December 1 Tuesday

9:30 - 10:30	Reactive Plasma Award Lecture	Room A: Main Hall

Chair: Tatsuru Shirafuji (Osaka Metropolitan University)

PT-1 **Plasmas - Experiment, Model, and Simulation**
Uwe Czarnetzki (Ruhr University Bochum, Germany)

Coffee Break

1A-O1-1	Low-pressure plasma	Room 1

Chair: Tsuyohito Ito (The University of Tokyo, Japan)

11:00-11:25 **1 (Invited)** **Microwave Magnetic Excitation of Reactive Plasmas: Design and Investigation**
Horia-Eugen Porteanu (Ferdinand-Braun-Institute 12489 Berlin, Germany)

11:25-11:40 **2** **Dependence of Working Pressure on Plasma Generation Delay Time in Microwave Excited Water Vapor Plasma**
Thiha Kyaw Swar (Kanazawa University, Japan)

11:40-11:55 **3** **Effect of Time Interval Between High-Voltage Application and Microwave Irradiation on Plasma Generation Probability for High-Pressure Microwave-Excited Water Vapor Plasma**
Hnin Thazin Hlaing (Kanazawa University, Japan)

11:55-12:10 **4** **Comparison of Plasma Generation Probability on Time Interval Between High-Voltage Application and Microwave Irradiation in High-Pressure Microwave Excited Nitrogen and Oxygen Plasmas**
Khin Si Si Kyaw (Kanazawa University, Japan)

12:10-12:25 **5** **Raman scattering spectrum from iron surface exposed to inductively coupled nitrogen/water vapor plasma for ammonia synthesis**
Kyohei Kita (Hokkaido univ., Japan)

12:25-12:40 **6** **Pulse-modulated RF-driven He:O2 plasma jet for contactless cleaning of cultural heritage artefacts**
Yijia Song (Ghent University, Belgium)

1A-O2-1	Modeling and Simulation	Room 2

Chair: Toru Sasaki (Nagaoka University of Technology, Japan)

11:00-11:25 **1 (Invited)** **Plasma-Informed Atomistic Mechanisms of Carbon Ashing in Torr-Range Ar/O_2 Capacitively Coupled Plasmas**
Ho Jun Kim (Hanyang University, Republic of Korea)

11:25-11:40 **2** **Effect of Oxygen Admixture on Ion Flux and Ion Energy Distribution in Dual-Frequency Capacitive RF Ar/O_2 Plasmas under HF/LF Voltage Variation**
Cheol Woong Kim (Pusan National University, Republic of Korea)

11:40-11:55 **3** **Plasma and Material Informatics for Machine-Learning Prediction of Thin-Film Properties in Plasma Processing**
Kunihiro Kamataki (Kyushu University, Japan)

11:55-12:10 **4** **The Unified Concept of Chyhin Complex Pulsations of Negative Corona: From the Trichel Limit to Reactive Plasma Kinetics**
Vasyl Chyhin (Lviv Polytechnic National University, Ukraine)

12:10-12:25 | 5 | **Thermal Wall Model for Gas–Solid Interfaces Based on Collision Processes toward Plasma-Seed Treatment**
Hiroya Yamamoto (National Institute for Fusion Science, Japan)

12:25-12:40 | 6 | **Numerical investigation of Arc Plasma Elongation and Reconnection Processes in Gliding Arc Discharge using 2D Electromagnetic-Thermofluid Simulation**
Takumi Yamagishi (Tohoku University, Japan)

Lunch

Special Session 1 | **Computational** | **Room 2**

Chair: Satoru Kawaguchi (Muroran Institute of Technology), Shinichi Imai (Hitachi High-Tech Corporation)

13:00-15:00 | 1 | **Operator Learning Accelerated Particle-in-Cell Simulations**
Linlin Zhong (Southeast University, China)

2 | **Data-driven estimation of kinetic parameters for O surface recombination in plasmas**
Pedro Viegas (IPFN, IST, University of Lisbon, Portugal)

3 | **Machine Learning-Based Optimization of Etching Processes: Effects of Design of Experiments for Initial Data Acquisition and Application of Transfer Learning**
Takeshi Ohmori (Hitachi, Ltd., Research & Development Group, Tokyo, Japan)

4 | **Probabilistic Framework for Physics Modeling of Plasma Discharges**
Laxminarayan Raja (University of Texas at Austin, United States of America)

1P-O1-1 | **Life Science** | **Room 1**

Chair: Shinya Kumagai (Meijo University, Japan)

13:45-14:10 | 1 (Invited) | **Strategies for Modulating Cellular Responses via Low-Dose Cold Atmospheric Plasma Treatment**
Hirofumi Kurita (Toyohashi University of Technology, Japan)

14:10-14:35 | 2 (Invited) | **Effect of Atmospheric-Pressure Plasma irradiation on Sorghum Seeds**
Yuki Yanagawa (Chiba University, Japan)

14:35-14:50 | 3 | **Analysis of Reaction Intermediates in Oxygen Radical–Induced Tryptophan in Aqueous Solution by ESR and Mass Spectrometry**
Daiji Kitagawa (Nagoya University, Japan)

14:50-15:05 | 4 | **Structural alterations of proteins induced by cold plasma in seeds and mammalian cells**
Pankaj Attri (Kyushu University, Japan)

15:05-15:20 | 5 | **Effects of Air Plasma-Synthesized Dinitrogen Pentoxide on Secondary Metabolism in Strawberry**
Zimeng Wu (Tohoku University, Japan)

15:20-15:35 | 6 | **Correlation between Dynamic Membrane Properties and Temperature-Dependent Hydrogen Peroxide Permeability of Phospholipid Bilayers: A Molecular Dynamics Study**
Yuki Iijima (Tokyo Metropolitan University, Japan)

Coffee Break

1P-O1-2 Deposition Room 1

Chair: Giichiro Uchida (Nagoya University, Japan)

16:00-16:25 **1 (Invited)** **Multi-Scale, Mechanism-Driven Simulation of TEOS-Based Chemical Vapor Deposition**
Hu Li (Tokyo Electron America Inc., United States of America)

16:25-16:50 **2 (Invited)** **Plasma-surface Interactions on Deposition Processes for Si Dielectric Films**
Nobuyuki Kuboi (Sony Semiconductor Solutions Corporation, Japan)

16:50-17:05 **4** **Plasma Chemical Diversity as a Grey-Box AI Descriptor for Low-Temperature ICP-PECVD SiO_2 Films**
Masaharu Shiratani (Kyushu University, Japan)

17:05-17:20 **5** **Distinct Features of Organosilicon Film Forming Behaviors in Helium and Argon-based Atmospheric Pressure Very-High Frequency Plasma**
Farrel Dzaudan Naufal (The University of Osaka, Japan)

1P-O2-1 Liquid-Phase and Gas-Liquid •Diagnostics Room 2

Chair: Toru Sasaki (Nagaoka University of Technology, Japan)

16:00-16:25 **1 (Invited)** **Evaluation of plasma-induced reactive oxygen species using a gas-liquid interface reaction**
Jun-Seok Oh (Osaka Metropolitan University , Japan)

16:25-16:50 **2 (Invited)** **Plasma-Liquid Interactions: Mechanistic Studies to Enable Reaction Control**
Peter Bruggeman (University of Minnesota, United States of America)

16:50-17:05 **3** **Reactive Transport of Plasma-Generated Species in Water Jet: An SPH Simulation with Electrophoresis**
Makoto Sugimoto (Tohoku University, Japan)

17:05-17:20 **4** **Experimental Estimation of Net Hydroxyl Radicals Flux Utilizing Reaction-Diffusion Model**
Xiao Yuan (Tohoku University, Japan)

17:20-17:35 **5** **Comprehensive Multi-Modal Monitoring of Diamond Growth in Plasma CVD Processes**
Kaishu Nitta (National Institute of Advanced Industrial Science and Technology, Japan)

17:35-17:50 **6** **In-situ monitoring of reactive hydrocarbon microwave microplasma for synthesis of size controlled luminescent nanodiamonds**
Joel Jeevan (LSPM-CNRS, Université Sorbonne Paris Nord, Villetaneuse, France)

17:50-19:20 Poster Session Core Time 2 Room 2

1P-P2-1 **Influence of Electrode Geometry on the Emission Distribution of Surface-Launched Plasma Bullets in Helium**
Masaya Yamamoto (Osaka Metropolitan University, Japan)

1P-P2-2 **Effects of Input Pulsed-Voltage Waveforms on Bullet Propagation Characteristics of Atmospheric-Pressure Surface-Launched Plasma Bullets in Argon Gas**
Mizuki Yoshimoto (Osaka Metropolitan University, Japan)

1P-P2-3 **Surface-Launched Plasma Bullet Control through Dynamic dV/dt Modulation**
Tatsuru Shirafuji (Osaka Metropolitan University, Japan)

1P-P2-4 **Polarity-Dependent Emission Propagation of an Atmospheric-Pressure Plasma Jet under an External Electric Field**
Hiromasa Yamada (National Institute of Technology, Nagano College, Japan)

1P-P2-5 **Electron Layer Thickness on Metal Object Formed by Nonthermal Equilibrium Plasma**
Kiyoyuki Yambe (Niigata University, Japan)

1P-P2-6 **Streamer diagnostics using a flexible fast pulse source**
Sander Nijdam (Eindhoven University of Technology, Netherlands)

1P-P2-7 **Repetition Frequency Characteristics of Nitrogen Pulsed Glow Discharge Plasma Driven by a High *dv/dt* SiC Pulser**
Yugo Tanaka (University of Hyogo, Japan)

1P-P2-8 **Velocity of Plasma Filaments Generated by Nitrogen Micro-gap Dielectric Barrier Discharge in Flow Field**
Seiji Mukgaigawa (Iwate University, Japan)

1P-P2-9 **Changes in the Geometry of Microwave Discharge Filaments at Subatmospheric Pressure**
Shiori Nibu (Iwate University, Japan)

1P-P2-10 **Effects of Quartz-Nozzle Diameter and Inner-Conductor Length on Microwave Plasma Expansion toward Large-Area Y_2O_3 Film Deposition**
Hiroki Nagamori (Kanazawa University, Japan)

1P-P2-11 **Experiments and modeling of carbon monoxide production by an atmospheric pressure plasma jet**
Ippei Saito (Seikei University, Japan)

1P-P2-12 **Enhancement of SiO_2-SiO_2 Interfacial Bonding via Atmospheric-Pressure Low-Temperature Plasma Surface Treatment**
Jaeuk Park (Jeonbuk National University, Republic of Korea)

1P-P2-13 **Numerical Thermofluid Modelling of Arc Plasma and Hafnium Evaporation in a Plasma Cutting Torch**
Nobuhiro Takata (Kanazawa University, Japan)

1P-P2-14 **Molecular Dynamics Simulation of Si Atom Condensation under Different Temperature Decay Rates for Tandem Modulated Induction Thermal Plasma**
Rio Okano (Kanazawa university, Japan)

1P-P2-L15 **Temporal Control of Carbon-, Hydrocarbon-, and Hydrogen-Related Species Generation Using a Two-Slope Sawtooth-Modulated Coil-Current Waveform for Single-Crystal Diamond Growth**
Kou Sato (Kanazawa University, Japan)

1P-P2-L16 **High-Speed Spectroscopic Imaging of Hydrocarbon Pyrolysis Processes in a Multiphase AC Arc**
Manabu Tanaka (Kyushu University, Japan)

1P-P2-L17 **Effects of Mn Feedstock Powder Injection on the Temperature Field for HEA Nanoparticle Synthesis Using Tandem-Type Induction Thermal Plasma**
Takahiro Akashi (Kanazawa University, Japan)

1P-P2-L18 **Numerical Investigation of Temporal Control of Nitrogen-Containing Species Fluxes by Feed-Gas Timing in Modulated Induction Thermal Plasma**
Htet Wonna Oo (Kanazawa University, Japan)

1P-P5-1 **Impact of Tsallis q-Entropy on Atomic Photoionization in Non-Extensive Plasmas**
Myoung-Jae Lee (Hanyang University, Republic of Korea)

1P-P5-L2 **Effects of electron impact transitions between excited states on argon emission**
Shion Kobayashi (Institute of Science Tokyo, Japan)

1P-P7-1 **Fluorocarbon-assisted Cryogenic HF Plasma Etching of Si-based Dielectric Films with Ultra-high Selectivity over Amorphous Carbon**
Shih-Nan Hsiao (Nagoya University, Japan)

1P-P7-2 **13.56 MHz and 2 MHz Bias effect on the High-Aspect-Ratio Etching in $Ar/O_2/C_4F_6/C_4F_8$ Dual-Frequency Capacitively Coupled Plasma**
Sijun Kim (Chungnam National University, Republic of Korea)

1P-P7-3 **Low Temperature Etching of Silicon Oxide Assisted by H_2O in Ar/CF_4 Plasma**
Hakseung Lee (SKKU, Republic of Korea)

1P-P7-4 **SiO_2/Si stack damage structure in Ar, O_2, and H_2 plasma processing**
Shota Nunomura (National Institute of Advanced Industrial Science and Technology, Japan)

1P-P7-5 **Sputter Cleaning of the ITER Divertor Impurity Monitor First Mirror Using Low-Pressure 40.68 MHz RF Discharge**
Andrey Ushakov (TNO, Netherlands)

1P-P7-6 **Effect of Change in Water Vapor Supply and Pressure Associated with Temperature Increase on Water Plasma Ashing Characteristics**
Yamato Hiraoka (Kanazawa University, Japan)

1P-P7-7 **Effects of Hydrogen Radicals Generated from Remote Plasma Source on Atomic Scale Etching of TiO_2 Layer**
Heesu Lee (Jeonbuk National University, Republic of Korea)

1P-P8-1 **Enhancement of N–V Center Formation in Nitrogen-Doped Diamond Films by Radical Injection Plasma Enhanced Chemical Vapor Deposition**
Yuto Yonehara (Meijo University, Japan)

1P-P8-2 **Structural Control of Si–Sn Nanowires Fabricated by Sputtering for Li-ion Battery Anodes**
Reo Yokoyama (Meijo University, Japan)

1P-P8-3 **Development of Sn-Zn Composite Thin Film Anodes by Co-Sputtering for Lithium-Ion Batteries**
Kotaro Toda (Meijo University, Japan)

1P-P8-4 **Sputter-Deposition of Al_2O_3 Layer for Interfacial Control on LTO anode in Li ion Batteries**
Takashi Asai (Meijo University, Japan)

1P-P8-5 **Effect of process pressure on nitrogen incorporation in titanium dioxide thin films deposited by reactive sputtering**
Ryusuke Goto (Meijo University, Japan)

1P-P8-6 **Effect of nitrogen gas flow rate ratio on deposition of AlN film by high-power impulse magnetron sputtering**
Shunichi Oshima (Meijo University, Japan)

1P-P8-7 **Deposition of tellurium oxide using high-power impulse magnetron sputtering**
Tatsuro Yamamoto (Meijo University, Japan)

1P-P8-8 **Fracture Characteristics of Hydrogenated Amorphous Carbon Films with Inserted Carbon Nanoparticles**
Ryosuke Kinnami (Kyushu university, Japan)

1P-P8-9 **Ion Energy Dependence of a-C:H Film Structure from the Low-H/C Precursor Cumene**
Shumpei Ohara (Kyushu University, Japan)

1P-P8-10 **Effects of Nitrogen Incorporation into ZnON Seed Layers Fabricated by a Low-Temperature Process on the Grain Size of ZnON Seed Layers and Quality of ZnO:Al Films**
Yoshiharu Wada (Kyushu University, Japan)

1P-P8-11 **Preparation of Hydrogenated Amorphous Carbon (a-C:H) Films to Promote Corrosion Resistance and Thermal Aging Stability on Stainless-Steel**
Kun-Lin Li (National Taiwan University of Science and Technology, Taiwan)

1P-P8-12 **Influence of Nozzle-to-Substrate Distance on Wide High-Rate DLC Deposition in Gas-Injected Pulsed Plasma CVD**
Toru Harigai (Gifu University, Japan)

1P-P8-13 **Deposition and Characterization of Silicon Oxide Like Films Using Capacitively-Coupled Ar/HMDSO/O_2 plasmas**
Junho Seo (Jeonbuk National University, Republic of Korea)

1P-P8-14 **Fabrication of High-Adhesion Gradient Functional Thin Films for Hydrogen Embrittlement Prevention**
Hiroharu Kawasaki (National Institute of Technology, Sasebo College, Japan)

1P-P8-15 **Evaluation of Mechanical Properties of sp^3-bonded BN films under Progressive Delamination using Si Microstructured Substrates**
Haruki Toge (Kyoto university, Japan)

1P-P8-16 **Effects of Nitrogen Incorporation into sp^2-phase BN films on Time-dependent Dielectric Breakdown Features**
Ayato Chiwata (Kyoto University, Japan)

1P-P8-17 **Application of a High-*dv/dt* SiC-MOSFET Pulser as a Plasma Power Supply for Diamond-Like Carbon Film Preparation**
Ren Kitaguchi (University of Hyogo, Japan)

1P-P8-18 **Aerosol-Assisted Multi-Gas Atmospheric Plasma Deposition of Enhanced Antimicrobial Biopolymer Coatings**
Hua-Ting Hsieh (FIRST, Institute of Science Tokyo, Japan)

1P-P8-L19 **Growth behavior of crystalline Si film on nanostructured Si substrate using high-density hydrogen plasma induced chemical transport**
Jun Onoe (The University of Osaka, Japan)

1P-P10-1 **Pressure-Induced Morphological Transition from Planar Graphene to Carbon Nanowalls in Microwave Plasma CVD**
Naoki Morita (Meijo University, Japan)

1P-P10-2 **Deposition of p-type high-carrier-mobility SnO film by high-power impulse magnetron sputtering**
Takumi Inoue (Meijo University, Japan)

1P-P10-3 **Effect of Oxygen Flow Rate Ratio on Film Characteristics of IGZO Thin Films Deposited by HiPIMS**
Sota Matsuoka (Meijo University, Japan)

1P-P10-L4 **XAFS analysis of Ge nanostructures implanted in SiO_2 materials**
Tomoko Yoshida (Nagoya University, Japan)

1P-P10-L5 **Silicon Sludge Recycling using Thermal Plasma Process and Suspension Feeding**
Daiki Kubota (Shimane Institute for Industrial Technology, Japan)

1P-P10-L6 **Diameter-Selective Reaction Confined to the Topmost Surface of Single-Walled Carbon Nanotube Sheets under Hydrogen Radical Irradiation**
Haruna Sakata (Kyushu University, Japan)

1P-P10-L7 **Effects of Hydrogen Plasma Active Species on Structural and Electrical Properties of Single-Walled Carbon Nanotube Sheets**
Mika Yamasaki (Kyushu University, Japan)