiuchi, and K. Yasutake *Osaka University*
- 11:55 AM 1.6 Thermal Stability of Pure Ge₃N₄ Dielectric Layers Formed by High-density Plasma Nitridation K. Kutsuki, G. Okamoto, T. Hosoi, T. Shimura, and H. Watanabe *Osaka University*

12:15 AM 1.7 Proposal of AlON/SiO₂ Layered Gate Dielectric for SiC MOS Devices M. Harada, Y. Watanabe, T. Hosoi, T. Shimura, and H. Watanabe *Osaka University*

12:35 PM Lunch

Session 2: Advanced Machining Technology and Its Application (1)

Chairperson K. Yamamura (Osaka Univ.)

1:40 PM 2.1 *Invited* – Application of Phase Retrieval to Optical Surface and Wavefront Metrology G. R. Brady and J. R. Fienup *University of Rochester*

2:20 PM 2.2 Experimental Determination of the Wave Field of X-ray Nanobeam H. Mimura¹, H. Yumoto^{1,3}, S. Matsuyama¹, S. Handa¹, T. Kimura¹, Y. Sano¹, K. Tamasaku², Y. Nishino², M. Yabashi³, T. Ishikawa², and K. Yamauchi¹ ¹ *Osaka University*,
² *SPring-8/RIKEN*,
³ *SPring-8/JASRI*

2:40 PM 2.3 Highly Accurate Differential Deposition for Hard X-ray Reflective Optics S. Handa¹, H. Mimura¹, H. Yumoto^{1,3}, T. Kimura¹, S. Matsuyama¹, Y. Sano¹, K. Tamasaku², Y. Nishino², M. Yabashi³, T. Ishikawa², and K. Yamauchi¹ ¹ *Osaka University*,
² *SPring-8/RIKEN*,
³ *SPring-8/JASRI*

3:00 PM 2.4 Numerical Reconstruction of Wavefront in Phase-shifting Point Diffraction Interferometer by Digital Holography T. Matsuura, Y. Oshikane, H. Inoue, M. Nakano, and T. Kataoka *Osaka University*

3:20 PM break

Chairperson H. Ohmi (Osaka Univ.)

3:35 PM 2.5 *Invited* – Future Technologies of Nano-precision Mechanical Manufacturing T. Kuriyagawa *Tohoku University*

4:05 PM	2.6	Processing Efficiency of Elastic Emission Machining for Low-thermal-expansion Material	M. Kanaoka ^{1,2} , C. Liu ¹ , K. Nomura ¹ , M. Ando ¹ , H. Takino ¹ , Y. Fukuda ¹ , Y. Mori ² , H. Mimura ² , and K. Yamauchi ²	¹ EUVA, ² Osaka University
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4:25 PM

| **Poster Session**

6:25 PM

Tuesday, October 16, 2007

Session 3: Advanced Machining Technology and Its Application (2)

Chairperson Y. Sano (Osaka Univ.)

9:00 AM	3.1	<i>Invited</i> – Ultra-precision Surface Finishing by Ion Beam and Plasma Jet Techniques	A. Schindler, T. Hänsel, F. Frost, T. Arnold, G. Böhm, and W. Frank	<i>Leibniz-Institute of Surface Modification</i>
9:40 AM	3.2	<i>Invited</i> – Autonomously Controlled Fabrication Processing in Low-pressure and Atmospheric-pressure Plasmas with Radical Diagnostics	M. Hori	<i>Nagoya University</i>
10:10 AM	3.3	Local Wet Etching for Figuring the Ultraprecision Optics	K. Yamamura	<i>Osaka University</i>

10:30 AM break

Chairperson H. Mimura (Osaka Univ.)

10:45 AM	3.4	Ultra-precision Finishing of SOI wafer by Numerically Controlled Sacrificial Oxidation Using Atmospheric Pressure Plasma	Y. Sano, T. Masuda, H. Mimura, and K. Yamauchi	<i>Osaka University</i>
11:05 AM	3.5	Development of Planarization Equipment Using Catalyst Referred Etching	K. Yagi, Y. Sano, H. Hara, J. Murata, K. Arima, T. Okamoto, H. Mimura, and K. Yamauchi	<i>Osaka University</i>

11:25 AM 3.6 Planarization Mechanism of Catalyst-referred Etching H. Hara, Y. Sano, T. Okamoto, K. Arima, K. Yagi, J. Murata, H. Mimura, and K. Yamauchi *Osaka University*

11:45 AM Lunch

Session 4: Semiconductor Processing Science and Future Electronic Devices

Chairperson H. Watanabe (Osaka Univ.)

12:45 PM 4.1 *Invited* – Physics of Metal/High-k Gate Stacks for Advanced MOSFETs E. Cartier *IBM*

1:25 PM 4.2 *Invited* – Advanced Silicon Based Heterostructure Technologies for Future Devices M. Miyao *Kyushu University*

1:55 PM 4.3 *Invited* – The Present Status of Amorphous Oxide Semiconductors: Carrier Transport, Electronic Structure, and Device Applications T. Kamiya¹, K. Nomura², and H. Hosono³ *Tokyo Insutitute of Technology*

2:25 PM 4.4 Systematic Study on Interface Dipole of Metal/High-k Gate Stacks Y.Kita¹, S. Yoshida¹, T. Hosoi¹, T. Shimura¹, H. Watanabe¹, K. Shiraishi², Y. Nara³, and K. Yamada⁴ *¹ Osaka University, ² University of Tsukuba, ³ Selete, ⁴ Waseda University*

2:45 PM break

Chairperson N. Zettsu (Osaka Univ.)

3:00 PM 4.5 *Invited* – Organic Functionalization of Silicon Surfaces: Methods, Properties and Applications P. Allongue, D. Aureau, C. Henry de Villeneuve, A. –C. Gouget-Laemmel, F. Ozanam, and J. –N. Chazalviel *Ecole Polytechnique*

3:40 PM 4.6 *Invited* – Detection of DNA Molecules in Micro Fluidic Channels by Infrared Absorption Spectroscopy M. Niwano *Tohoku University*

4:10 PM	4.7	Development of Wet-chemical Procedures to Control Emerging Semiconductor Surfaces on the Atomic Scale	K. Arima and M. Morita	<i>Osaka University</i>
4:30 PM		break		
		Chairperson K. Arima (Osaka Univ.)		
4:45 PM	4.8	<i>Invited</i> – Electrical Conduction in Molecularly-ordered Aggregates – Ionic to Three-dimensional Electronic Conduction in Liquid Crystals –	J.Hanna ^{1,2} , H. Iino ^{1,2} , A. Ohno ^{1,2} , and H. Ahn ^{1,2}	¹ <i>Tokyo Institute of Technology</i> , ² <i>JST-CREST</i>
5:15 PM	4.9	Synthesis of PS@Au Core-shell Nanoparticles Arrays with Tunable Surface Plasmonic Properties, and Their Use as Substrates for NIR-LSPR Sensors	N. Zettsu, S. Uchida, K. Yamamura, and K. Endo	<i>Osaka University</i>
5:35 PM	4.10	Metal-insulator-gap-insulator-semiconductor Device for Biosensors	T. Hirokane, H. Hashimoto, D. Kanzaki, S. Urabe, K. Arima, J. Uchikoshi, and M. Morita	<i>Osaka University</i>
6:00 PM				
		Banquet (Minerva, Icho-Kaikan)		
8:00 PM				

Wednesday, October 17, 2007

Session 5: Computational Materials Modeling and Methodological Advances

Chairperson H. Goto (Osaka Univ.)

8:30 AM	5.1	<i>Invited</i> – Developing a Surface Atomic Scale Technology for Interconnecting a Molecular Gate to N Metallic Electrodes	C. Joachim	<i>CEMES-CNRS</i>
9:10 AM	5.2	<i>Invited</i> – Atomistic Theory of Quantum Transport in Nanoscale Systems	N. Kobayashi ^{1,2} , H. Ishii ^{3,1} , T. Ozaki ^{4,2} , and K. Hirose ^{5,2}	¹ <i>University of Tsukuba</i> , ² <i>JST-CREST</i> , ³ <i>AIST-RICS</i> , ⁴ <i>JAIST</i> , ⁵ <i>NEC</i>

9:40 AM	5.3	Dielectric and Electron-conduction Properties of Silicon Oxide Films Stacked on Silicon Substrate	T. Ono and K. Hirose	<i>Osaka University</i>
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10:00 AM break

Chairperson T. Ono (Osaka Univ.)

10:15 AM	5.4	<i>Invited</i> – All Electron Calculations of Electronic Transport: Applications to Magnetic Tunnel Junctions	D. Wortmann ¹ , J. Enkovaara ^{1,2} , H. Ishida ³ , and S. Blügel ¹	¹ <i>Research Center Jülich,</i> ² <i>CSC Scientific Computing,</i> ³ <i>Nihon University</i>
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10:55 AM	5.5	<i>Invited</i> – First-Principles Calculations on P-doped Si Monatomic Chains	S. Tsukamoto ^{1,2} , T. Nakayama ^{1,2,3} , and M. Aono ^{1,2}	¹ <i>JST-ICORP,</i> ² <i>NIMS,</i> ³ <i>University of Tsukuba</i>
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11:25 AM	5.6	First-principles Analysis of Low-temperature Growth of Epitaxial Silicon Films by Atmospheric Pressure Plasma Chemical Vapor Deposition – Surface Local Temperature –	K. Inagaki, S. Takeya, K. Hirose, and K. Yasutake	<i>Osaka University</i>
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11:45 AM Lunch

Session 6: Advanced Evaluation System for Nanostructures and Soft Materials

Chairperson A. Saito (Osaka Univ.)

12:50 PM	6.1	<i>Invited</i> – Near Field X-ray Spectromicroscopies: New Tools for Nanoscience	J. Purans ^{1,2} , A. Kuzmin ¹ , R. Kalendarev ¹ , D. Pailharey ² , F. Jandard ² , D. Tonneau ² , Y. Mathey ² , S. Larcheri ³ , F. Rocca ⁴ , G. Dalba ³ , R. Graziola ³ , F. Comin ⁵ , J. Chevrier ⁵ , O. Dhez ⁵ , and R. Felici ⁶	¹ <i>Institute of Solid State Physics,</i> ² <i>CRMC-N,</i> ³ <i>Univ. Trento,</i> ⁴ <i>IFN-CNR,</i> ⁵ <i>ESRF,</i> ⁶ <i>OGG</i>
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1:30 PM	6.2	<i>Invited</i> – X-ray Talbot Interferometer Consisting of Two Transmission X-ray Gratings for X-ray Phase Imaging	A. Momose ¹ , Y. Takeda ¹ , W. Yashiro ¹ , D. Noda ² , and T. Hattori ²	¹ <i>The University of Tokyo,</i> ² <i>University of Hyogo</i>
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2:00 PM	6.3	<i>Invited</i> – Control of Nanochemical Reactions	M. Aono	<i>NIMS, JST-ICORP</i>
2:30 PM		break		
		Chairperson Y. Oshikane (Osaka Univ.)		
2:45 PM	6.4	Nanoscale Surface Analysis using Scanning Tunneling Microscope Coupled with Highly Brilliant Hard X-ray Micro-beam	A. Saito ^{1,2,3} , Y. Takagi ² , K. Takahashi ¹ , K. Hosokawa ¹ , M. Akai-Kasaya ¹ , Y. Tanaka ² , S. Shin ² , T. Ishikawa ² , Y. Kuwahara ^{1,2,3} , and M. Aono ^{3,4}	¹ <i>Osaka University,</i> ² <i>SPring-8/RIKEN,</i> ³ <i>JST-ICORP,</i> ⁴ <i>NIMS</i>
3:05 PM	6.5	Development of Nanosize Organic Thin-film Transistor Using Nanogap Flat Electrodes	M. Akai-Kasaya ^{1,2} , T. Kawanishi ¹ , K. Hayashi ¹ , M. Nashiki ¹ , A. Saito ^{1,3} , M. Aono ^{3,4} , and Y. Kuwahara ^{1,3}	¹ <i>Osaka University,</i> ² <i>JST-PRESTO,</i> ³ <i>JST-ICORP,</i> ⁴ <i>NIMS</i>
3:25 PM	6.6	High-resolution and Highly Sensitive Scanning X-ray Fluorescence Microscopy Using Kirkpatrick-Baez Mirror Optics	S. Matsuyama ¹ , H. Mimura ¹ , K. Katagishi ¹ , M. Shimura ² , M. Fujii ¹ , H. Yumoto ^{1,4} , S. Handa ¹ , T. Kimura ¹ , Y. Sano ¹ , K. Tamasaku ³ , Y. Nishino ³ , M. Yabashi ⁴ , T. Ishikawa ³ , and K. Yamauchi ¹	¹ <i>Osaka University,</i> ² <i>International Medical Center of Japan,</i> ³ <i>SPring-8/RIKEN,</i> ⁴ <i>SPring-8/JASRI</i>
3:45 PM	6.7	Three-dimensional Observation of Internal Structures in Metallic Materials by Coherent X-ray Diffraction Microscopy	Y. Takahashi ¹ , Y. Nishino ² , H. Furukawa ¹ , H. Kubo ¹ , K. Yamauchi ¹ , T. Ishikawa ² , and E. Matsubara ³	¹ <i>Osaka University,</i> ² <i>SPring-8/RIKEN,</i> ³ <i>Kyoto University</i>
4:05 PM		break		

Chairperson M. Nakano (Osaka Univ.)

4:20 PM	6.8	<i>Invited</i> – Surface Plasmon Photonics	T. W. Ebbesen	<i>University Louis Pasteur</i>
5:00 PM	6.9	<i>Invited</i> – Nano-optical Visualization of Quantum States Confined in Nanostructures	T. Saiki	<i>Keio University</i>
5:30 PM	6.10	Novel Probe of a Scanning Near-field Optical Microscope Involving Generation of a Localized and Intense Optical Near-field by Sub-micron Multihole Structure Located at the Apex of a Pointed Optical Fiber	Y. Oshikane, T. Matsuda, S. Hara, H. Inoue, M. Nakano, and T. Kataoka	<i>Osaka University</i>
5:50 PM		Closing Remarks	K. Yasutake	<i>Osaka University</i>

– Poster Session –

P1	3C-SiC Formation by Chemical Transport of Silicon Induced by Atmospheric Pressure H ₂ /CH ₄ Plasma	H. Kakiuchi, H. Ohmi, and K. Yasutake	<i>Osaka University</i>
P2	Deposition Characteristics of SiN _x Films by Atmospheric Pressure Plasma CVD Using Cylindrical Rotary Electrode	D. Ishimoto, Y. Yamaguchi, K. Nakamura, H. Ohmi, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P3	High-rate Deposition of Microcrystalline Silicon Films at Low Temperatures by Atmospheric Pressure Plasma Chemical Vapor Deposition	R. Inudzuka, H. Ohmi, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P4	Selective Growth of Silicon by Atmospheric Pressure Plasma Enhanced Chemical Transport	K. Kishimoto, H. Ohmi, T. Mori, D. Kamada, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P5	Sterilization Process of <i>B. atrophaeus</i> Using Atmospheric Pressure Mist Plasma	K. Iwamoto, H. Ohmi, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P6	<i>In situ</i> B doped Si Epitaxial Growth at Low Temperatures by Atmospheric Pressure Plasma CVD	Y. Kirihata, T. Nomura, H. Ohmi, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P7	High Rate Deposition of Si Film at Low Temperature by Atmospheric-pressure Plasma Enhanced Chemical Transport	D. Kamada, H. Ohmi, K. Kishimoto, H. Kakiuchi, and K. Yasutake	<i>Osaka University</i>
P8	Ferromagnetic Iron Silicides on Si(111) Surface Grown by Solid Phase Epitaxy	A. N. Hattori ¹ , K. Hattori ^{2,3} , and H. Daimon ^{2,3}	¹ <i>Osaka University</i> , ² <i>NAIST</i> , ³ <i>JST-CREST</i>
P9	Low Cycle Fatigue of Single and Poly Crystalline Silicon Film Specimens	Y. Nagai, T. Namazu, and S. Inoue	<i>University of Hyogo</i>
P10	Chemical State Analysis of Iron Oxide on MgO (100) Surface by AES	K. Tsutsumi ¹ , Y. Nagasawa ¹ , and K. Endo ²	¹ <i>JEOL, Ltd.</i> , ² <i>Osaka University</i>

P11	Applications of Atmospheric Pressure Plasma Generator “Aiplasma”	T. Shibata, N. Taguchi, K. Yamazaki, Y. Nakazono, and S. Yuge	<i>Matsushita Electric Works, Ltd.</i>
P12	Figuring of Elliptical Hard X-ray Focusing Mirror Using 1-dimensional Numerically Controlled Local Wet Etching	H. Takai and K. Yamamura	<i>Osaka University</i>
P13	Improvement of Thickness Distribution of SOI Using Numerically Controlled Local Wet Etching	T. Mitani and K. Yamamura	<i>Osaka University</i>
P14	Uniformalization of AT Cut Quartz Crystal Wafer Thickness Using Open-air Type Plasma CVM Process	T. Morikawa ¹ , M. Shibahara ² , N. Zettsu ¹ , Y. Mori ¹ , and K. Yamamura ¹	¹ <i>Osaka University,</i> ² <i>Hyogo Prefectural Institute of Technology</i>
P15	Effect of Pulse Modulated Operation on Etching Characteristics of AT Cut Quartz Crystal in Open-air Type Plasma CVM Process	K. Ueno ¹ , Y. Oshikane ¹ , M. Shibahara ² , N. Zettsu ¹ , and K. Yamamura ¹	¹ <i>Osaka University,</i> ² <i>Hyogo Prefectural Institute of Technology</i>
P16	Machining of GaN by Plasma CVM (Chemical Vaporization Machining)	Y. Nakahama ¹ , N. Kanetsuki ¹ , T. Funaki ¹ , M. Kadono ¹ , Y. Sano ² , K. Yamamura ² , K. Endo ² , and Y. Mori ²	¹ <i>Sharp Corp.,</i> ² <i>Osaka University</i>
P17	Field Emission from Carbon Nanowalls with MgO Coating	T. Obayashi ¹ , K. Yamakawa ² , H. Kano ³ , M. Hiramatsu ⁴ , and M. Hori ¹	¹ <i>Nagoya University,</i> ² <i>Katagiri Engineering Co., Ltd.,</i> ³ <i>NU Eco Engineering Co. Ltd.,</i> ⁴ <i>Meijo University</i>
P18	Room Temperature Deposition of Silicon Nanoparticles Using Pulse-modulated UHF Plasma	E. Takahashi and M. Hori	<i>Nagoya University</i>

- P19 Novel Abrasive-free Planarization of GaN Using a Catalytic Reference Plate
 J. Murata¹, A. Kubota², K. Yagi¹, Y. Sano¹, H. Hara¹, K. Arima¹, T. Okamoto¹, H. Mimura¹, and K. Yamauchi¹
¹ Osaka University, ² Kumamoto University
- P20 Polishing Characteristics of Single Crystal SiC Surface Finished by Fe-catalyst Rod under H₂O₂ Solution
 A. Kubota¹, K. Yagi², J. Murata², H. Yasui¹, S. Miyamoto¹, H. Hara², Y. Sano², and K. Yamauchi²
¹ Kumamoto University, ² Osaka University
- P21 Surface Figure Measurement Methods at Sub-Nanometer-level for Hard X-ray Focusing Mirror
 H. Yumoto^{1,2}, H. Mimura¹, T. Kimura¹, S. Handa¹, S. Matsuyama¹, Y. Sano¹, K. Tamasaku³, Y. Nishino³, M. Yabashi², T. Ishikawa³, and K. Yamauchi¹
¹ Osaka University, ² SPring-8/JASRI, ³ SPring-8/RIKEN
- P22 Interface Properties of HfTiSiO Gate Dielectrics Formed by In-situ PVD-based Fabrication Method
 H. Arimura¹, S. Horie¹, T. Minami², N. Kitano^{1,2}, M. Kosuda², T. Hosoi¹, T. Shimura¹, and H. Watanabe¹
¹ Osaka University, ² Canon ANELVA Corp.
- P23 Single Electron Trapping within High-temperature Annealed High-*k* Dielectric Films Detected by Scanning Capacitance Microscopy
 Y. Naitou^{1,4}, A. Ando¹, H. Ogiso², S. Kamiyama³, Y. Nara³, and H. Watanabe⁴
¹ AIST-NRI, ² AIST-AMRI, ³ Selete, ⁴ Osaka University
- P24 Imaging of Polycrystalline Silicon Surface Using Scanning Capacitance Microscopy
 Y. Naitou¹, A. Ando¹, H. Ogiso², S. Kamohara³, F. Yano³, and A. Nishida³
¹ AIST-NRI, ² AIST-AMRI, ³ MIRAI-Selete
- P25 Selective Epitaxial Growth of In-situ Carbon-doped Si on Si Substrates
 T. Ikuta^{1,2}, S. Fujita¹, H. Iwamoto¹, S. Kadomura¹, T. Shimura², H. Watanabe², and K. Yasutake²
¹ Sony Corp., ² Osaka University

P26	Enhanced Electrical Properties of TiN/HfSiON Gate Stacks by Using the PVD-based In-situ Fabrication Method	N. Kitano ^{1,2} , H. Arimura ¹ , S. Horie ¹ , T. Minami ² , M. Kosuda ² , T. Hosoi ¹ , T. Shimura ¹ , and H. Watanabe ¹	¹ <i>Osaka University</i> , ² <i>Canon ANELVA Corp.</i>
P27	Characterization of Sb Pileup at Fully Silicided NiSi/SiO ₂ Interface	T. Hosoi, K. Sano, A. Ohta, K. Makihara, H. Kaku, S. Miyazaki, and K. Shibahara	<i>Hiroshima University</i>
P28	Optical-drive Type Organic Field Effect Transistor Utilizing the Organic Photoreceptor	N. Nagayama and J. Yoshikawa	<i>Osaka University</i>
P29	Near-infrared Scattering Topography and Microscopy Combination Method for Bonded Silicon-on-insulator Wafers with Patterned Buried Oxide	J. Uchikoshi ¹ , X. Wu ^{1,2} , T. Hirokane ¹ , R. Yamada ¹ , A. Takeuchi ¹ , K. Arima ¹ , and M. Morita ¹	¹ <i>Osaka University</i> , ² <i>Xi'an Jiaotong University</i>
P30	Sensing of λ DNA Solutions by Metal-gap-semiconductor Device	T. Hirokane, D. Kanzaki, H. Hashimoto, S. Urabe, and M. Morita	<i>Osaka University</i>
P31	Electrical Detection of Damage of Extended λ DNA Molecules by Ultraviolet Radiation	T. Hanada, K. Hashimoto, Y. Oxhi, T. Hirokane, S. Kajiyama, S. Uchiyama, K. Fukui, K. Arima, J. Uchikoshi, and M. Morita	<i>Osaka University</i>
P32	Wet-Chemical Preparations of Cl-terminated Ge(111)1 \times 1 Surfaces	K. Yoneda, J. Uchikoshi, M. Morita, and K. Arima	<i>Osaka University</i>
P33	Selective Adsorption of Organic Molecules in Liquid Phase along Cu Nanowires at Step Edges on Si(111) Surface	A. Yoshimatsu, T. Shigetoshi, S. Okamoto, J. Uchikoshi, M. Morita, and K. Arima	<i>Osaka University</i>
P34	Steep On-Off Ratio of Photocurrent through Metal-oxide-semiconductor Tunneling Diodes	R. Yamada, H. Hashimoto, K. Arima, J. Uchikoshi, and M. Morita	<i>Osaka University</i>

P35	Chemically Driven Anisotropic Silver Nanocubes Assembly	M. Mitani, K. Yamamura, K. Endo, and N. Zettsu	<i>Osaka University</i>
P36	Sensing Characterization of NIR-localized Surface Plasmon Resonances in PS@Au Core-shell Nanoparticle Array for Application as Ultra-sensitive Sensors	S. Uchida, K. Yamamura, K. Endo, and N. Zettsu	<i>Osaka University</i>
P37	A Numerical Calculation Method for Electron-Transport Simulations Based on the Real-space Finite-difference Scheme	H. Goto and K. Hirose	<i>Osaka University</i>
P38	Theoretical Study on the Electron Conduction Properties for Nanostructures Suspended between Semi-infinite Electrodes	Y. Egami ^{1,2} , T. Ono ¹ , and K. Hirose ¹	¹ <i>Osaka University</i> , ² <i>JSPS</i>
P39	First-principles Study on Electron Transport Properties of the Nanowire under Finite Bias Voltages	S. Aiba, H. Goto, and K. Hirose	<i>Osaka University</i>
P40	First-principles Study of Magnetic Ordering of BNC Flake Sandwiched Graphen Sheet	K. Iwami, K. Hirose, and T. Ono	<i>Osaka University</i>
P41	First-principles Study on Electronic Structure of Fullerene Polymers	H. Kitajima, Y. Egami, H. Nakayama, K. Hirose, and T. Ono	<i>Osaka University</i>
P42	Path-integral Renormalization Group Treatments for the Mott Transitions on Lattices with Geometrical Frustration	M. Kojo and K. Hirose	<i>Osaka University</i>
P43	Electron-transport Simulations of Nanostructures Using Impulse-response Method	T. Suzuki, H. Goto, and K. Hirose.	<i>Osaka University</i>
P44	Optical Response Dependence on Model Thickness in First-principles Calculations	K. Inagaki, K. Endo, and K. Hirose	<i>Osaka University</i>
P45	First-principles Theoretical Study on the Origin of the Interfacial Formation at Organic/Metal Interfaces	Y. Nakano ¹ , S. Yanagisawa ^{1,2} , I. Hamada ^{1,2} , and Y. Morikawa ¹	¹ <i>Osaka University</i> , ² <i>JST-CREST</i>

P46	A Density Functional Study for Electric and Magnetic Properties of Benzene-transition Metal Multiple-decker Sandwich Chain	Md. Mahmudur Rahman ¹ , R. Muhida ² , and H. Kasai ¹	¹ <i>Osaka University</i> , ² <i>International Islamic University Malaysia</i>
P47	Pt _{ML} /Fe(001) as Alternative Cathode Catalyst : A First Principles Study	M. C. S. Escaño, T. Kishi, S. Kunikata, H. Nakanishi, and H. Kasai	<i>Osaka University</i>
P48	A Study of Atomic Scale Dynamics in a Fuel Electrode of a Polymer Electrolyte Fuel Cell	S. Kunikata, N. B. Arboleda Jr., M. Y. David, A. Horiguchi, H. Nakanishi, and H. Kasai	<i>Osaka University</i>
P49	First-principles Modeling of the Reactive Ion Etching Method for TiO ₂ (Anatase)	H. Kishi, T. Roman, M. David, N. Ozawa, R. Tanaka, N. B. Arboleda Jr., H. Nakanishi, and H. Kasai	<i>Osaka University</i>
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P54	The Adsorption of Diatomic Molecules on Iron Tape-porphyrin: A Comparative Study	N. T. Quang, M. C. S. Escaño, H. Nakanishi, and H. Kasai	<i>Osaka University</i>
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- P57 The Quantum Chemical Calculation on the Estimation of the Bandgap in the Luminescent Perovskite-type Titanium Oxide of SrTiO₃
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