

4th International Symposium on

AST *2025*

Anodizing **S**cience and **T**echnology

Meeting Program

(Simplified version)

June 1-4, 2025

**Hotel Nikko Narita
Narita-shi, Chiba, Japan**

Organized by



**Anodizing Research Society,
The Surface Finishing Society of Japan**

AST2025 Organizers

Chair

Kazuyuki NISHIO (Tokyo University of Technology, Japan)

Co-Chair

Hiroki HABAZAKI (Hokkaido University, Japan)

Shinji YAE (University of Hyogo, Japan)

Honorary Chair

Sachiko ONO (Kogakuin University, Japan)

Hideki MASUDA (Tokyo Metropolitan University, Japan)

Secretary General

Hidetaka ASOH (Kogakuin University, Japan)

Local Organizing Committee (Board Members of the Anodizing Research Society of Japan)

Hidetaka ASOH (Kogakuin Univ.)

Shuhei ENOKI (Nippon Light Metal)

Takashi FUJITA (Tokyo Univ. Tech.)

Kazuhiro FUKAMI (Kyoto Univ.)

Hiroki HABAZAKI (Hokkaido Univ.)

Kenji HARA (Okuno Chemical Industries)

Shunji HASUO (I&T New Materials)

Mitsunobu IWASAKI (Kindai Univ.)

Tatsuya KIKUCHI (Hokkaido Univ.)

Toshiaki KONDO (Aichi Univ. Tech.)

Yoshiki KONNO (Kyoto Municipal Institute of Industrial Technology and Culture)

Hideki MASUDA (Tokyo Metropolitan Univ.)

Ayumu MATSUMOTO (Univ. Hyogo)

Issei MIZUKI (Tokyo Metropolitan Univ.)

Daiki NAKAJIMA (UACJ)

Toshio NATORI (Japan Capacitor Industrial)

Kazuyuki NISHIO (Tokyo Univ. Tech.)

Junji NUNOMURA (UACJ)

Nobuo OSAWA (UACJ)

Masatoshi SAKAIRI (Hokkaido Univ.)

Makoto SAKURAI (Tokyo Univ. Agriculture & Tech.)

Yoshihiro TAGUCHI (Nippon Light Metal)

Atsushi TANAKA (Nippon Chemi-con)

Hiroki TSUCHIYA (Osaka Univ.)

Koichi UI (Iwate Univ.)

Shinji YAE (Univ. Hyogo)

Takashi YANAGISHITA (Tokyo Metropolitan Univ.)

AST2025 Timetable

for Presenter: The allocated presentation time cannot be exceeded (Presentation time including 5 minutes discussion).

Plenary Lecture: 40 min, Keynote Lecture: 30 min, Invited Lecture: 20 min, Contributed Oral: 15 min

※Contributed Oral: 10-12 min for presentation and 3-5 min for discussion

The official language of the symposium is English.

for Participant:

June 1 (Sun) 17:00 Registration (1F, Main Hall Foyer)

19:00-21:00 Get Together (11F, Sky Banquet) Participant can enjoy free food and drinks.

June 2 (Mon)	June 3 (Tue)	June 4 (Wed)
8:00 Registration (1F, Main Hall Foyer)	8:00 Registration (1F, Main Hall Foyer)	8:00 Registration (1F, Main Hall Foyer)
	Session 6 (Main Hall, Tsuru-no-ma) Chairs: P. Schmuki, S. Ono 8:30-9:10 PL-2: H. Habazaki (40)	Session 8 (Main Hall, Tsuru-no-ma) Chairs: K. Rumpf, A. Matsumoto 8:30-9:00 K-8: S. Yae (30) 9:00-9:30 K-9: P. Granitzer (30) 9:30-9:50 I-15: T. Shimizu (20) 9:50-10:10 I-16: M. Hayase (20)
8:50 Opening (Main Hall, Tsuru-no-ma) Chair: H. Asoh	9:10-9:40 K-6: S. Moon (30) 9:40-10:10 K-7: J. Macak (30)	
Session 1 (Main Hall, Tsuru-no-ma) Chairs: X. Zhou, L. Arurault 9:00-9:40 PL-1: P. Schmuki (40)	10:10-10:30 Coffee Break(1F, Main Hall Foyer)	10:10-10:30 Coffee Break(1F, Main Hall Foyer)
9:40-10:10 K-1: A. W. Hassel (30) 10:10-10:40 K-2: M. Santamaria (30)	Session 7A (Main Hall, Tsuru-no-ma) Chairs: J. Macak, M. Chiba 10:30-10:50 I-9: E. Tsuji (20) 10:50-11:10 I-10: Y. Tsutsumi (20) 11:10-11:30 I-11: N. Ohtsu (20) 11:30-11:45 O-26: T. Yasui (15) 11:45-12:00 O-27: canceled 12:00-12:15 O-28: P. Zabinski (15) 12:00-12:15 O-29: K. Skibinska (15)	Session 9 (Main Hall, Tsuru-no-ma) Chairs: P. Granitzer, T. Shimizu 10:30-10:50 I-17: M. Sano (20) 10:50-11:10 I-18: S. Yotsuya (20) 11:10-11:30 I-19: K. Rumpf (20) 11:30-11:50 I-20: A. Matsumoto (20)
10:40-11:00 Coffee Break (1F, Main Hall Foyer)	10:30-10:50 I-12: W. Stepniowski (20) 10:50-11:10 I-13: T. Kondo (20) 11:10-11:30 I-14: K. Lee (20) 11:30-11:45 O-30: Z. Lockman (15) 11:45-12:00 O-31: D. Kutyla (15) 12:00-12:15 O-32: T. Nagao (15) 12:15-12:30 O-33: Y. Konno (15)	
Session 2 (Main Hall, Tsuru-no-ma) Chairs: A. W. Hassel, M. Santamaria 11:00-11:30 K-3: X. Zhou (30) 11:30-12:00 K-4: L. Arurault (30) 12:00-12:30 K-5: T. Ebel (30)		11:50 Poster Award Presentation Closing Chair: H. Asoh
12:30-13:30 Lunch (2F, Sakura)	12:30 Excursion+Lunch (Ticket Required)	
Session 3A (Main Hall, Tsuru-no-ma) Chairs: F. Di Franco, D. Kowalski 13:30-13:50 I-1: S.Z. Kure-Chu (20) 13:50-14:10 I-2: M. Chiba (20) 14:10-14:30 I-3: T. Hashimoto (20) 14:30-14:50 I-4: J. Choi (20) 14:50-15:10 I-5: H. Tsuchiya (20)	Session 3B (Oozora-no-ma) Chairs: T. Ebel, J. Nunomura 13:30-13:50 I-8: H. Okuzaki (20) 13:50-14:05 O-9: A. Baron-Wiechec (15) 14:05-14:20 O-10: D. Quintero (15) 14:20-14:35 O-11: Y. Jing (15) 14:35-14:50 O-12: A. Rudowicz (15) 14:50-15:05 O-13: M. Sakairi (15) 15:05-15:20 O-14: A. Ayalew (15)	
15:20-15:40 Coffee Break (1F, Main Hall Foyer)		
Session 4A (Main Hall, Tsuru-no-ma) Chairs: J. Choi, H. Tsuchiya 15:40-16:00 I-6: F. Di Franco (20) 16:00-16:20 I-7: D. Kowalski (20) 16:20-16:35 O-1: H. Asoh (15) 16:35-16:50 O-2: L. Sepulveda (15) 16:50-17:05 O-3: A. Gabryelczyk (15) 17:05-17:20 O-4: M. Bin Taib (15)	Session 4B (Oozora-no-ma) Chairs: W. Stepniowski, M. Sakairi 15:40-15:55 O-15: T. Yanagishita (15) 15:55-16:10 O-16: M. Iwai (15) 16:10-16:25 O-17: M. Norek (15) 16:25-16:40 O-18: M. Arenas (15) 16:40-16:55 O-19: J. Nunomura (15) 16:55-17:10 O-20: C. Tanaka (15) 17:10-17:25 O-21: S.Ono (15)	
17:20-17:30 Short Interval	17:25-17:30 Short Interval	
Session 5A (Main Hall, Tsuru-no-ma) Chairs: S.Z. Kure-Chu, K. Lee 17:30-17:45 O-5: J. Kim (15) 17:45-18:00 O-6: S. Lee (15) 18:00-18:15 O-7: P. Wang (15) 18:15-18:30 O-8: S. Ismail (15)	Session 5B (Oozora-no-ma) Chairs: M. Iwai, M. Iwasaki 17:30-17:45 O-22: X. Li (15) 17:45-18:00 O-23: M. Hofinger (15) 18:00-18:15 O-24: E. Lin (15) 18:15-18:30 O-25: A. Conde (15)	
Interval	Interval	
19:00-21:00 Welcome Reception (2F, Sakura)	19:00-21:00 Banquet (Ticket Required) (Oozora-no-ma)	
	17:00-18:30 Poster Session (Main Hall Foyer) Chair: Local Organizing Committee Poster board size approximately 0.9 m wide by 1.8 m height	

Meeting Program

MONDAY JUNE 2

8:00-8:50

Registration (Main Hall Foyer)

8:50-9:00

Opening (Main Hall, Tsuru-no-ma)

Chair: H. Asoh

Session 1 (Main Hall, Tsuru-no-ma)

Chairs: X. Zhou, L. Arurault

9:00-9:40

Opening Plenary Lecture

PL-1: Anodic oxide structures as hosts for single-atom catalysts

Patrik Schmuki (University of Erlangen-Nuremberg)

9:40-10:10

Keynote Lecture

K-1: How Do Type and Amount of Rare Earth Elements in Aluminium Alloys Influence the Anodisation Behaviour? - A Combinatorial Study

Achim Walter Hassel (Johannes Kepler University Linz)

10:10-10:40

Keynote Lecture

K-2: Anodizing as an effective process to fabricate anodes for electrolysis and photoelectrolysis of biomass containing solution

Monica Santamaria (Università degli Studi di Palermo)

10:40-11:00

Coffee Break (Main Hall Foyer)

Session 2 (Main Hall, Tsuru-no-ma)

Chairs: A. W. Hassel, M. Santamaria

11:00-11:30

Keynote Lecture

K-3: Corrosion Resistance of Anodic Films on Aluminium Alloys: the Key Factors

Xiaorong Zhou (The University of Manchester)

11:30-12:00

Keynote Lecture

K-4: Tuning thermo-optical properties of anodic films

Laurent Arurault (CIRIMAT Laboratory, University of Toulouse)

12:00-12:30

Keynote Lecture

K-5: Electrical properties of Polymer Aluminum electrolytic capacitor stacks composed of PEDOT-PSS electrolytes and Anodic Oxides with forming voltages over 1000 V

Thomas Ebel (University of Southern Denmark)

12:30-13:30

Lunch (2F, Sakura)

Session 3A (Main Hall, Tsuru-no-ma)

Chairs: F. Di Franco, D. Kowalski

13:30-13:50

Invited Presentation

I-1: Nano-structured Self-lubricating $\text{Al}_2\text{O}_3/\text{Sn(S)}\text{-MoS}_2$ Composite Films on Al-Si-Cu Alloys with Enhanced Wear Resistance Fabricated through a Hybrid Anodizing Approach

Song-Zhu Kure-Chu (Nagoya Institute of Technology)

13:50-14:10

Invited Presentation

I-2: Development of new type of surface layer for corrosion protection of Al materials

Makoto Chiba (National Institute of Technology, Asahikawa College)

14:10-14:30

Invited Presentation

I-3: The Effect of Alloy Microstructure and Anodizing Parameters on the Optical Properties of Anodized Aluminium Alloys

Teruo Hashimoto (University of Manchester)

14:30-14:50

Invited Presentation

I-4: PDMS-Assisted Anodization for Enhanced Oxide Layer Formation

Jinsub Choi (Inha University)

14:50-15:10

Invited Presentation

I-5: Anodization of Ti alloys: Impact of texture on the morphology of anodic oxide layers

Hiroaki Tsuchiya (Osaka University)

15:20-15:40

Coffee Break (Main Hall Foyer)

Session 4A (Main Hall, Tsuru-no-ma)

Chairs: J. Choi, H. Tsuchiya

15:40-16:00

Invited Presentation

I-6: Anodizing of 3D printed Ti alloys biomedical plates to improve corrosion resistance in physiological solutions

Francesco Di Franco (Università degli Studi di Palermo)

16:00-16:20

Invited Presentation

I-7: In-Situ Observations of Li^+ and Na^+ Storage in Anodic Nanotubes

Damian Kowalski (University of Warsaw)

16:20-16:35

O-1: Site-Selectivity of Anodic Film Formation by Bipolar Anodization

Hidetaka Asoh (Kogakuin University)

16:35-16:50

O-2: Wireless Anodization for the Preparation of TiO_2 Nanotube Layers

Lina Sepulveda (University of Pardubice)

16:50-17:05

O-3: Electrochemical impedance spectroscopy for characterization of TiO_2 thin layers: semiconducting and corrosion properties

Agnieszka Gabryelczyk (Guangdong Technion - Israel Institute of Technology)

17:05-17:20

O-4: The grassy structure of anodized TiO_2 nanotubes

Mustaffa Ali Azhar Bin Taib (Pusat Latihan Teknologi Tinggi (ADTEC) Taiping)

17:20-17:30

Short Interval

Session 5A (Main Hall, Tsuru-no-ma)

Chairs: S.-Z. Kure-Chu, K. Lee

17:30-17:45

O-5: Effect of the Morphology of Titanium Oxide Layers Formed by Anodizing on Electrical Conductivity and Corrosion Resistance in Strong Acidic Environments

Jae H. Kim (Korea Institute of Materials Science)

17:45-18:00

O-6: Anti-icing Surface System of Ti-6Al-4V Alloy for Aircraft Using Anodization

Sumin Lee (Pukyong National University)

18:00-18:15

O-7: Effects of Organic Additives on the Fabrication and Characteristics of Nanoporous TiO₂-TiO-TiN films in Nitric-based Solution for LIB Anodes

Peng Wang (Nagoya Institute of Technology)

18:15-18:30

O-8: Synthesis of Crystalline ZrO₂ Nanotubes (ZNTs): Double Layer Formation Mechanism During Fluoride-Based Anodization

Syahriza Ismail (Universiti Teknikal Malaysia Melaka)

Session 3B (Oozora-no-ma)

Chairs: T. Ebel, J. Nunomura

13:30-13:50

Invited Presentation

I-8: Aluminum Solid Electrolytic Capacitors using Conductive Polymers

Hidenori Okuzaki (University of Yamanashi)

13:50-14:05

O-9: Porosity initiation mechanism in barrier-type alumina anodic film studied using ¹⁸O tracer and Nuclear Reaction Analysis

Aleksandra Baron-Wiechec (Guangdong Technion - Israel Institute of Technology)

14:05-14:20

O-10: Microstructure evolution of high-purity aluminum under different heat treatment temperatures and its influence on crystalline anodic layer formation for solid polymer capacitor applications

David Quintero (Hokkaido University)

14:20-14:35

O-11: High Performance Aluminum Solid Electrolytic Capacitors using Self-doped Poly(3,4-ethylenedioxythiophene)

Yuxin Jing (University of Yamanashi)

14:35-14:50

O-12: Green Anodizing of AA2024 with Organic Acids: Correlation Between Anodic Layers and Sol-Gel Coatings

Artur Rudowicz (Warszawski Instytut Technologiczny)

14:50-15:05

O-13: Area-selective formation of porous alumina with solution flow type micro-droplet cell

Masatoshi Sakairi (Hokkaido University)

15:05-15:20

O-14: Efficient fabrication of through-hole porous anodic alumina membrane by 3D printed SF-MDC

Adane Ayalew (Hokkaido University)

15:20-15:40

Coffee Break (Main Hall Foyer)

Session 4B (Oozora-no-ma)

Chairs: W. Stepniowski. M. Sakairi

15:40-15:55

O-15: Fabrication of Ordered Nanohole Arrays by Two-Step Anodization of Stainless-Steel Substrates

Takashi Yanagishita (Tokyo Metropolitan University)

15:55-16:10

O-16: A Perchloric Acid-Free Electrolyte for Electropolishing of Aluminum Substrate: Sodium Chloride and Glycol Solutions

Mana Iwai (Hokkaido University)

16:10-16:25

O-17: Porous anodic alumina photonic crystals: controlling photonic properties across a broad spectral range

Malgorzata Norek (Military University of Technology)

16:25-16:40

O-18: Anodizing Aluminium alloys in F-solutions

Maria Arenas (Centro Nacional de Investigaciones Metalúrgicas)

16:40-16:55

O-19: Quantitative evaluation of heat-induced cracks in anodic oxide film on aluminum using cathodic polarization curves

Junji Nunomura (UACJ corporation)

16:55-17:10

O-20: Hard Anodizing Process of Aluminum with High Thermal Cracking Resistance

Chika Tanaka (Okuno Chemical Industries)

17:10-17:25

O-21: Nanostructure Analysis of Anodic Film Formed on Aluminum after Nickel Salt Sealing

Sachiko Ono (Kogakuin University)

17:25-17:30

Short Interval

Session 5B (Oozora-no-ma)

Chairs: M. Iwai, M. Iwasaki

17:30-17:45

O-22: Multifunctional composite coating on Mg alloy based on anodized film

Xiaopei Li (Fujian Normal University)

17:45-18:00

O-23: On the corrosion influence of anodization in a Magnesium-Ytterbium thin-film library

Manuel Hofinger (Johannes Kepler University Linz)

18:00-18:15

O-24: Fabrication of Mg-Si-W-O Composite Oxide Films on Magnesium Alloys by Hybrid Anodization for Enhanced Corrosion Resistance

Erli Lin (Nagoya Institute of Technology)

18:15-18:30

O-25: Antimicrobial surface treatments to prevent indirect transmissions

Ana Conde (Centro Nacional de Investigaciones Metalúrgicas)

18:30-19:00

Interval

19:00-21:00

Welcome Reception (2F, Sakura)

Host: Local Organizing Committee

TUESDAY JUNE 3

8:00-8:30

Registration (Main Hall Foyer)

Session 6 (Main Hall, Tsuru-no-ma)

Chairs: P. Schmuki, S. Ono

8:30-9:10

Plenary Lecture

PL-2: Anodizing techniques contributing to carbon neutrality

Hiroki Habazaki (Hokkaido University)

9:10-9:40

Keynote Lecture

K-6: Growth mechanisms of anodic oxide films on metals under high electric field

Sungmo Moon (Korea Institute of Materials Science)

9:40-10:10

Keynote Lecture

K-7: Anodic TiO₂ Nanotube Layers: Large Scale Photocatalysis

Jan Macak (University of Pardubice / Brno University of Technology)

10:10-10:30

Coffee Break (Main Hall Foyer)

Session 7A (Main Hall, Tsuru-no-ma)

Chairs: J. Macak, M. Chiba

10:30-10:50

Invited Presentation

I-9: Direct Air Electrolysis using Anodic Porous Alumina Trough-hole Membranes

Etsushi Tsuji (Tottori University)

10:50-11:10

Invited Presentation

I-10: Hybrid biofunctional titanium surface with long-term antibacterial properties and hard tissue compatibility through two-step micro-arc oxidation process

Yusuke Tsutsumi (National Institute for Materials Science)

11:10-11:30

Invited Presentation

I-11: Pulsed anodization to form a biocompatible oxide layer on a superelastic NiTi alloy

Naofumi Ohtsu (Kitami Institute of Technology)

11:30-11:45

O-26: Plasma Electrolytic Oxidation of Selected Area by Pulsed Laser Irradiation

Toshiaki Yasui (Toyohashi University of Technology)

O-27: canceled

11:45-12:00

O-28: The role of oxide layer on catalytical performance new strategy for high entropy oxides application

Piotr Zabinski (AGH University of Krakow)

12:00-12:15

O-29: Evolution of Properties of High-Entropy Oxides fabricated by anodization of High-Entropy Alloys

Katarzyna Skibinska (AGH University of Krakow)

Session 7B (Oozora-no-ma)

Chairs: S. Moon, T. Yanagishita

10:30-10:50

Invited Presentation

I-12: from corrosion protection to carbon dioxide reduction reaction electrochemical oxidation of copper and copper alloys

Wojciech Stepniowski (Military University of Technology)

10:50-11:10

Invited Presentation

I-13: Nanohole formation behavior during anodizing Ga

Toshiaki Kondo (Aichi University of Technology)

11:10-11:30

Invited Presentation

I-14: Anodically Formed Niobium Oxide Nanochannels for Lithium-Ion Batteries and Supercapacitor Applications

Kiyoung Lee (Inha University)

11:30-11:45

O-30: Comparative Study and Assessment of Anodic Films on Ti, Ni, and TiNi Alloys for Photocatalytic

Degradation of Dyes

Zainovia Lockman (Universiti Sains Malaysia)

11:45-12:00

O-31: Synthesis and Evaluation of Urea Electrooxidation Activity of Ni-Pt and Ni-Ir Porous Alloys Obtained by Molten Salts Electrodeposition

Dawid Kutyla (AGH University of Krakow)

12:00-12:15

O-32: Investigation of Activity Factors in Fe-Co-Ni Alloy Electrode Catalysts for Alkaline Water Electrolysis Prepared by Anodizing

Tomoya Nagao (Hokkaido University)

12:15-12:30

O-33: Formation of Porous Anodic Films on Electroplated Fe-Ni and their Electrocatalytic Properties for Oxygen Evolution

Yoshiki Konno (Kyoto Municipal Institute of Industrial Technology and Culture)

12:30-16:30

Excursion+Lunch (Ticket Required)

17:00-18:30

Poster Presentation (Main Hall Foyer)

Chair: Local Organizing Committee

P-1: Development of a 450V High-Voltage Aluminum Polymer Capacitor

Kazuhiro Nagahara (Nippon Chemi-Con Corporation)

P-2: Effect of pore size and porosity of porous alumina on the breakdown voltage of conductive polymer solid capacitors

Takumi Ambe (Hokkaido University)

P-3: Anodization of Aluminum in Sodium Borate Solution Containing Glycerol at 85°C

Sho Ishiwata (Kogakuin University)

P-4: Properties of Barrier Type Anodic Alumina Film Formed in Phosphate Solution with Polyglycerol Addition

Junichi Wada (Sakamoto Yakuhin Kogyo)

P-5: Fabrication of Ideally Ordered Anodic Porous Alumina with Large Interpore Distances

Boman Wang (Tokyo Metropolitan University)

P-6: Fabrication of Porous Anodic Aluminum Oxide Films by Anodizing in Trisodium Phosphate Solution for Injection Molding Applications

Hsuan-Lin Hsieh (Hokkaido University)

P-7: Sulfuric citric anodizing as a chromates-free anodizing of aluminum alloys

Katarzyna Tomczyk (Military University of Technology)

P-8: Effect of Type and Concentration of Electrolyte on Film Formation Efficiency in Bipolar Anodization of Aluminum

Ryunosuke Satake (Kogakuin University)

P-9: Fabrication of Large Alumina Masks by Multistep Anodization and Application to the Formation of Metal Nanodot Arrays

Mayuno Kuroiwa (Tokyo Metropolitan University)

P-10: Preparation of Alumina Membrane Filters with Framework Structures

Aika Hamada (Tokyo Metropolitan University)

P-11: Application of through-hole porous alumina membrane for SALDI chips in mass spectrometry

Masahiro Kotani (HAMAMATSU PHOTONICS)

P-12: Melanin-Based Black Dyeing of Anodized Aluminium with High Light Fastness

Takanori Matsubara (College of Industrial Technology)

P-13: Electrochemical impedance spectroscopy for characterization of TiO₂ thin layers: semiconducting and corrosion properties

Runyang Yu (Guangdong Technion-Israel Institute of Technology)

P-14: Control of Pore Sealing in Anodic Porous Alumina by TiO₂ Thin Film Formation Using ALD

Kyoichi Kohashi (Tokyo Metropolitan University)

P-15: Optimization of anodizing duration in pulsed anodization of NiTi alloys

Amon Kitayama (Kitami Institute of Technology)

P-16: Preparation of (Ba,Sr)(Zr,Ti)O₃ films by anodic oxidation of titanium under spark discharge conditions

Mitsunobu Iwasaki (Kindai university)

P-17: Wear-resistant coatings formed by plasma electrolytic oxidation

Yoichi Mori (Kurimoto)

P-18: Development of Micro Arc Oxidation treatment for vacuum equipment

Fumiaki Ishigure (ULVAC)

P-19: Study of the effect of substrate geometries on the characteristics of copper oxides obtained by anodizing

Juan Manuel Hernández López (Universidad Autónoma de Nuevo León)

P-20: Electrochemical oxidation of CuAg(3%) alloy in alkaline electrolyte

Rajeena Uruniyengal (Military University of Technology)

P-21: Electrochemical oxidation of brasses

Wojciech Aniol (Military University of Technology)

P-22: Formation of nanoporous anodic gold oxide films and spontaneous reduction to nanoporous gold

Kazuyuki Nishio (Tokyo University of Technology)

P-23: Anodic Intercalation Preparation of Defective Graphene Nanosheets for Supporting Pt nanocatalysts toward Glucose Oxidation Reactions

Chien-Liang Lee (National Kaohsiung University of Science and Technology)

P-24: The Study of Carbon-Nanotube Added Surface Treatment-CAST-

Tatsuya Ohki (Haier Asia R&D)

P-25: X-ray Fluorescence Analysis of Elements in Solution Using Drip Substrates Having Nanoporous Structure Formed by Anodic Etching and Anodization

Nozomi Hibino (Kogakuin University)

P-26: 3D micron- to millimeter-sized structure fabrication of single crystal Si by etching in extremely alkaline concentration solution containing graphite

Kengo Kimura (Aichi Institute of Technology)

P-27: Metal-Assisted Etching of Highly Doped p-Type Silicon Using Platinum Particles: Effect of Hydrofluoric Acid Concentration in Etching Solution

Riku Tanaka (University of Hyogo)

P-28: Metal-Assisted Etching of p-Si Using Thin Film Patterns of Pt, Ag, and Pt/Ag Double Layer

Takuma Nakayama (University of Hyogo)

18:30-19:00

Interval

19:00-21:00

Banquet (Ticket Required) (Oozora-no-ma)

Host: Local Organizing Committee

WEDNESDAY JUNE 4

8:00-8:30

Registration (Main Hall Foyer)

Session 8 (Main Hall, Tsuru-no-ma)

Chairs: K. Rumpf, A. Matsumoto

8:30-9:00

Keynote Lecture

K-8: Composite Porous Structure Produced by Metal-Assisted Etching of Silicon

Shinji Yae (University of Hyogo)

9:00-9:30

Keynote Lecture

K-9: Nanostructured Silicon as Host Material for Magnetic Nanostructures Offering Various Magnetic Interactions

Petra Granitzer (University of Graz)

9:30-9:50

Invited Presentation

I-15: Fabrication of semiconductor one-dimensional structure using anodic aluminum oxide templates and application to electrical devices

Tomohiro Shimizu (Kansai University)

9:50-10:10

Invited Presentation

I-16: Fabrication of a Porous Au Layer Penetrating through a Si Substrate by Alternately Performing Fluorocarbon Protective Film Deposition and Dry Etching

Masanori Hayase (Tokyo University of Science)

10:10-10:30

Coffee Break (Main Hall Foyer)

Session 9 (Main Hall, Tsuru-no-ma)

Chairs: P. Granitzer, T. Shimizu

10:30-10:50

Invited Presentation

I-17: A Novel Fabrication Process for High Density Silicon Capacitors by using Metal-Assisted Chemical Etching

Mitsuo Sano (Corporate Manufacturing Engineering Center, Research & Development Div., Toshiba)

10:50-11:10

Invited Presentation

I-18: 3D microfabrication of silicon by metal-assisted chemical etching

Shinichi Yotsuya (Seiko Epson Corporation)

11:10-11:30

Invited Presentation

I-19: FePt Loaded Porous Silicon and Silicon Nanotubes, a Platform for Hard Magnetic Nanocomposites

Klemens Rumpf (University of Graz)

11:30-11:50

Invited Presentation

I-20: Application of Porous Silicon in Laser-Induced Breakdown Spectroscopy for Microvolume Analysis of Electropolishing Solution

Ayumu Matsumoto (University of Hyogo)

11:50-12:00

Poster Award Presentation & Closing (Main Hall, Tsuru-no-ma)

Chair: H. Asoh

AST2008

International Symposium on Anodizing Science and Technology

July 23-25, 2008, Rusutsu Resort & Convention, Hokkaido, Japan

Invited presentations: **20**, Poster presentations: **32**



2nd International Symposium on Anodizing Science and Technology

June 4-6, 2014, Chateraise Gateaux Kingdom Sapporo Hotel & Spa Resort,
Sapporo, Hokkaido, Japan

Invited presentations: **18**, Oral presentations: **36**, Poster presentations: **51**



3rd International Symposium on Anodizing Science and Technology

June 2-5, 2019, Awaji Yumebutai International Conference Center,
Awaji Island, Hyogo, Japan

Invited presentations: **27**, Oral presentations: **30**, Poster presentations: **43**



4th International Symposium on Anodizing Science and Technology

June 1-4, 2025, Hotel Nikko Narita,
Narita-shi, Chiba, Japan

Invited presentations: **31**, Oral presentations: **32**, Poster presentations: **28**