

The Ninth International Conference on Materials Engineering for Resources

ICMR2021 AKITA

Conference Program

October 21 Thu. – 22 Fri., 2021 ONLINE



Organized by

The Society of Materials Engineering for Resources of JAPAN

Co-Organized by

Graduate School of Engineering Science, Akita University and

Graduate School of International Resource Sciences, Akita University and

Akita University International Center for Research and Education on Mineral and Energy Resources and

Akita University: JSPS Core-to-Core Program and

Akita University: JSPS Inter-University Exchange Project and

Akita University: Tohoku Initiative for Fostering Global Researchers for Interdisciplinary Sciences (TI-FRIS)

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Conference Program Time Schedule

October 21(Thursday)

9 : 00 ~ 9 : 10 Opening Ceremony Room A

9 : 10 ~ 10 : 30 Plenary Lectures Room A

9:10~9:50	PL-1 Courtney Young <i>Invite Speaker by TI-FRIS</i>	Montana Technological University Review of the Mechanism for Orfom® D8 Depression of Chalcopyrite in Cu-Mo Separation during Cleaner Flotation
9:50~10:30	PL-2 Nowshad Amin <i>Keynote Speaker</i>	Universiti Tenaga Nasional Thin Film Photovoltaics (PV) of CdTe: Prospects & Challenges

10:30~10:50 Break

10 : 50 ~ 19 : 20 Oral Presentation Room A · B · C

	Room A	Room B		Room C
10:50~12:10	Strategy of Environment, Resource, Advanced Mining Technology, Recycle and Energy A-1, A-2, A-3, A-4	Engineering Materials for Sustainable Development B-1*, B-2*, B-3	10:50~11:20	Biomaterials and Nanotechnology C-1*
			11:20~11:50	Engineering Materials for Sustainable Development C-2*
			11:50~12:10	Processing and Characterization of Functional Materials C-3
12:10~13:00	Lunch Break	12:10~13:00	12:10~13:00	Lunch Break
13:00-14:55	Special Session of Mining Informatics for Sustainable Resource Development in Central Asia:Core-to-Core Program A-5*, A-6*, A-7, A-8*, A-9	13:00~13:40	13:00~14:30	C-4*, C-5, C-6, C-7
		13:40~14:40	14:30~14:50	Break
14:55~15:20	Break	14:40~15:00	15:00~16:00	C-8, C-9, C-10
15:20~16:20	Special Session of Smart Mining Program with Sourthern African Countries A-10, A-11, A-12	15:00~16:00	15:50~16:10	Break
16:20~16:30	Break	16:00~16:20	16:10~17:30	C-11, C-12, C-13, C-14
16:30~17:45	A-13*, A-14*, A-15*	16:20~17:20		
17:45~18:00	Break			
18:00~19:20	A-16, A-17, A-18, A-19			

* Keynote Speaker

October 22(Friday)

9:00 ~ 14:20

Poster Presentation

Room A · B · C

Room A

Room B

Room C

9:00~10:10

AP-1 ~ AP-7

9:00~9:50

BP-1 ~ BP-5

9:00~10:10

CP-1 ~ CP-7

Break (~ 10:40)

10:40~11:40

AP-8 ~ AP-13

10:40~11:30

BP-6 ~ BP-10

10:40~11:50

CP-8 ~ CP-14

Lunch Break(~ 13:00)

13:00~14:20

AP-14 ~ AP-21

13:00~13:50

BP-11 ~ BP-15

13:00~14:00

CP-15 ~ CP-20

Break (~ 14:40)

14 : 40 ~ 16:10

Plenary Lecture

Room A

14:40~15:10

PL-3

Kenichi Oyaizu

Keynote Speaker

Waseda University

Organic Functional Materials for Energy Storage

15:10~15:40

PL-4

Richard Diaz Alorro

Invite Speaker by TI-FRIS

Curtin University

Technospheric Mining: Resource Recovery from Technospheric Stocks and Anthropogenic Ores

15:40~16:10

PL-5

Anna Littleboy

Keynote Speaker

The University of Queensland

The sustainable supply of minerals needed for a low carbon future

16:10~16:20

Break

16:20 ~ 16:40

Closing Ceremony

Room A

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October 21(Thursday)

Room A

9 : 00 – 9 : 10 Opening Ceremony

9 : 10 – 10 : 30 Plenary lecture

Chairperson: **Atsushi Shibayama**

9:10-9:50 PL-1 Review of the Mechanism for Orfom[®] D8 Depression of Chalcopyrite in Cu-Mo Separation during Cleaner Flotation
Courtney Young, **Simon Timbillah**, **Rick Ladouceur**, Montana Technological University, USA

Chairperson: **Seiji Kumagai**

9:50-10:30 PL-2 Thin Film Photovoltaics (PV) of CdTe: Prospects & Challenges
Nowshad Amin, Universiti Tenaga Nasional, Malaysia

October 22(Friday)

Room A

14 : 40 – 16 : 10 Plenary lecture

Chairperson: **Kazuya Matsumoto**

14:40-15:10 PL-3 Organic Functional Materials for Energy Storage
Kenichi Oyaizu, Waseda University

Chairperson: **Atsushi Shibayama**

15:10-15:40 PL-4 Technospheric Mining: Resource Recovery from Technospheric Stocks and Anthropogenic Ores
Richard Diaz Alorro, Curtin University, Australia

15:40-16:10 PL-5 The Sustainable Supply of Minerals Needed for a Low Carbon Future
Anna Littleboy, The University of Queensland, Australia

16 : 20 – 16 : 40 Closing Ceremony

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October 21(Thursday)

Oral Presentation

Room A

10 : 50 – 19 : 20 Oral Presentation

Session *Strategy of Environment, Resource, Advanced Mining Technology, Recycle and Energy*

Chairperson: **Sumio Kato**

- 10:50-11:10 A-1 Gas Adsorption Capability of Hybrid Polymers with Modified Cyclodextrin-Amorphous Silica
Fumio Hamada, Vellore Instituted of Technology
- 11:10-11:30 A-2 Selective Separation of Platinum Group Metals by Precipitation Using Primary Amine Precipitants
Kazuya Matsumoto, Yuki Hata, Hiroshi Katagiri and Mitsutoshi Jikei, Akita University
- 11:30-11:50 A-3 Cracking of Reinforced Concrete by Steam Pressure Cracking Agent
Osamu Kamiya, Mamoru Takahashi, Yasuyuki Miyano, Shinichi Ito, Kenji Murata, Makoto Kawano, Arata Maisawa, Junpei Nanao, Takashi Kazumi, Masanobu Nakatsu, Hiroyuki Mizuma and Yuichi Iwama, Akita University
- 11:50-12:10 A-4 Asteroid Explorer Hayabusa2 Crater Forming Device's Technology
Kenji Murata, Nippon-koki. Co., Ltd.

Lunch Break (12 : 10 ~ 13 : 00)

Session *Special Session of Mining Informatics for Sustainable Resource Development in Central Asia: Core-to-Core Program*

Chairperson: **Yasushi Watanabe ((A-5~A-7) , Youhei Kawamura (A-8~A-9)**

- 13:00-13:25 A-5 Application of SWIR Spectroscopy to Exploration
Imants Kavalieris and Khashgerel Bat-erdene, Plus Minerals LLC, Mongolia
- 13:25-13:50 A-6 Future of Resources Extraction for Smart Materials: Challenges and Implications for the Mining Industry
Fidelis T Suorineni, Nazarbayev University, Kazakhstan
- 13:50-14:10 A-7 Development of Underground Communication System: Case study of WSNs Node Deployment in a Kazakhstani Mine Site
Daniyar Malagazhdar, Hajime Ikeda, Takaya Shionoiri, Fidelis Suorineni, Youhei Kawamura, Akita University

- 14:10-14:35 A-8 Investigation of Chemical Transformations During Roasting of Bioleaching Tailings in the Production of Gold
Hayrullo Hamidov, Omon Fuzaylov, Jahongir Narzullayev and Rustam Khamidov, Navoi State Mining Institute, Uzbekistan
- 14:35-14:55 A-9 Copper Recovery from Chalcopyrite Concentrate by Oxidative Roasting and Acid Leaching
Narangarav Tumen-Ulzii, Ariunaa Garnaad, Alen Silam, Azzaya Tumendelger, Burmaa Gunchin, Nyamdelger Shirchinnamjil, Kazutoshi Haga, Atsushi Shibayama, Altansukh Batnasan, Akita University

Session *Special Session of Smart Mining Program with Southern African Countries*

Chairperson: **Andrea Agangi**

- 15:20-15:40 A-10 Assessment of the Long Term Resource Availability and the Total Material Requirement of Copper, Gold and Iron
Larona S. Teseletso and Tsuyoshi Adachi, Akita University
- 15:40-16:00 A-11 Diagenetic-early Hydrothermal Origin for Cu-Pb-Zn-As Mineralization in Sediment-Hosted Zone 5 Cu-Ag deposit, Kalahari Copperbelt, NW Botswana
Mpho Keeditse, Yasushi Watanabe, Antonio Arribas, Takuya Echigo, Shogo Aoki, Akita University
- 16:00-16:20 A-12 Dimensional Reduction of Rock Hyperspectral Signatures and Classification Based on a NCA Method
Brian B. Sinaice, Narihiro Owada, Hisatoshi Toriya, Elisha Shemang, Zibisani Bagai, Shinji Utsuki and Youhei Kawamura, Akita University

Chairperson: **Tsuyoshi Adachi**

- 16:30-16:55 A-13 Petrogenesis and Mineralization of the 2.06 Ga Phalaborwa Complex, South Africa, from Mineral Compositions, Pb-S Isotopes and Imaging
Robert Bolhar, Loic Le Bras and Lorenzo Milani, University of the Witwatersrand, South Africa
- 16:55-17:20 A-14 Partitioning and Distribution of Silver in Sediment-Hosted Cu-Ag Deposits: Evidence from the Ghanzi-Chobe Belt Portion of the Kalahari Copper Belt
Tebogo Kelepile, Thierry Bineli Betsi, Fulvio Franchi and Elisha Shemang, Botswana International University of Science and Technology, Botswana
- 17:20-17:45 A-15 Optimization of Open Pit Design Using Maxflow Algorithm - A Case Study
Emmanuel K Chanda, Pathie M Musenge and Bunda Besa, University of Zambia, Zambia

Chairperson: **Altansukh Batnasan**

- 18:00-18:20 A-16 Application of Nonnegative Matrix Factorization for Selecting Underground Mining Methods Based on Mining Projects Historical Data
Elsa Pansilvania Andre Manjate, Hisatoshi Toriya, Mahdi Saadat, Tsuyoshi Adachi, Youhei Kawamura and Bernardo Miguel Bene, Akita University
- 18:20-18:40 A-17 Communication of Sensor Data in Underground Mining Environments: A Comparison and Optimization of Multiple Installation Sequences
Hajime Ikeda, Daniyar Malgazhdar, Oluwafemi Kolade, Takaya Shionoiri, Frederick Thomas Cawood, Youhei Kawamura, Akita University
- 18:40-19:00 A-18 Visualization of 1D CNN Lithology Identification Model During Rotary Percussion Drilling Using Explainable Artificial Intelligence Grad-CAM
Lesego Senjoba, Yoshino Kosugi, Masaya Hisada, Hisatoshi Toriya, Tsuyoshi Adachi and Youhei Kawamura, Akita University
- 19:00-19:20 A-19 Selective Leaching of Valuable Metals from a Smelter Slag by High-Pressure Oxidative Acid Leaching (HPOAL)
Labone L. Godirilwe, Kazutoshi Haga, Gwiranai Danha, Yasushi Takasaki, Atsushi Shibayama, Akita University

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October 21(Thursday)

Oral Presentation

Room B

10 : 50 – 17 : 20 Oral Presentation

Session *Engineering Materials for Sustainable Development*

Chairperson: **Seiji Kumagai**

- 10:50-11:20 B-1 Advanced Oxidation Process using Zeolite Compounds as the Heterogeneous Catalyst
Mikito Kitayama, Yoshio Ohta and Shuetsu Suzuki, Fukuoka Institute of Technology
- 11:20-11:50 B-2 Transferred Type Arc Plasma with Argon Steam Mixture for Decomposition Process of Stable Matters
Masava Sugimoto, Wataru Kanou and Kenji Goya, Akita Prefectural University
- 11:50-12:10 B-3 Study on Cement Stabilized Soil Method by Empty Fruit Bunches Fibers to Landslide Sludge Recycling
Delima Canny Valentine Simarmata, Hiroshi Takahashi and Tomoaki Satomi, Tohoku University

Lunch Break (12 : 10 ~ 13 : 00)

Chairperson: **Hiroki Takahashi**

- 13:00-13:20 B-4 Study on the Strength Characteristics and Long-Term Stability of Fiber-Cement-Stabilized Soil Using Waste Gypsum Board Paper
Yu Sato, Tomoaki Satomi and Hiroshi Takahashi, Tohoku university
- 13:20-13:40 B-5 Rice Husk as a Worthful Source of Battery Materials for High-performance Li-ion Battery Anodes
Yusuke Abe, Masaki Nemoto, Masahiro Tomioka and Seiji Kumagai, Akita University

Session *Materials and Intelligent Technologies in Super-Smart Society*

Chairperson: **Hiroshi Yokoyama**

- 13:40-14:00 B-6 Detection of Convallaria Keiskei Flowers using a Combination of Machine Learning and Fuzzy c-Means
Hikaru Shirai, Yoichi Kageyama, Daisuke Nagamoto, Yuki Kanamori, Naoki Tokunaga, Teruo Kojima and Masae Akisawa, Akita University
- 14:00-14:20 B-7 Creating Water Quality Map through Neural Network Using Remote Sensing Data and Topographical Information of Lake Hosenko, Japan
Kai Matsui and Yoichi Kageyama, Akita University

14:20-14:40 B-8 Analysis of Human Action in Infrared Images at Nighttime Using CNN
Yaru Liu, Kai Matsui, Yoichi Kageyama, Hikaru Shirai and Chikako Ishizawa, Akita University

Session *Strategy of Environment, Resource, Advanced Mining Technology, Recycle and Energy*

Chairperson: **Kazutoshi Haga**

- 15:00-15:20 AB-1 Pyrolysis Behavior of Polyvinyl Chloride with Sodium Hydroxide and Application to Copper Recovery from Multiwire Tinned Copper Cables
Takaaki Wajima, Chiba University
- 15:20-15:40 AB-2 FEM-EK Process: A New Remediation Method of Contaminated Soil
Mahmudul Kabir, Ayaka Kumagai, Yusuke Sato, Michio Sato, Seiji Kumagai, Noboru Yoshimura, Akita University
- 15:40-16:00 AB-3 Stability of Nanobubbles and Radical Degradation by Blowing Nanobubbles
Toyohisa Fujita, Zhenyao Han, Gjergj Dodbiba and Yuezhou Wei, Guangxi University

Chairperson: **Takaaki Wajima**

- 16:20-16:40 AB-4 Real Option Analysis for Multi-Uncertainties at Short Term Tin Mine Planning
Mohammad Rahman Ardhiansyah, Tsuyoshi Adachi, Akita University
- 16:40-17:00 AB-5 Separation of Sphalerite from Copper Ore by Flotation
Kazutoshi Haga, Reona Sato, Yasushi Takasaki, Kazuya Sunada, Tatsuru Takahashi, Tatsuhiro Ono, Refilwe Magwaneng, Kentaro Kudo, Taro Kamiya, Atsushi Shibayama, Akita University
- 17:00-17:20 AB-6 Enrichment of Valuable Metals from Ferromanganese Cobalt-Rich Crust by Combining Enhanced Gravity Separation and Reverse Flotation
Gjergj Dodbiba, Cheng-En Lee, Yonggu Kim, Toyohisa Fujita, The University of Tokyo

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October 21(Thursday)

Oral Presentation

Room C

10 : 50 – 17 : 30 Oral Presentation

Session *Biomaterials and Nanotechnology*

Chairperson: **Mitsutoshi Jikei**

10:50-11:20 C-1 Exploring Functions Based on Molecular Recognition - Collaboration between Biological and Artificial Systems

Hiroyasu Yamaguchi, Takuma Adachi, Keisuke Murata, Kenji Kohara, and Akira Harada, Osaka University

Session *Engineering Materials for Sustainable Development*

Chairperson: **Satoru Yoshimura**

11:20-11:50 C-2 Materials and Device Analyses of Dilute Nitride Intermediate Band Solar Cells

Nazmul Ahsan and Yoshitaka Okada, The University of Tokyo

11:50-12:10 C-3 Preparation and Dielectric Characterization of $\text{Sr}_{1+x}\text{TaO}_{2+y}\text{N}_{1-z}$ Polycrystalline Thin Film

Shuto Kano, Takeshi Shibahara, Yuji Umeda and Kumiko Yamazaki, TDK Corporation

Lunch Break (12 : 10 ~ 13 : 00)

Session *Processing and Characterization of Functional Materials*

Chairperson: **Satoru Yoshimura**

13:00-13:30 C-4 Investigations on Spintronics RFeO_3 Crystals Grown by Optical Floating Zone Technique

P. Ramesh Babu, S. Kalainathan and Satoru Yoshimura, VIT University, India

13:30-13:50 C-5 The Effect of Dispersion State of Cobalt Nanoparticles on Magnetic Characteristics of Composite Magnetic Materials

Kyohei Takahashi, Toshiki Gushi and Isao Kanada, TDK Corporation

13:50-14:10 C-6 Piezoelectric Properties of LiM-doped (M = V, Nb, Ta, or Zr) AlN Thin Films with Various Compositions

Tomohiro Terada, Junichi Kimura, and Yukari Inoue, TDK Corporation

14:10-14:30 C-7 Analysis of Ce^{3+} Ion in Ce Doped YAG Ceramic Phosphors

Moeko Matsui and Tatsuya Terui, TDK Corporation

Chairperson: **Sho Muroga**

- 14:50-15:10 C-8 Microstructure Analysis of Zn Added $\text{Sm}_2\text{Fe}_{17}\text{N}_3$ Sintered Magnets
Hiroataka Yokota, Yoshitomo Tanaka, Ryuji Hashimoto, Shusuke Okada and Kenta Takagi, TDK Corporation
- 15:10-15:30 C-9 Magnetic and Electrical Properties of $(\text{Bi}_{1-x}\text{La}_x)(\text{Fe,Co})\text{O}_3$ Films Fabricated by a Pulsed DC Reactive Sputtering Method
Munusamy Kuppan and Satoru Yoshimura, TDK Corporation
- 15:30-15:50 C-10 Development of $(\text{Bi}_{0.5}\text{L}_{0.5})(\text{Fe}_{0.75}\text{Co}_{0.25})\text{O}_3$ ($L = \text{La, Nd, Sm, Gd, Dy, Er}$) Films with Excellent Magnetic Properties for Magnetic Device Application
Kotaro Takeda, Daichi Yamamoto, Soumyaranjan Ratha, Munusamy Kuppan, Genta Egana, and Satoru Yoshimura, Akita University

Chairperson: **Mitsutoshi Jikei**

- 16:10-16:30 C-11 Effective Separation of Alkane Vapors using Supramolecular Thiocalixarene Crystals
Manabu Yamada, Fumiya Uemura, Hiroshi Katagiri, and Fumio Hamada, Akita University
- 16:30-16:50 C-12 Evaluation of Microwave-Frequency Magnetic Field Response of MFM Tip Coated by Superparamagnetic Co-GdO_x Granular Alloy Film
Shunsuke Sato, Toru Matsumura, Hiroshi Sonobe and Hitoshi Saito, Akita University
- 16:50-17:10 C-13 Mass Fabrication of Silver Nanofibers with Ultrahigh Aspect Ratios
Chiho Onodera, Xu Zhao and Mikio Muraoka, Akita University
- 17:10-17:30 C-14 A Novel Method for Evaluating Mineral Liberation by Combining the Results of SEM-EDX and XRD Analysis
Tatsuya Shiozuka, Yonggu Kim, Yutaro Takaya and Gjergj Dodbiba, The University of Tokyo

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October 22(Friday)

Poster Presentation

Room A

9 : 00 – 14 : 20 Poster Presentation

Session AP1 9:00 – 10:10

Chairperson: **Kazutoshi Haga**

- 9:00-9:10 AP-1 Mineralization Process Deduced from the Occurrence of a Yellow Ore from the Furutobe Deposit, Akita, Japan
Teruhiro Suzuki, Yasushi Watanabe, Takuya Echigo and Shogo Aoki, Akita University
- 9:10-9:20 AP-2 PGE Mineralization in the Limpopo Mine, Eastern Limb of the Bushveld Complex, South Africa
Maki Birukawa, Yasushi Watanabe and Takuya Echigo, Akita University
- 9:20-9:30 AP-3 Geology and Mineralization of the Kutessay II REE Deposit in Northern Tien Shan, Kyrgyzstan
Aizada Tenisbek, Yasushi Watanabe, Tenisbek Koilubaev and Patthana Bounliyong, Akita University
- 9:30-9:40 AP-4 Characterization of Fe-T Oxides in Placer Deposits Along the SE Coast of the Papuan Peninsula, Papua New Guinea: in terms of Mineral Textures, Provenance and Petrogenesis
Leevsmon Hulijeli, Yasushi Watanabe and Osamu Nishikawa, Akita University
- 9:40-9:50 AP-5 Incorporation of an Optimized Mine Schedule and Real Option Valuation of a Gold Mine
Ntshiri B. Tsae and Tsuyoshi Adachi, Akita University
- 9:50-10:00 AP-6 Parametric Study on Landslides Using Frequency Ratio Model and GIS in Central Parts of Badakhshan Province, Afghanistan
Bashir Ahmad Jalali, Taeyoo Na, Hisatoshi Toriya, Itaru Kitahara, Youhei Kawamura, Akita University
- 10:00-10:10 AP-7 Construction of Training Data in the Computational Domain and Deep Learning Identification Trials for Estimation of Fragmentation in Blast Muckpiles
Taiga Sato, Kohei Yoshino, Hisatoshi Toriya, Jang Hyongdoo, Itaru Kitahara and Youhei Kawamura, Akita University

Session AP2 10:40 – 11:40

Chairperson: **Gjergj Dodbiba**

- 10:40-10:50 AP-8 An Estimation Method of Fragmentation in Blast Muckpiles Using Deep Learning with Hierarchical Feature Extraction for 3D Point Cloud
Kohei Yoshino, Taiga Sato, Hisatoshi Toriya, Hidehiko Shishido, Jang Hyongdo, Youhei Kawamura, and Itaru Kitahara, University of Tsukuba
- 10:50-11:00 AP-9 Effects of Operational Conditions on Fine Grindability and Wear of Grinding Beads in Limestone Bead Milling
Naoya Kotake, Shohei Ouchi, Motonori Iwamoto, Yasuyoshi Sekine and Susumu Gunji, Yamagata University
- 11:00-11:10 AP-10 Simulation of Mineral Crushing with Electric pulse method by Using Equivalent Circuit Models
Kyosuke Fukushima, Kensuke Kanda , Naoko Obara , Mahmudul Kabir, Akira Otsuki, Akita University
- 11:10-11:20 AP-11 New Kinetics Model for Estimating the Grade of Minerals in Froth Fraction after Flotation of Complex Materials
Kazumi Otake, Yonggu Kim, Humio Sasaki, Ryuji Nagoya, Yuuki Nagase, Kyouhei Sukou, Gjergj Dodbiba, The University of Tokyo
- 11:20-11:30 AP-12 Gold Upgrading of Gold-Bearing Polymetallic Gold-Zinc-Lead Ore in Myanmar by Flotation
Nay Win Tun, Kazutoshi Haga and Atsushi Shibayama, Akita University
- 11:30-11:40 AP-13 Removal of Impurity Components from Low-Grade Iron Ore by Alkaline Roasting and Mineral Processing Techniques
Atsushi Shibayama, Altansukh Batnasan, Hiroya Takeuchi, Kazutoshi Haga, Moritoshi Mizutani, Ken-ichi Higuchi, Akita University

Lunch Break (~ 13 : 00)

Session AP3 13:00 – 14:20

Chairperson: **Takaaki Wajima**

- 13:00-13:10 AP-14 Recovery of Carbon Fiber from Waste Carbon Fiber Reinforced Plastics using Sodium Hydroxide
Jotaro Takahashi and Takaaki Wajima, Chiba University
- 13:10-13:20 AP-15 Synthesis of Layered Double Hydroxides from Waste Tire Combustion Ash for Phosphorus Removal
Yuki Sakai and Takaaki Wajima, Chiba University
- 13:20-13:30 AP-16 Study on Microbial Fuel Cell (MFC) Using Biological Industrial Wastes
Hajime Ebitani, Naoko Obara, Mahmudul Kabir, Toshihide Takahashi, Akita University

- 13:30-13:40 AP-17 Recycling of spent NCM cathode Lithium-ion Battery
Hao Chen, Toyohisa Fujita, Yuezhou Wei, Chunlin He and Kaituo Wang, Guangxi University
- 13:40-13:50 AP-18 Development of rare earth elements recycling technology for rare earth magnets
Miki Osawa, TDK corporation
- 13:50-14:00 AP-19 A novel flowsheet design for treatment of waste electrical and electronic equipment by combining several physical separation models
Yonggu Kim and Gjergj Dodbiba, The University of Tokyo
- 14:00-14:10 AP-20 Synergistic Solvent Extraction of Critical Elements from PCBs
Diana Laura Gomez Sanchez and Gjergj Dodbiba, The University of Tokyo
- 14:10-14:20 AP-21 Effective Palladium(II) Separation from a Leachate of Automotive Catalysts Using a Pincer-Type Extractant
Manabu Yamada, Toshiaki Ohira, Nao Watanabe and Atsushi Shibayama, Akita University

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October 22(Friday)

Poster Presentation

Room B

9 : 00 – 13 : 50 Poster Presentation

Session BP1 9:00 – 9:50

Chairperson: **Seiji Kumagai**

- 9:00-9:10 BP-1 Study on Investigating the Range of Colors Imagined from Names for Application to CAPTCHAs
Chikako Ishizawa, Nozomu Kobayashi and Yoichi Kageyama, Akita University
- 9:10-9:20 BP-2 Basic Study on the Perception of Location through Reverbed Voice
Sawako Nakajima, Yuji Sone and Kazutaka Mitobe, Akita University
- 9:20-9:30 BP-3 Development of Asbestos Containing Serpentine Identification Method Using Hyper Spectral Imaging
Narihiro Owada, Nanto Tobita, Brian Sinaice, Shinji Utsuki, Youhei Kawamura, Akita University
- 9:30-9:40 BP-4 Deep Learning as an Early Detection System for Rotary Percussion Drilling Malfunctions
Yoshino Kosugi, Hisatoshi Toriya, Mahdi Saadat, Tsuyoshi Adachi, Youhei Kawamura. Akita University
- 9:40-9:50 BP-5 Application of Speech Section Extraction Method Using Lip and Voice
Etsuro Nakamura, Yoichi Kageyama and Satoshi Hirose, Akita University

Session BP2 10:40 – 11:30

Chairperson: **Mahmudul Kabir**

- 10:40-10:50 BP-6 Versatility of Action-Recognition Approach using Simulated Working Data
Hechen Yun, Etsuro Nakamura, Yoichi Kageyama, Chikako Ishizawa, Nobuhiko Kato, Ken Igarashi and Ken Kawamoto, Akita University
- 10:50-11:00 BP-7 Basic Examination of 3D Reconstruction of Trees for Simplifying Fruit Tree Growing Techniques
Takumi Okuyama, Masaki Ishii, Hidekatsu Ito and Kohji Dohsaka, Akita Prefectural University
- 11:00-11:10 BP-8 Evaluation of a Facial Expression Recognition Method with Adaptive Learning Function Using Facial Feature Points
Masaya Kodaira, Masaki Ishii, Hidekatsu Ito, Kohji Dohsaka and Yoichi Kageyama, Akita Prefectural University
- 11:10-11:20 BP-9 Micro Crack Detection Method Using Nonlinear Ultrasonic Lamb Waves of Lamé Mode
Makoto Fukuda and Kazuhiko Imano, Akita University

11:20-11:30 BP-10 Identification of Fruiting Position for Flower Picking and Fruit Picking Operations with Enhanced Precision in Fruit Cultivation
Hibiki Sato, Masaki Ishii, Hidekatsu Ito and Kohji Dohsaka, Akita Prefectural University

Lunch Break (~ 13 : 00)

Session BP3 13:00 – 13:50

Chairperson: **Sawako Nakajima**

13:00-13:10 BP-11 A Study on Feature Extraction of EEG Signals Related to Opening and Closing Movements of the Hand

Akito Takahashi, Motoshi Tanaka, Sho Muroga, Yoshitsugu Niiyama and Jianqing Wang, Akita University

13:10-13:20 BP-12 A Study on Arrhythmia Extraction and Atrial Fibrillation Detection from Long-Term Holter-ECG

Hidefumi Kamozaawa, Motoshi Tanaka and Sho Muroga, Akita University

13:20-13:30 BP-13 An Investigation on Recognition Method of Chord Sound of Acoustic Guitar

Yoshifumi Bando and Motoshi Tanaka, Akita University

13:30-13:40 BP-14 A Study on Crosstalk Suppression and Insertion Loss in MSLs with Co-Zr-Nb Film

Takuma Kobayashi, Takahiro Mikami, Sho Muroga, Motoshi Tanaka, Akita University

13:40-13:50 BP-15 A Study on Comfort Estimation of Color Lighting Space by Machine Learning of Brain Wave Information

Miho Kanbayashi, Motoshi Tanaka, Sho Muroga, Katsutoshi Saito and Yoshitsugu Niiyama, Akita University

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October 22(Friday)

Poster Presentation

Room C

9 : 00 – 14 : 00 **Poster Presentation**

Session CP1 9:00 – 10:10

Chairperson: **Takayoshi Shindo**

- 9:00-9:10 CP-1 Construction of Recombinant Yeast for Biosynthesis of Rubber-Like Materials
Saki Yokota-Imai and Takeshi Gotoh, Akita University
- 9:10-9:20 CP-2 Synthesis of Polylactic Acid-Poly(1,5-Dioxepan-2-One) Copolymers with Different Composition Ratios and Cell Culture Test
Vu Thi Xoan, Kazuya Matsumoto, Mitsutoshi Jikei and Masaki Hikida, Akita University
- 9:20-9:30 CP-3 Development of Superacid-Mediated Controlled Friedel-Crafts Reaction and Its Application to Polymerizations
Masakazu Wakana, Kazuya Matsumoto and Mitsutoshi Jikei, Akita University
- 9:30-9:40 CP-4 Preparation of Molybdenum Nitride and its Oxygen Reduction Activity
Hiroki Takahashi, Daiki Watanabe and Masami Taguchi, Akita University
- 9:40-9:50 CP-5 Ammonia Oxidation Activity in Alkaline Solution of Pt Alloy Thin Film Electrodes
Hikaru Sato, Yuya Naito and Hiroki Takahashi, Akita University
- 9:50-10:00 CP-6 Effect of Diamond Seed Attachment Processing on Synthesis of Diamond Films on Tungsten Carbide Substrate by Flame Combustion
Mamoru Takahashi and Osamu Kamiya, Akita University
- 10:00-10:10 CP-7 Thermoelectric Properties of Carbon Nanohorn Monoliths
Ryu Obara, Yasunori Chonan, Takao Komiyama, Koji Kotani, Hiroyuki Yamaguchi, Shigeru Yamauchi, Yasushi Sugawara, Takashi Sekine, Shigeaki Sugiyama and Yuichi Momoi, Akita Prefectural University

Session CP2 10:40 – 11:50

Chairperson: **Sumio Kato**

- 10:40-10:50 CP-8 Preparation of Iron Sulfide Films by PLD Techniques
Aimi Harima, Syunya Kaneko, Takao Komiyama, Yasunori Chonan, Koji Kotani, Hiroyuki Yamaguchi, Shigeru Yamauchi, Yasushi Sugawara, Takashi Sekine, Shigeaki Sugiyama, Akita Prefectural University
- 10:50-11:00 CP-9 Optimization of Fiber Optic Cleaving Conditions for Broadband Mid-Infrared Light Source with Er/Dy Co-Doped Fluoride Fiber
Akira Mori, Masaya Sugimoto and Kenji Goya, Akita Prefectural University

- 11:00-11:10 CP-10 Preparation of a Highly Selective Fluorine Adsorbent by Mechanochemical Treatment from Titanium Oxide
Shunsuke Dei and Takaaki Wajima, Chiba University
- 11:10-11:20 CP-11 Recovery of Gold from Strong Acidic Solution using Sulfur-Impregnated Carbonaceous Bamboo
Ryoto Hashikawa and Takaaki Wajima, Chiba University
- 11:20-11:30 CP-12 High Temperature Oxidation Behavior of CrMnFeCoNi High-Entropy Alloy
Yoshiyuki Sato and Yoshiki Iwata, Akita University
- 11:30-11:40 CP-13 Effect of Annealing Treatment on Resistance Temperature Properties of Carbon Black/Polyethylene Composites
Masahiro Tomioka and Seiji Kumagai, Akita University
- 11:40-11:50 CP-14 Dye Sensitized Solar Cells using Poly-Dopamin
Naomu Takahashi and Mikito Kitayama, Fukuoka Institute of Technology

Lunch Break (~ 13 : 00)

Session CP3 13:00 – 14:00

Chairperson: **Hitoshi Saito**

- 13:00-13:10 CP-15 Development of High Thermal Conductivity Silicon Nitride using Yttrium Disilicide
Ren Matsushima and Mikito Kitayama, Fukuoka Institute of Technology
- 13:10-13:20 CP-16 Study on Electrical Properties of ZnO Micro Particles under Different Temperature Conditions
Tatsuya Suga, Mahmudul Kabir, Shinobu Tanaka, Yasunori Kasuga, Akita University
- 13:20-13:30 CP-17 Effect of Surface Area of Activated Carbon with Positive Electrode on Rate Performance of Lithium-Ion Capacitor using Si Negative Electrode
Takuya Eguchi, Keiichiro Sawada, Masahiro Tomioka and Seiji Kumagai, Akita University
- 13:30-13:40 CP-18 Aging of Electric Double-Layer Capacitor Under High Voltage Application
Yugo Kanamoto, Masahiro Tomioka and Seiji Kumagai, Akita University
- 13:40-13:50 CP-19 Effect of Prelithiation Degree of Si Anode on the Charge-Discharge Performance of Lithium-Ion Capacitor
Ryoichi Sugawara, Takuya Eguchi, Masahiro Tomioka, Seiji Kumagai, Akita University
- 13:50-14:00 CP-20 Electrochemical Performance of NCM Cathode Recycled from Waste Lithium-ion Batteries
Kensuke Sawa, Yusuke Abe, Seiji Kumagai, Ryohei Watanabe and Tatsuya Yodose, Akita University