



The 14th International Conference on
the Science and Technology for Advanced Ceramics

STAC-14

October 8–10, 2024, Yokohama, JAPAN

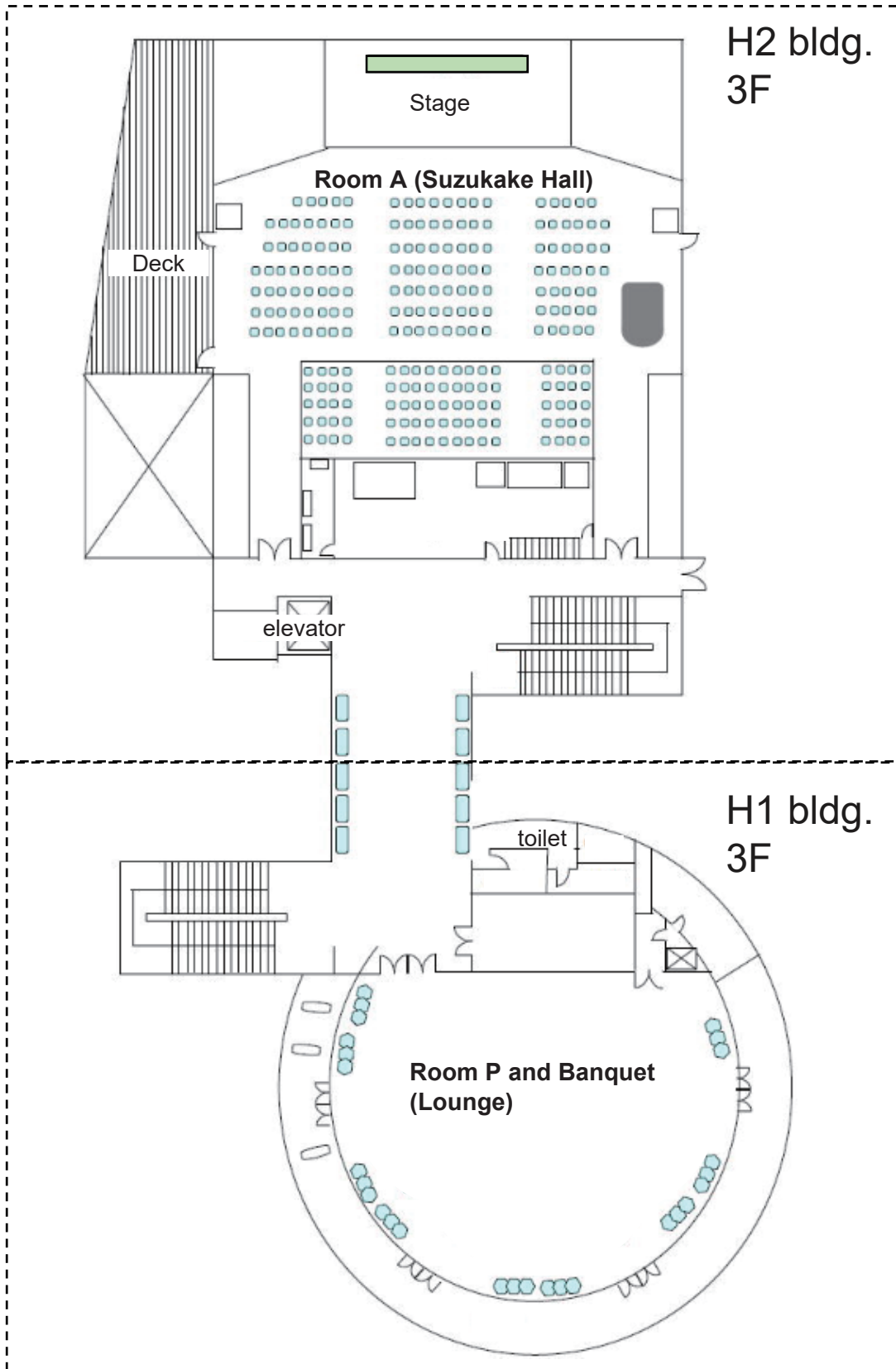
The Fourteenth International Conference on the Science and Technology for Advanced Ceramics (STAC14)

PROGRAM BOOK

October 8-10, 2024

Suzukake-dai Campus, Tokyo Institute of Technology

Floor Map



Floor Map

H2 bldg.
2F



8-Oct

	RoomA (Suzukake Hal, 3F)	RoomB (2F)	RoomC (2F)
10:30-10:45	Opening remarks		
10:45-11:00	Electro Magnet	MDX	Chemical Mater
11:00-11:15	Kazuhiko Deguchi	Anton Van der Ven	Jianping Guo
11:15-11:30	Kei Maeda	Jan Hempelmann	Masashi Hattori
11:30-11:45	Rikizo Yano	Ryo Tamura	Sho Yamaguchi
11:45-12:00	N/A	Teruya Nagafuji	N/A
12:00-12:15			
12:15-13:45		Lunch Break	
13:45-14:00	Marco Deluca	Manish Jain	Sebastien PAUL
14:00-14:15	Sotaro Kageyama	Kanta Ogawa	Takeshi Alhara
14:15-14:30	Kouhei Shimonosono	Susumu Fujii	Shohei Tada
14:30-14:45	Zenji Li	Kansei Kanayama	Feilong Xing
14:45-15:00	Soma Seto	Xinyi He	
15:00-15:15	Xiaojun Wu		
15:15-15:30			
16:00-18:00		Poster	

9-Oct

	RoomA (Suzukake Hal, 3F)	RoomB (2F)
	Electro Magnet	Semiconductor
9:00-9:15	N/A	Erjun Zhou
9:15-9:30	N/A	
9:30-9:45	David Pesquera	Ryota Kabe
9:45-10:00	Koomok Lee	Hiroto Iwasaki
10:00-10:15	Jie Chen	QINGJUN SHUI
10:15-10:30		
10:30-10:45		Break
	Solid State Chem	
10:45-11:00	Daisuke Kan	Bowen Zhu
11:00-11:15		
11:15-11:30	Tepppei Nagase	Kosuke Takenaka
11:30-11:45	Yuki Sakai	Ryusei Higuchi
11:45-12:00	QIUMIN LIU	Tomoya Suzuki
12:00-12:15		
12:15-13:45		Lunch Break
		Bio
13:45-14:00	Michael Hayward	Jake Barralet
14:00-14:15		
14:15-14:30	Takuya Ohmi	Mamoru Aizawa
14:30-14:45	Takeshi Yajima	
14:45-15:00	Taiki Kosuge	Richard Espiritu
15:00-15:15	Takehiro Koike	Yasutaka Anraku
15:15-15:30		
15:30-15:45		Break
15:45-16:00	Wei-Tin Chen	Geraldine Merle
16:00-16:15		
16:15-16:30	Yli Cao	Toru Yoshitomi
16:30-16:45	Jie Chen	
16:45-17:00	Toshihiro Isobe	Elienna Farfel
17:00-17:15	Yasuhide Mochizuki	Yuta Aida
17:15-17:30	Hena Das	Hayato Laurence Mizuno
18:00		Banquet

10-Oct

	RoomB (2F)	RoomC (2F)
	Engineering Mater	Adv Characterization
9:00-9:15	Sea-Hoon Lee	
9:15-9:30		Jianbo HU
9:30-9:45	Akihiko Ito	Tetsuya Yamaki
9:45-10:00		
10:00-10:15	Ken-ichi Ikeda	Kazutaka Nakamura
10:15-10:30		Ekaterina Khestanova
10:30-10:45	Break	Zhongxu Hu
10:45-11:00	Yu Nakano	
11:00-11:15	Alin Yoshida	
11:15-11:30	Haruki Setogawa	
11:30-11:45	Gaku Okuma	

Invited, Oral Lectures

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Room A (Suzukake Hall, 3F)			
Time	Name	Affiliation	Title
10:30	Opening remarks	Mchikazu Hara	Institute of Science Tokyo
Room A			
Electro-magnetic materials			
[Chair: David Pesquera]			
Time	Name	Affiliation	Title
10:45 (1A01 (Invited))	Kazuhiko Deguchi	Nagoya University	Superconductivity of icosahedral quasicrystals and approximants
11:15 (1A02)	Kei Maeda	Institute of Science Tokyo	Study of potential superconductivity in La _{0.7} Sr _{0.3} Mn _{0.9} Ir _{0.1} O ₃ thin films
11:30 (1A03 (Invited))	Rikizo Yano	Nagoya University	Tailoring Magnetic Topological Materials for Superconducting Junctions
12:00	Lunch Break		
[Chair: Kazuhiko Deguchi, Rikizo Yano]			
13:45 (1A04 (Invited))	Marco Deluca	Silicon Austria Labs GmbH	Solution-deposited high energy density lead-free thin films for energy storage applications
14:15 (1A05)	Sotaro Kageyama	Institute of Science Tokyo	Growth of Heterovalent Ternary Nitride, (Mg,Si)N, Thin Films and Their Piezoelectricity
14:30 (1A06)	Kouhei Shimomono	Institute of Science Tokyo	Ferroelectric properties and Curie temperature of epitaxial CeO ₂ -HfO ₂ -ZrO ₂ films deposited by PLD
14:45 (1A07)	Zerui Li	Institute of Science Tokyo	Synthesis and dielectric property of a novel titanite-type oxide PbTiGeO ₅
15:00 (1A08)	Soma Seto	Institute of Science Tokyo	Observations of polar antiphase boundaries in antiferroelectric PbZrO ₃
15:15 (1A09)	Xiaojun Wu	Sichuan University	Comprehending the potential correlation between strain performances and phase boundary characteristics of BNT-based systems
15:30			
16:00	16:00-18:00 Poster Session (Room P)		

Room B (2F)			
MDX Special Session: Materials DX			
[Chair: Hena Das, Toshio Kamiya]			
Time	Name	Affiliation	Title
10:45 (1B01 (Invited))	Anton Van der Ven	University of California Santa Barbara	Predicting the electronic, thermodynamic and kinetic properties of transition metal oxides and nitrides
11:15 (1B02)	Jan Hempelmann	Institute of Science Tokyo	Using DFT-based Chemical Bond Analysis to Investigate Structure-Property Relationships in Functional Materials
11:30 (1B03 (Invited))	Ryo Tamura	National Institute for Materials Science	Support software for automated and autonomous experiments: NIMO
12:00 (1B04)	Teruya Nagafuji	Institute of Science Tokyo	Point Defects and Self-Trapped Electrons in La ₂ SnO ₂ S ₃
12:15	Lunch Break		
[Chair: Hena Das, Fumiyasu Oba]			
13:45 (1B05 (Invited))	Manish Jain	Indian Institute of Science	Quasiparticle and optical properties of large systems
14:15 (1B06)	Kanta Ogawa	Institute of Science Tokyo	Controlling the stereochemical activity of lone-pair on Bi ³⁺ for bandgap tuning
14:30 (1B07 (Invited))	Susumu Fujii	Kyushu University	Discovery of unconventional proton-conducting oxides: computational screening and interpretable machine learning based on defect chemistry
15:00 (1B08)	Kansei Kanayama	Kyoto University	A Molecular Dynamics Study with Quantum Thermal Bath on Phase Transitions in Perovskites
15:15 (1B09)	XINYI HE	Institute of Science Tokyo	Inverse-Perovskite Oxides with High Thermoelectric Performance and Air Stability
15:30			
16:00	16:00-18:00 Poster Session (Room P)		

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Room C (2F)				
Chemical materials				
[Chair: Masaaki Kitano]				
Time	Name	Affiliation	Title	
10:45 /IC01 (Invited)	Jianping Guo	Chinese Academy of Sciences	Hydride-mediated ammonia synthesis	
11:15 /IC02	Masashi Hattori	Institute of Science Tokyo	Catalytic Ammonia Synthesis on Iron Catalyst at Low Temperature	
11:30 /IC03 (Invited)	Sho Yamaguchi	Osaka University	Unique Catalysis of nickel carbide nanoparticles in the liquid-phase hydrogenation of biomass-derived carbon resources into valuable chemicals	
12:00	Lunch Break			
[Chair: Keigo Kamata, Satoshi Ishikawa]				
13:45 /IC04 (Invited)	Sebastien PAUL	UCCS - Centrale Lille	Accelerating the development of sustainable catalytic processes through high-throughput experiments	
14:15 /IC05	Takeshi Aihara	Institute of Science Tokyo	Synthesis of Ti-based Perovskite Oxide Nanoparticles and Application to Acid- and Base-catalyzed Reactions	
14:30 /IC06 (Invited)	Shohei Tada	Hokkaido University	CO ₂ hydrogenation to olefins using bifunctional catalysts consisting of Zn/ZnOx and zeolite	
15:00 /IC07	Feilong Xing	Institute of Science Tokyo	Room-Temperature CO ₂ Hydrogenation to Methanol over Air-Stable hcp-PdMo Intermetallic Catalyst	
15:15				
16:00	16:00-18:00 Poster Session (Room P)			

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Room A (Suzukake Hal, 3F)				
Eleetro-magnetic materials				
[Chair: Marco Deluca]				
Time	Name	Affiliation	Title	
9:30 /2A01 (Invited)	David Pasquera	ICN2	Novel engineering opportunities and functionalities of freestanding ferroelectric and antiferroelectric oxide films	
10:00 /2A02	Koomok Lee	Institute of Science Tokyo	High-spin Co ³⁺ as a trigger of weak ferromagnetism in Co substituted BiFeO ₃	
10:15 /2A03	Jie Chen	Institute of Science Tokyo	Growth and Characterization of Epitaxial Co-Substituted Bismuth Ferrite Thin Film on Silicon Substrate	
10:30	Break			
Solid State Chemistry				
[Chair: Takeshi Yajima, Wei-Tin Chen]				
10:45 /2A04 (Invited)	Daisuke Kan	Kyoto University	Two-dimensional ferroelectric hafnia nanosheets	
11:15 /2A05	Tepppei Nagase	Institute of Science Tokyo	Synthesis, characterization, and physical property of iron-based perovskite oxide with cation ordering along [111] direction	
11:30 /2A06 (Invited)	Yuki Sakai	KISTEC	Temperature-induced phase transition in quadruple perovskite PbCoO ₃	
12:00 /2A07	QIUMIN LIU	Institute of Science Tokyo	Giant Thermal Expansion in Ca Substituted PbCrO ₃	
12:15	Lunch Break			

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Room A (Suzukake Hal. 3F)	
Solid State Chemistry	
[Chair: Daisuke Kan, Michael Hayward]	
13:45 2A08 (Invited)	Michael Hayward University of Oxford
14:15 2A09	Takuya Ohmi Institute of Science Tokyo
14:30 2A10 (Invited)	Takeshi Yajima Nagoya University
15:00 2A11	Taiki Kosuge Institute of Science Tokyo
15:15 2A12	Takehiro Koike Institute of Science Tokyo
15:30	Break
[Chair: Masaki Azuma, Takafumi Yamamoto]	
15:45 2A13 (Invited)	Wei-Tin Chen National Taiwan University
16:15 2A14	Yili Cao University of Science & Technology Beijing
16:30 2A15	Jie Chen University of Texas at Austin
16:45 2A16	Toshihiro Isobe Institute of Science Tokyo
17:00 2A17	Yasuhide Mochizuki Institute of Science Tokyo
17:15 2A18	Hena Das KISTEC
17:30	
18:00	Banquet
Room B (2F)	
Semiconductors	
[Chair: Seichiro Izawa, Keisuke Ibe]	
Time	Name
9:00 2B01 (Invited)	Erijun Zhou National Center for Nanoscience and Technology
9:30 2B02 (Invited)	Ryota Kabe OIST
10:00 2B03	Hiroo Iwasaki Institute of Science Tokyo
10:15 2B04	Qing-jun SHUI Institute of Science Tokyo
10:30	Break
[Chair: Keisuke Ibe, Seichiro Izawa]	
10:45 2B05 (Invited)	Bowen Zhu Westlake University
11:15 2B06 (Invited)	Kosuke Takenaka Osaka University
11:45 2B07	Ryusei Higuchi Institute of Science Tokyo
12:00 2B08	Tomoya Suzuki Institute of Science Tokyo
12:15	Lunch Break
Bio/medical/environmental materials	
[Chair: Toshiyuki Ikoma, Mamoru Aizawa]	
13:45 2B09 (Invited)	Jake Barralet McGill University Health Centre
14:15 2B10 (Invited)	Mamoru Aizawa Meiji University
14:45 2B11 (Invited)	Richard Espiritu University of the Philippines
15:15 2B12	Yasutaka Anraku Institute of Science Tokyo
15:30	Break
[Chair: Toshiyuki Ikoma, Jake Barralet]	
15:45 2B13 (Invited)	Geraldine Merle McGill University
16:15 2B14 (Invited)	Toru Yoshitomi National Institute for Materials Science
16:45 2B15	Elienna Farrel Institute of Science Tokyo
17:00 2B16	Yuta Aida Institute of Science Tokyo
17:15 2B17	Hayato Laurence Mzuno Institute of Science Tokyo
17:30	
18:00	Banquet

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Room B (2F)

Engineering materials

[Chair: Katsumi Yoshida]

Time	Name	Affiliation	Title
9:00-9:30 (Invited)	Sea Hoon Lee	Korea Institute of Materials Science	Development of UHTCMC Materials for hypersonic system
9:30-10:00 (Invited)	Akihiko Ito	Yokohama National University	Self-organization of α -Al ₂ O ₃ films with Y ₃ Al ₅ O ₁₂ and Lu ₃ Al ₅ O ₁₂ phases in chemical vapor deposition process
10:00-10:30 (Invited)	Ken-ichi Ikeda	Hokkaido University	Orientation Dependence of Mechanical Properties of Textured Ti ₃ SiC ₂
10:30	Break		
[Chair: Gaku Okuma, Tohru Suzuki]			
10:45-11:00	Yu Nakano	Institute of Science Tokyo	Reaction sintering of B ₄ C ceramics using induction heating
11:00-11:15	Alin Yoshida	Institute of Science Tokyo	Sintering Behavior and Polytipe Transformation of SiC Ceramics Influenced by Induction Heating
11:15-11:30	Haruki Setogawa	Institute of Science Tokyo	The effect of SiC particle size and uniaxial pressure on cold sintering of SiC ceramics
11:30-11:45	Gaku Okuma	National Institute for Materials Science	Synchrotron X-ray CT visualization of heterogeneous evolution of pore distribution during sintering of a submicron alumina powder

Room C (2F)

Advanced Characterization

[Chair: Hitoshi Kawajiri]

Time	Name	Affiliation	Title
9:00-9:30 (Invited)	Jianbo Hu	China Academy of Engineering Physics	Ultrafast nonlinear optics in Porphyrin- Based Surface-Supported Metal-Organic Framework Nanofilms
9:30-10:00 (Invited)	Tetsuya Yamaki	National Institutes for QST	Platinum Nanoparticle Electrocatalysts on Ion-Beam-Irradiated Carbon Support: Oxygen Reduction Reaction Performance and Mechanistic Studies
10:00-10:15	Kazutaka Nakamura	Institute of Science Tokyo	Multiple femtosecond pump-probe measurement and control for coherent optical phonons in semiconductors
10:15-10:30	Ekaterina Khestanova	Institute of Photonic Sciences	Cryogenic THz Scanning Near-Field Microscopy for imaging of strongly correlated materials
10:30-10:45	Zhongxu Hu	Institute of Science Tokyo	Fabrication and thermoelectric properties of La-doped Ba(Zr,Hf)S ₃ bulk polycrystals with ultra-low thermal conductivity

Poster Sessions

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Room P (Lounge, 3F) 16:00-18:00			
Advanced Characterization			
	Name	Affiliation	Title
P01	Weirong YANG	Institute of Science Tokyo	Antiferroelectric Response of Titanite Film Prepared by Pulsed Laser Deposition
Bio/medical/environmental materials			
P02	Van Thi Hong Doan	National Institute for Materials Science	Regulation of dendritic cell function by oxidative stimulation of cell membrane using polycation-porphyrin conjugates-immobilized glass bottom dishes
P03	Gerardo Martin III Quindoza	Institute of Science Tokyo	Radiosensitizing Potential of Bi(III) Substituted Hydroxyapatite Nanocrystals for Cancer Therapy: A Theoretical and Experimental Study
P04	Erandi MURILLO DURAN	Institute of Science Tokyo	Preparation of Multilayer Collagen/Hydroxyapatite/Alginate Composites as Bone Grafts
P05	Chun-Yi Chen	Institute of Science Tokyo	Anodized Ti-Nb-Ta-Zr-O Mixed-Oxide Nanotube Arrays: Biomedical and Photoelectrochemical Applications
P06	Yuta Katayanagi	Gunma University	Electrochemical performances in glucose aqueous solution of Cu ₂ O thin film prepared with the mist spin spray method
P07	Sihao Lei	Institute of Science Tokyo	Optimized Crystal Structures of Fe(III)/Si Substituted Apatites based on Experimental Data and Density Functional Theory
Chemical materials			
P08	Takumi Nakamura	Institute of Science Tokyo	Synthesis of Ion Exchanged OMS-1 Ultrasmall Nanoparticles and Their Catalytic Applications for to Oxidation of Sulfides
P09	Masashi Makizawa	Institute of Science Tokyo	Selective oxidation of sulfides using Ru-doped hexagonal perovskite catalysts
P10	Chenyang Zhu	Institute of Science Tokyo	Nitride Supported Cobalt Catalysts for Hydrogenation Reaction
P11	Sekai Narita	Institute of Science Tokyo	Catalytic synthesis of urea derivatives through activation of molecular oxygen over Bi-based topological insulators
P12	Kaito Niita	Institute of Science Tokyo	A Chemically Stable and Efficient Ammonia Synthesis Catalyst Ru/BaCe ₂ O ₄ -xHy
P13	Asuka Kai	Kyushu University	Microstructures and CO oxidation properties of CeO ₂ - δ ultrathin films
Electro-magnetic materials			
P14	Ryoga Murata	Institute of Science Tokyo	Growth of Single Crystals and Observation of Topological Shift Current in a van der Waals Multiferroic CuCrP ₂ S ₆
P15	Shota Okazaki	Institute of Science Tokyo	Movel Magnetic Topological Electronic Phases in Noncentrosymmetric 3d Intercaled Transition Metal Dichalcogenides
P16	Hajime Nakayama	Institute of Science Tokyo	Fabrication of high-quality multiferroic BiFe _{0.9} Co _{0.1} O ₃ nanodot array with electron-beam-lithographed HSQ mask
P17	Xin Zhang	Tsinghua University	Multilayer BiFeO ₃ /SrTiO ₃ Thin Films for Energy Storage Performance
Engineering materials			
P18	Ryotaro Kubo	Institute of Science Tokyo	Investigation of immobilization process of Sr in whitlockite by cold sintering
P19	Genki Hirano	Institute of Science Tokyo	Synthesis of Cr ₂ AlB ₂ by combustion synthesis process
P20	Mone Hemmi	Institute of Science Tokyo	Negative thermal expansion mechanism of MOR and FAU-type zeolite
P21	Shunsuke Ito	Institute of Science Tokyo	Development of a novel CO ₂ capture technology using seawater

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MDX Special Session: Materials DX			
P22	Zan Yang	Institute of Science Tokyo	Acceleration of Thermoelectric Materials Discovery by Extracting Phonon and Carrier Transport Information from Dielectric Response
P23	Kosuke Ando	Tokyo University of Agriculture and Technology	Deep Learning for 3D Reconstruction of Superconducting Wire Filaments
P24	Hiroki Ishii	Institute of Science Tokyo	First-Principles Study of High Carrier Density Doping in Wide-Gap Oxides
P25	Ryosuke Nakagawa	Institute of Science Tokyo	Statistical Evaluation of Relationship between Local Structure and Physical Properties in Bi-Based Oxides
P26	Hiroki Koiso	Institute of Science Tokyo	Thermal Expansion and Phase Stability of Cubic B(III)F ₃ (B=Sc, Y, La, Al, In, Ga)
P27	Takanori IshiiAkira	Institute of Science Tokyo	Systematic Analysis of Point Defects in α -(Al _x Ga _{1-x}) ₂ O ₃ Alloys Using First-Principles Calculations
Semiconductors			
P28	Sangjin Choi	Institute of Science Tokyo	Hydrogen substitution effect on thermoelectric properties of BaTiO ₃ -xH _x films with low thermal conductivity
P29	ZHONGZHENG SUN	Institute of Science Tokyo	Nano-Cross Point Ferroelectric Tunneling Junctions based on 7% Yttrium-Doped HfO ₂ (YHO7)
Solid State Chemistry			
P30	Rei Kawasaki	Tokyo University of Agriculture and Technology	Copper Addition Effect on MgB ₂ Superconducting Bulks Produced by the Mg Vapor Transportation (MVT) Method
P31	Shota Ishiwata	Tokyo University of Agriculture and Technology	Crystal orientation and critical current properties in K-doped Ba122 polycrystalline bulks synthesized by two-step spark plasma sintering
P32	Fumiya Shimoyama	Tokyo University of Agriculture and Technology	Study on the synthesis of SmFeAs(O,H) polycrystalline bulks through high energy milling process
P33	He Jiang	Institute of Science Tokyo	Tuning the selectivity of catalytic nitrile hydrogenation with phase-controlled Co nanoparticles prepared by hydrosilane-assisted method
P34	Koki Matsushima	Institute of Science Tokyo	Exploration of Novel Organic-Inorganic Hybrid Perovskite Using High-Pressure Synthesis
P35	Haruki Tochizawa	Institute of Science Tokyo	Control of anion ordering in oxyhydrides under high pressure
P36	Kazuki Takahashi	Institute of Science Tokyo	Colossal negative thermal expansion in BiCoO ₃ derivatives
P37	Jun Miyake	Institute of Science Tokyo	Negative thermal expansion in A, B-sites substituted BiFeO ₃
P38	Nur Rahmawati Ayukaryana	Tokyo University of Agriculture and Technology	Understanding the routes for highly dense Ba _{0.6} K _{0.4} Fe ₂ As ₂ bulk superconductor through high-energy milling and metal addition
P39	Nur Rahmawati Ayukaryana	Tokyo University of Agriculture and Technology	Fabrication of MgB ₂ Superconducting Tapes by the Rapid Heating and Quenching (RHQ) Method
P40	yuya otsubo	Institute of Science Tokyo	Chemical etching of cation- and anion-ordered perovskite oxide for obtaining oxide nanosheet
P41	Hiroki Sahara	Institute of Science Tokyo	Single crystal growth and characterization of vanadate oxyhydrides
P42	Kohei Yamashita	Institute of Science Tokyo	Optoelectronic Properties of Magnesium Selenide Epitaxial Films
P43	Wataru Taniguchi	Institute of Science Tokyo	Anion substitution effect on (110) _p plane defect-ordered perovskite FA ₄ Pb ₂ 17.5(SCN) _{0.5}
P44	Kenta Hashimoto	Institute of Science Tokyo	Thermal transport properties of metal-insulator transition material Cu _{1.2} (S _{1-x} Se _x) ₄
P45	Suguru Kitani	Institute of Science Tokyo	Thermal transport study on layered oxides LiTMO ₂ (TM = V, Cr, Co) with different electronic degrees of freedom
P46	DINH THE Nam	Institute of Science Tokyo	Temperature-induced Phase Transition of P-type Oxide- semiconductors Cu-Ni-Co O Thin Films Fabricated by Mist Spin Spray Method
P47	En-Pei Liu	National Taiwan University	Magnetic Properties of Geometric-Frustrated Double Perovskite (Hg, Ca) ₂ MnTeO ₆
P48	Yasuhide Mochizuki	Institute of Science Tokyo	Chemical Trends of Surface Reconstruction and Band Alignment for Nonmetallic ABO ₃ from First Principles
P49	Yusuke Shibata	Institute of Science Tokyo	Control of operating temperature of BiNiO ₃ -based negative thermal expansion materials by Bayesian optimization assisted multi-element substitution
P50	Masaaki Iwamoto	Institute of Science Tokyo	Low-temperature reduction of Pd-loaded Sr ₃ Fe ₂ O _{7-δ} yielding water-intercalated phase