

3rd International Symposium on

AST *2019*

Anodizing Science and Technology

Meeting Program

June 2-5, 2019

**Awaji Yumebutai International Conference Center
Awaji Island, Hyogo, Japan**

Organized by



Anodizing Research Society,
The Surface Finishing Society of Japan

Meeting Program

MONDAY JUNE 3

8:00-9:00

Registration (Main Hall Foyer)

9:00-9:10 *Opening*

(Main Hall) Chair:

S. Yae

Session 1 (Main Hall)

Chairs: H. Terryn, H. Habazaki

9:10-9:50

Opening Plenary Lecture

PL-1 Fabrication of Highly Ordered Anodic Porous Alumina and Its Functional Applications

Hideki Masuda (Tokyo Metropolitan University, Japan)

Keynote Lecture

K-1 Recent Insights into the Growth Mechanisms of Self-Ordered Porous Anodic Alumina Films and Titanium Dioxide Nanotube Layers

Kurt R. Hebert (Iowa State University, USA)

9:50-10:10

Invited Presentation

I-1 New Insights for Possible Improvements in Anodizing of Metal Foils for the Fabrication of Electrolytic Capacitors

F. Di Quarto, F. Di Franco, A. Zaffora, M. Santamaria (University of Palermo, Italy)

10:10-10:50

Coffee Break (Main-Hall Foyer and B-Hall Foyer)

Session 2 (Main Hall)

Chairs: P. Granitzer, T. Yanagishita

10:50-11:20

Keynote Lecture

K-2 High Temperature AC Anodizing of Aluminium Alloys

Bruno Burmas (Norwegian University of Science and Technology, Norway), John Erik Lein (SINTEF Industry, Norway), Otto Lunder (Norwegian University of Science and Technology, Norway, SINTEF Industry, Norway), Kemal Nisancioglu (Norwegian University of Science and Technology, Norway)

11:20-11:40

Invited Presentation

I-2 Discussion on the mechanism of anodic film growth on metals in liquid electrolytes

Sungmo Moon (Korea Institute of Materials Science, Korea University of Science and Technology, Korea)

11:40-12:00

Invited Presentation

I-3 The Combined Effect of Intermetallic Phases and Anodizing Parameters on the Integrity of Anodic Films on Aluminium Alloys

Xiaorong Zhou (the University of Manchester, UK)

12:00-13:10

Lunch (B1F Event Hall)

Session 3 (Main Hall)

Chairs: G. Zangari, T. Kikuchi

13:10-13:40

Keynote Lecture

K-3 Anodizing: an effective process to prepare oxides for advanced technological applications.

M. Santamaria, F. Di Franco, A. Zaffora (Università di Palermo, Italy), I. Valov (Aachen University, Germany), F. Di Quarto (Università di Palermo, Italy), K. Raeissi (Isfahan University of Technology, Iran), H. Habazaki (Hokkaido University, Japan)

13:40-14:10

Keynote Lecture

K-4 Combinatorial Anodisation study on Aluminium-Lanthanoid Alloys containing Cerium, Dysprosium, Erbium, Samarium and Terbium

Achim Walter Hassel (Johannes Kepler University Linz, Austria, Christian Doppler Laboratory for Combinatorial Oxide Chemistry at TIM, Austria), Khurram Shahzad (Johannes Kepler University Linz, Austria), Cezarina Cela Mardare (Johannes Kepler University Linz, Austria, Christian Doppler Laboratory for Combinatorial Oxide Chemistry at TIM, Austria), Jan Philipp Kollender, Andrei Ionut Mardare (Johannes Kepler University Linz, Austria)

14:10-14:20

Short Interval

Session 4A (Main Hall)
Chairs: S. Moon, M. Sakairi

14:20-14:40

Invited Presentation

I-4 Fabrication of Self-Ordered Porous Alumina by Etidronic Acid Anodizing
Tatsuya Kikuchi, Mana Iwai, Yusuke Suzuki, Shungo Natsui, Ryosuke O. Suzuki (Hokkaido University, Japan)

14:40-15:00

Invited Presentation

I-5 Formation of Porous Alumina under AC Electric Field without Direct Electrical Connection
Hidetaka Asoh, Mami Ishino, Hideki Hashimoto (Kogakuin University, Japan)

15:00-15:20

O-1 Synthesis of Co-Fe alloy 1D nanocone array electrodes with aluminum oxide template.
Katarzyna Skibinska, Karolina Kolczyk-Siedlecka, Dawid Kutyla, Anna Kwiecinska, Remigiusz Kowalik, Piotr Zabinski (AGH University of Science and Technology, Poland)

15:20-15:40

O-2 Magnetic Field Assisted Electrodeposition of Co-Ru Nanorods inside Aluminum Oxide Template for Water Splitting Reaction
I. Dobosz, K. Kołczyk, D. Kutyla, K. Skibinska, R. Kowalik, P. Zabinski (AGH University of Science and Technology, Poland)

15:40-16:00

Coffee Break (Main-Hall Foyer and B-Hall Foyer)

Session 5A (Main Hall)
Chairs: M. Santamaria, H. Asoh

16:00-16:20

Invited Presentation

I-6 High Throughput Preparation of Through-Hole Membranes with Ordered Hole Arrangements
Takashi Yanagishita, Toshiaki Kondo, Hideki Masuda (Tokyo Metropolitan University, Japan)

16:20-16:40

O-3 In-situ X-ray Observations of Sn Electrodeposition into Anodic Alumina
W. Linné, G. S. Harlow (Lund University, Sweden), J. Evertsson (DESY, Germany), U. Hejrall, G. Abbondanza, F. Lenrick (Lund University, Sweden), S. Seifert (Argonne National Laboratory, USA), N. A. Vinogradov (MAX IV Laboratory, Sweden), E. Lundgren (Lund University, Sweden)

16:40-17:00

O-4 Studies towards applied anodic oxides

Gary Harlow, Weronica Linpé, Giuseppe Abbondanza, Edvin Lungren (Lund University, Sweden)

17:00-17:20

O-5 Electrochemical deposition of Au followed in situ by anomalous Grazing-Incidence Transmission Small-Angle X-Ray Scattering

G. Abbondanz, G. S. Harlow, W. Linpé (Lund University, Sweden), J. Evertsson (DESY, Germany), U. Hejral (Lund University, Sweden), S. Seifertd (Argonne National Laboratory, USA), Nikolay A. Vinogradov (MAX IV Laboratory, Sweden), E. Lundgren (Lund University, Sweden)

17:20-17:40

O-6 Anisotropic Anodic Etching of Al and its Optical Application

Toshiaki Kondo, Ryota Otsuki, Kenya Matsuo, Takashi Yanagishita, Hideki Masuda (Tokyo Metropolitan University, Japan)

17:40-18:00

O-7 Effect of anodizing voltage on structure of porous alumina formed by Sf-MDC

Masatoshi Sakairi, Ying Ban, Toshiyuki Matsumoto (Hokkaido University, Japan)

Session 4B (Reception Hall B)

Chairs: X. Zhou, K. Nishio

14:20-14:40

O-8 High Corrosion Resistance Treatment for Anodized and Dyed Film on Aluminum

Takamitsu Tsujimoto, Tomo Moriguchi, Kenji Hara, Katsuyuki Tanaka (Okuno Chemical Industries Co., Ltd., Japan)

14:40-15:00

O-9 Corrosion protection of damaged Al alloy surface by formation of scratch-shielding oxide films

Makoto Chiba, Haruka Okuyama, Atsushi Hyono, Hideaki Takahashi (National Institute of Technology, Asahikawa College, Japan)

15:00-15:20

O-10 « Sealing process » of anodized aluminum oxide: Towards a structural model and a mechanism

Emmanuel Rocca, Delphine Veys-Renaux (Université de Lorraine, France)

15:20-15:40

O-11 Nanostructure of Anodic Porous Alumina Films after Hydration Sealing

Sachiko Ono, Hidetaka Asho (Kogakuin University, Japan)

15:40-16:00

Coffee Break (Main-Hall Foyer and B-Hall Foyer)

Session 5B (Reception Hall B)

Chairs: A. Hassel, K. Fukami

16:00-16:20

O-12 Whitening by structural control of aluminum anodized film

Junji Nunomura, Yoichi Kojima (UACJ Corporation, Japan)

16:20-16:40

O-13 Anodizing of various metallic substrates in alkaline media over a large potential range

Delphine Veys-Renaux, Emmanuel Rocca (Université de Lorraine, France)

16:40-17:00

O-14 Study on Electropolishing and Anodizing of Transition Metals

Vijay Chouhan, Yoshiaki Ida (Marui Galvanizing Co., Ltd., Japan)

17:00-17:20

O-15 Anodic oxidation of Mg-rare earth alloys for biodegradable implants

Xiaopei Li (Fujian Normal University, China), Xiaohui Li (Guangdong Academy of Science, China), Song-Zhu Kure-Chu (Nagoya Institute of Technology, Japan), Xiufeng Xiao (Fujian Normal University, China)

17:20-17:40

Invited Presentation

I-7 Anodization of Au thin film on Al to form nanoporous gold film

Kazuyuki Nishio, Akihiro Uramoto (Tokyo University of Technology, Japan)

18:00-18:45

Interval

18:45-19:00

Group Photo (Kiseki No Hoshi Botanical Museum)

19:00-21:00

Welcome Reception (Kiseki No Hoshi Botanical Museum)

Host: K.Fukami

TUESDAY JUNE 4

8:00-8:40

Registration (Main Hall Foyer)

Session 6 (Main Hall)

Chairs: K. Nisancioglu, S. Ono

8:40-9:20

Plenary Lecture

PL-2 Anodized oxide films as an important interface in different aluminum applications

S. T. Abrahami (Vrije Universiteit Brussel, Belgium, Delft University of Technology, Netherlands), S. Pletincx, K. Marcoen (Vrije Universiteit Brussel, Belgium), J. M. M. de Kok (Fokker Aerostructures BV, Netherlands), T. Hauffman (Vrije Universiteit Brussel, Belgium), J. M. C. Mol (Delft University of Technology, Netherlands), H. Terryn (Vrije Universiteit Brussel, Belgium, Delft University of Technology, Netherlands)

9:20-9:40

Invited Presentation

I-8 Innovative sealings of tortuous anodic films prepared on aeronautical aluminum alloys

Laurent Arurault (Université de Toulouse, France), Kévin Giffard (Université de Toulouse, MECAPROTEC Industries, France), Christine Blanc (Université de Toulouse, France)

9:40-10:00

Invited Presentation

I-9 Electrochemical synthesis of thin oxide films on titanium and aluminum using powerful pulsed discharge oxidation technique

M. G. S. Ferreira, A. Lisenkov (University of Aveiro, Portugal)

10:00-10:30

Keynote Lecture

K-5 Anodic growth and functional applications of TiO₂ nanotube layers

Patrik Schmuki (University of Erlangen-Nuremberg, Germany)

10:30-12:00

Poster Presentations (Coffee Break) (Reception Hall B Foyer)

Chairs: M. Hino, M. Iwasaki, E. Tsuji

Anodizing of Al

P-1 Efficiency of Anodic Alumina Formation in Sulfuric Acid with Ethanol Addition

Mikimasa Matsumoto, Hideki Hashimoto, Hidetaka Asoh (Kogakuin University, Japan)

P-2 High Spatial Resolution Observation of Pore Nucleation and Growth Process of Anodic Oxide Films on Aluminum

Kenichi Tsutsumi, Masahide Shima, Noriyasu Niimura, Yusuke Uetake, Hiroki Hashiguchi, Misumi Kadoi, Koji Yazawa, Takao Fukudome, Kenichi Fujita (JEOL Ltd., Japan), Hidetaka Asoh, Sachiko Ono (Kogakuin University, Japan)

P-3 Aluminum with black surface: spongiform pit formation by direct current etching in an amide-containing concentrated aqueous solution

Atsushi Kitada, Masato Kurihara, Kazuhiro Fukami, Kuniaki Murase (Kyoto University, Japan)

P-4 Electrochemical etching of Aluminum alloy in an amide-containing concentrated aqueous solution

Ryota Takai Atsushi Kitada Kazuhiro Fukami, Kuniaki Murase (Kyoto University, Japan)

P-5 Formation of Superhydrophilic Aluminum Oxide by Anodization of Al3104 Alloy

Jaewon Lee, Hyeonkwon Lee, Kiyoungh Lee (Kyungpook National University, Korea)

P-6 Influence of preformed layer on growth and dielectric properties of barrier-type anodic alumina films

Jun-Hui Cao, Tatsuyuki Takano (Hokkaido University, Japan), Giuseppe Scaduto (TDK Foil Italy S.p.A., Italy), Damian Kowalki, Chunyu Zhu, Yoshitaka Aoki, Hiroki Habazaki (Hokkaido University, Japan)

P-7 Chemistry of nanopores: rapid sealing of coloured nanoporous aluminium anodic oxide

Vincent Cartigny (Aptar Annecy (Graphocolor), France, Université de Lorraine, France), Delphine Veys-Renaux (Aptar Annecy (Graphocolor), France), Patricia Desenne, Emmanuel Rocca (Université de Lorraine, France)

P-8 Corrosion resistance of anodized and anodized/sealed aluminium alloys: comparative evaluation by electrochemical impedance spectroscopy (EIS) and salt spray test (SST)

Delphine Veys-Renaux, Najat Chahboun, Emmanuel Rocca (Université de Lorraine-CNRS, France)

P-9 Fabrication of the lower power consumption micro-heater based on electrochemically prepared anodic aluminum oxide

Seungho Park, Sunghyun Byun, Taehwan Song, Donghyeok Seo, Dongeun, Lee (Point Engineering Co., Ltd., Korea)

P-10 Influences of sulfuric acid anodizing on fatigue property of A5052 and A2017 aluminum alloys.

Ryota Kido, Ryoichi Kuwano (Hiroshima Institute of technology, Japan), Norihito Nagata (SURTECH NAGATA Co., Ltd., Japan), Teruto Kanadani (Okayama University of Science, Japan), Makoto Hino (Hiroshima Institute of technology, Japan)

Applications of Anodic Al Oxides

P-11 Formation and Electrocatalytic Activity of Porous Anodic Oxide on Electrodeposited Fe-Mn Alloy

Yoshiki Konno, Tomio Nagayama, Takayo Yamamoto, Kaname Okura, Toshihiro Nakamura (Kyoto Municipal Institute of Industrial Technology and Culture, Japan)

P-12 Application of carbon nanofibers prepared from porous anodic alumina template to ORR/OER electrodes

Naohito Yamada, Damian Kowalski, Akira Koyama, Chunyu Zhu, Yoshitaka Aoki, Hiroki Habazaki (Hokkaido University, Japan)

P-13 Facile Fabrication of Large-surface Nanoporous Pd/Ni-B/Al₂O₃ Composite Films as Catalytic Electrodes for Direct Ethanol Fuel Cells

Katsunori Takahashi, Song-Zhu Kure-Chu, Takehiko Hihara (Nagoya Institute of Technology, Japan), Hitoshi Yashiro (Iwate University, Japan)

P-14 Electrochemical Characteristics of Nano Carbon Fiber for Supercapacitors and its Application

Sunkyung You (Tron Co. Ltd., Korea), Han-Joo Kim (PureEchem Co. Ltd., Korea), Jun-Seob Lee (Changwon National University, Korea), Soo-Gil Park (Chungbuk National University, Korea)

P-15 Low-powered Switching Characteristics of SWCNTs Transistor integrated with Al-HfZrO₂ Dielectric for a Nonvolatile Memory

Seyoung Oh, Byungjin Cho (Chungbuk National University, Korea)

Anodizing of Mg

P-16 Effects of anodizing from phosphate solution on adhesive property of magnesium alloy.

Tessei Imaida (Hiroshima Institute of technology, Japan), Ken Kajita (Japan Steel Works, Ltd., Japan), Atsushi Saijo (Hori Metal Finishing Industry Co., LTD., Japan), Makoto Hino (Hiroshima Institute of technology, Japan)

P-17 Plasma electrolytic oxidation of a non-ignitable Mg-Al-Mn-Ca magnesium alloy and its corrosion resistance

Yoichi Mori, Akihiko Koshi, Jinsun Liao (KURIMOTO, Ltd., Japan)

P-18 Effect of Power Mode of Plasma Anodization on the Properties of formed Oxide Films on AZ91D Magnesium Alloy

Sung-Hyung Lee, Hitoshi Yashiro (Iwate University, Japan), Song-Zhu Kure-Chu (Nagoya Institute of Technology, Japan)

Anodizing of Ti, and Dye-sensitized Solar Cells

P-19 Formation of ZrTiO₄ film by anodic oxidation of titanium under spark discharge

Mitsunobu Iwasaki, Ryo Nakao (Kindai University, Japan)

P-20 Effect of passivation time on component of the film on Ti passivated in sulfuric acid solution at 323 K

Takumi Haruna, Yudai Fujimoto, Masanori Imamura, Youhei Hirohata (Kansai University, Japan)

P-21 Oxidation behavior and oxide layer microstructure of Ti-29Nb-13Ta-4.6Zr and Ti-6Al-7Nb alloys

Eri Miura-Fujiwara, Kyohei Uchida, Anna Tanaka (University of Hyogo, Japan), Naofumi Ohtsu (Kitami Institute of Technology, Japan)

P-22 Fabrication of a photocatalytic antibacterial layer on a Ti material through anodization with nitrate/glycerol electrolyte

Kaho Yamaguchi, Yusuke Konaka, Naofumi Ohtsu (Kitami Institute of technology, Japan)

P-23 Key parameters for photocatalytic H₂ production with TiO₂ nanotubes
Hyeon-kwon Lee, Jaewon Lee, Kiyong Lee (Kyungpook National University, Korea)

P-24 Rapid formation of anatase films doped with substrate species by cathodic deposition
Hikaru Kobayashi, Yuki Sato, Chunyu Zhu, Yoshitaka Aoki (Hokkaido University, Japan),
Mikito Suto (JFE Steel Corporation, Japan), Hiroki Habazaki (Hokkaido University, Japan)

P-25 Highly Stable Transparent PEDOT Film for Pt-Free Dye-sensitized Solar Cells
Tatsuya Kondo, Kenji Machida (Nippon Chemi-Con Corporation, Japan)

Anodizing of Other Metals

P-26 Superactivation of Au surfaces in Basic media at Nanoporous gold electrode
Gahyun Kim, Jongwon Kim (Chungbuk National University)

P-27 Growth of Anodic Nanotubular Films on Sputter-Deposited Fe-W Alloy
Laras Fadillah, Damian Kowalski, Chunyu Zhu, Yoshitaka Aoki, Hiroki Habazaki (Hokkaido University, Japan)

P-28 The anodization of austenite stainless steel(SUS304) as a binder-free electrode for water eletrolysis
Moonsu Kim, Jihyeon Park, Jinsub Choi (Inha University, Korea)

P-29 Heterojunction Photodiode Using 2D TMDs deposited by an AP-PECVD
Seunggi Jeom, Byungjin Cho (Chungbuk National University, Korea)

Anodizing of Si, SiC, and Assisted Etching of Si

P-30 Effect of the bulk concentration of aqueous solution on ion enrichment within nanopores of porous silicon
Shota Inoguchi, Kazuhiro Fukami, Atsushi Kitada, Kuniaki Murase (Kyoto University, Japan)

P-31 Anodizing behavior of ion-irradiated SiC and its surface morphology
Yuki Maeda, Kazuhiro Fukami (Kyoto University, Japan), Sosuke Kondo (Tohoku University, Japan), Tatsuya Hinoki, Atsushi Kitada, Kuniaki Murase (Kyoto University, Japan)

P-32 Electrochemical evaluation of metal-assisted etching of silicon
Keishi Iwamoto, Yuki Shimada, Hikoyoshi Son, Ayumu Matsumoto, Shinji Yae (University of Hyogo, Japan)

P-33 Porous Structures Produced by Metal-Assisted Etching of Silicon —Effects of Doping Type of Substrates—
Yuki Shimada, Keishi Iwamoto, Ayumu Matsumoto, Shinji Yae (University of Hyogo, Japan)

P-34 Chirality of Helical Nanopores Formed by Metal-Assisted Chemical Etching of Silicon
Takumi Yasuda, Yuki Maeda, Tomoyuki Miyamoto (Kyoto University, Japan), Yutaka Okazaki (Kyoto University, Japan, University of Bordeaux, France), Reiko Oda (University of Bordeaux, France), Kenta Matsuzaki, Atsushi Kitada, Kuniaki Murase, Kazuhiro Fukami (Kyoto University, Japan)

P-35 Chemical etching of Si assisted by two types of graphene oxide

W. Kubota, R. Ishizuka, T. Utsunomiya, T. Ichii, H. Sugimura (Kyoto University, Japan)

P-36 Laser-induced breakdown spectroscopy using anodized substrates

Yusuke Shimazu, Sakiko Yoshizumi, Ayumu Matsumoto, Shinji Yae (University of Hyogo, Japan)

12:00-13:00

Lunch (B1F Event Hall)

Session 7 (Main Hall)

Chairs: P. Schmuki, M. Sailor

13:00-13:30

Keynote Lecture

K-6 Emerging Device Applications for Titania Nanotubes

Michio Niwano (Tohoku Fukushi University, Japan)

13:30-13:50

Invited Presentation

I-10 Functionalized titania nanotubes for Li-ion microbatteries

Thierry Djenizian (Ecole Nationale Supérieure des Mines de Saint-Etienne, France)

13:50-14:10

Invited Presentation

I-11 Modification of Anodic TiO₂ Nanotube Arrays and their Application in (Photo) Electrochemical Water Oxidation

Giovanni Zangari, Yin Xu (University of Virginia, USA)

14:10-14:30

Invited Presentation

I-12 Energy-resolved density of electron traps in metal-oxide materials as a comprehensive macroscopic measure for identification and characterization

Bunsho Ohtani, Akio Nitta, Yang Shen, Mai Takashima (Hokkaido University, Japan)

14:30-14:40

Short Interval

Session 8A (Main Hall)

Chairs: L. Arurault, D. Kowalski

14:40-15:00

Invited Presentation

I-13 Growth of TiO₂ nanotubes on heat-treated Ti substrates

Hiroaki Tsuchiya, Yuka Kamimura, Junji Nakata, Shinji Fujimoto (Osaka University, Japan)

15:00-15:20

O-16 Morphological variations of the anodic TiO₂ nanotube layers

Jan M. Macak (University of Pardubice, Czech Republic, Brno University of Technology, Czech Republic), Martin Motola, Milos Krbal (University of Pardubice, Czech Republic), Raul Zazpe (University of Pardubice, Czech Republic, Brno University of Technology, Czech Republic), Jan Prikryl (University of Pardubice, Czech Republic), Hanna Sopha (University of Pardubice, Czech Republic, Brno University of Technology, Czech Republic)

15:20-15:40

O-17 Scale-up of anodic TiO₂ nanotube layers

Hanna Sopha (University of Pardubice, Czech Republic, Brno University of Technology, Czech Republic), Martin Motola (University of Pardubice, Czech Republic), Siow Woon Ng (Brno University of Technology, Czech Republic), Jan M. Macak (University of Pardubice, Brno University of Technology, Czech Republic)

15:40-16:00

Coffee Break (Main-Hall Foyer and B-Hall Foyer)

Session 9A (Main Hall)

Chairs: T. Djenizian, H. Tsuchiya

16:00-16:20

O-18 Anodic coatings to improve the corrosion resistance of titanium

MariaPia Pedferri, Davide Prando, Maria Vittoria Diamanti, Marco Ormellese (Politecnico di Milano, Italy)

16:20-16:40

O-19 Anodic titanium oxide nanostructures as a fast-charging anode material for Li-ion battery

Hyeonseok Yoo, Jihyeon Park, Moon-su Kim, Nam-young Kim (Inha University, Korea), Gibaek Lee (Yeungnam University, Korea), Yongsug Tak, Jinsub Choi (Inha University, Korea)

16:40-17:00

O-20 The Role of Anodic Titania Films in Fabricating TiO₂-TiN/Sn-SnO₂ Composite Films as Anode Materials for Lithium Ion Batteries

Yota Sakuma, Song-Zhu Kure-Chu, Takashi Matsubara, Takehiko Hihara (Nagoya Institute of Technology, Japan), Masazumi Okido (Nagoya University, Japan), Hitoshi Yashiro (Iwate University, Japan)

17:00-17:20

O-21 Anodizing of TiAu alloys and electrodeposition routes for modification of TiO₂ nanotubes with Au

Damian Kowalski (Hokkaido University, Japan, University of Warsaw, Poland), Lina M. Sepulveda (Hokkaido University, Japan, Universidad de Antioquia UdeA, Colombia) Hiroki Habazaki (Hokkaido University, Japan)

17:20-17:40

O-22 Oxide layer growth on nickel-titanium alloy through anodization

Naofumi Ohtsu, Yuma Hirano, Kodai Takiguchi, Kako Yamasaki (Kitami Institute of Technology, Japan)

Session 8B (Reception Hall B)

Chairs: M. Ferreira, M. Niwano

14:40-15:00

O-23 Nanoporous anodic films on stainless steels: formation and applications

Hiroki Habazaki, Atsushi Kasuga, Junpei Ikeura, Damian Kowalski, Chunyu Zhu, Yoshitaka Aoki (Hokkaido University, Japan)

15:00-15:20

O-24 Photoelectrochemical Supercontinuum Solar Light Zero Bias Hydrogen Generation with Membrane-Based Cells Designed for Decreasing Overall Water Electrolysis Voltage and Water Dissociation (22)

Kenji Sakamaki, Ayana Watanabe, Honoka Matsuda, Sayuri Usui, Wakana Sakashita, Ryoko Kato, Haruki Endo, Masataka Sato (Fukushima College, National Institute of Technology, Japan)

15:20-15:40

O-25 Composite Photocatalyst of Brownmillerite-type Ca₂FeCoO₅ Ultrafine Particles and Anodic Porous Film for Oxygen Evolution Reaction

Etsushi Tsuji, Kei Hirao, Yoshiki Degami, Ryosuke Nanbu, Satoshi Suganuma, Naonobu Katada (Tottori University, Japan)

15:40-16:00

Coffee Break (Main-Hall Foyer and B-Hall Foyer)

Session 9B (Reception Hall B)

Chairs: Y. Chen, T. Kondo

16:00-16:20

O-26 Formation of GaN Porous Structures and Control in Pore Depth utilizing Anodic Etching with Specific Photoabsorption

Masachika Toguchi, Taketomo Sato (Hokkaido University, Japan)

16:20-16:40

O-27 Etching, photoetching and optical properties of porous silicon in hydrofluoric acid studied by photoconduction and monochromatic light

Bernard Gelloz (Nagoya University, Japan), Eiichi Kondoh, Lianhua Jin (University of Yamanashi, Japan)

16:40-17:00

O-28 Magnetic assessment of Co/Ni modified nanostructured silicon

K. Rumpf, P. Granitzer (University of Graz, Austria), R. Rodriguez-Gonzalez, J. L. Coffey (Texas Christian University, USA), M. Reissner (Vienna University of Technology, Austria)

17:00-17:20

O-29 Metal-assisted etching of silicon using silver, gold, and platinum particles

Ayumu Matsumoto, Keishi Iwamoto, Yuki Shimada, Hikoyoshi Son, Makiho Eguchi, Shinji Yae (University of Hyogo, Japan)

17:20-17:40

O-30 Symmetry Breaking in Metal-Assisted Chemical Etching of Silicon: Toward the Understanding of Helical Nanopore Formation

Takumi Yasuda, Yuki Maeda, Tomoyuki Miyamoto (Kyoto University, Japan), Yutaka Okazaki (Kyoto University, Japan, University of Bordeaux), Reiko Oda (University of Bordeaux, France), Kenta Matsuzaki, Atsushi Kitada, Kuniaki Murase, Kazuhiro Fukami (Kyoto University, Japan)

17:40-18:30

Interval

18:30-19:00

Awaji Joruri Puppetry (The Westin Awaji Island, Room STELLA)

Host: H. Tsuchiya

19:00-19:15

Group Photo with Puppets (The Westin Awaji Island, Room STELLA)

19:15-21:15

Banquet (Ticket Required) (The Westin Awaji Island, Room STELLA)

Host: H. Tsuchiya

WEDNESDAY JUNE 5

8:00-8:20

Registration (Main Hall Foyer)

Session 10 (Main Hall)

Chairs: F. Di Quarto, M. Hayase

8:20-8:50

Keynote Lecture

K-7 What is Electron Microscopy - Art or Science -

K. Shimizu (Keio University, Japan)

8:50-9:10

Invited Presentation

I-14 Changing the Nature of Electroless Etching with a Syringe Pump: ReEtching and MACE

Kurt W. Kolasinski, Bret A. Unger, Joseph D. Swanson (West Chester University, USA), Haibo Yu, Alexis T. Ernst, Mark Aindow (University of Connecticut, USA), Ermei Mäkilä, Jarno Salonen (University of Turku, Finland), Konstantin Tamarov, Joakim Riikonen (University of Eastern Finland, Finland)

9:10-9:30

Invited Presentation

I-15 Alternately Etched Ladderlike Tapered Pillars Enabling Spontaneous and Consecutive Liquid Transport

Yun Chen (Guangdong University of Technology, China, The Chinese University of Hong Kong, Hong Kong), Dachuang Shi, Jian Gao, Xin Chen (Guangdong University of Technology, China), Ching-Ping Wong (The Chinese University of Hong Kong, Hong Kong, Georgia Institute of Technology, USA)

9:30-9:40

Short Interval

Session 11 (Main Hall)

Chairs: K. Kolasinski, A. Matsumoto

9:40-10:10

Keynote Lecture

K-8 Anodization of Silicon to Form Mesoporous Optical Nanostructures

Michael J. Sailor (University of California, USA), Dokyoung Kim (Kyung Hee University, Korea), Taeho Kim (Michigan State University, USA), Byoungji Kim, Joanna Wang, Jinyoung Kang, Geoffrey Hollett (University of California, USA)

10:10-10:30

Invited Presentation

I-16 Metal filled anodized porous silicon and its optical and magnetic features

P. Granitzer, K. Rumpf (University of Graz, Austria), M. Reissner (Vienna University of Technology, Austria)

10:30-10:50

Invited Presentation

I-17 Catalyst Layer Formation in A Miniature Fuel Cell Using Anodized Porous Si
Masanori Hayase, Tomhiro Kurose, Ryo Shirai, Masaru Irita (Tokyo University of Science, Japan), Natasa Vasiljevic (University of Bristol, UK)

10:50-11:10

Poster Award Presentation & Closing (Main Hall)

Chair: S.Yae

11:10-12:00

Interval

12:00-

Excursion (Ticket Required)

Meeting Place: Entrance Lobby (1F) of Conference Center