

# ***Technical Program***

## ***Tuesday, October 21***

16:00 – 19:00 Registration (NIMS, Sengen-site, Main Hall)

18:00 – 19:30 Welcome Party (Cafeteria in NIMS)

## ***Wednesday Morning, October 22***

8:00 – 18:00 Registration (Tsukuba Center for Institutes, Main Hall, 2F)

### **Room: A (Auditorium) Opening Ceremony & Plenary Talk 1**

09:00 **Opening Ceremony**

09:20 **Plenary Talk 1** (Chair-person: T. Nomura, TDK Corp.)

Strategy of Materials Science Research in Japan and "MANA" challenge

Teruo Kishi (National Institute for Materials Science, Japan)

10:20 **Break**

### **Room: A Lead-Free Piezoelectrics (1)**

(Chair-persons: Y. X. Li, Shanghai Inst. of Ceram, and R. Aoyagi, Nagoya Inst. of Tech.)

10:50 **I-1A-01 (Invited)**

Alkaline Niobate-based Lead-free Piezoelectric Ceramics

\*Masahito Furukawa, Daisuke Tanaka, Takeo Tsukada (\*TDK Corporation, Japan)

11:20 **I-1A-02 (Invited)**

Phase Transition and Structural Analysis of (Li,Na,K)NbO<sub>3</sub> Lead-free Piezoelectric Ceramics

\*Ken-ichi Kakimoto, Tatsuro Hotta, Hitoshi Ohsato (\*Nagoya Institute of Technology, Japan)

11:50 **O-1A-01**

Low-Temperature Sintering of (Li, Na, K)NbO<sub>3</sub> Lead-free Piezoceramics

\*Ke Wang, Jing-Feng Li (\*Tsinghua University, China)

12:10 **O-1A-02**

Defect Structure and Electrical Property of Na<sub>0.5</sub>K<sub>0.5</sub>NbO<sub>3</sub> Lead-Free Piezoceramics

\*Hitoshi Matsudo, Ken-ichi Kakimoto (\*Nagoya Institute of Technology, Japan)

12:30 **O-1A-03**

Particle Structure and Dielectric property of Barium Titanate Fine Particles

\*Takuya Hoshina, Katsushi Osada, Takaaki Tsurumi (\*Tokyo Institute of Technology, Japan)

## Room: B Microwave Dielectrics (1)

(Chair-persons: R. P. Tandon, Univ. of Delhi, and T. Kolodiaznyy, NIMS)

### 10:50 I-1B-01 (Invited)

Low Temperature Prepared Microwave Dielectrics for Passive Integration

\*Hong Wang (\*Xi'an Jiaotong University, China)

### 11:20 I-1B-02 (Invited)

Microwave Dielectric Properties of  $(\text{Zn}_{1/3}\text{B}_{2/3})_{0.5}(\text{Ti}_{0.8}\text{M}_{0.2})_{0.5}\text{O}_2$  (B=Nb, Ta, M=Sn, Ge) Ceramics with Rutile Structure

\*Eung Soo Kim, Seock No Seo (\*Kyonggi University, Korea)

### 11:50 O-1B-01

Dielectric Properties of Low-Temperature Sintered  $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{TiO}_3$  Ceramics by addition of  $\text{B}_2\text{O}_3/\text{CuO}$  and  $\text{BaCu}(\text{B}_2\text{O}_5)$  additives

\*Haitao Jiang, Jiwei Zhai, Jingji Zhang, Xi Yao (\*Tongji University, China)

### 12:10 O-1B-02

Phase Evolution and Microwave Dielectric Properties of  $\text{Zr}_{1-x}(\text{Li}_{1/4}\text{Nb}_{3/4})_x\text{TiO}_4$  Ceramics

\*Li-Xia Pang, Hong Wang, Di Zhou, Yue-Hua Chen, Xi Yao (\*Xi'an Jiaotong University, China)

### 12:30 O-1B-03

Tunability and Microwave Dielectric Properties of  $\text{BaTi}_4\text{O}_9$ -Doped  $\text{Ba}_{0.6}\text{Sr}_{0.4}\text{TiO}_3$  Composite Ceramics

\*Jingji Zhang, Jiwei Zhai, Haitao Jiang, Xi Yao (\*Tongji University, China)

## Room: C Thin Films (1)

(Chair-persons: J. M. Liu, Nanjing Univ., and H. Funakubo, Tokyo Inst. of Tech.)

### 10:50 I-1C-01 (Invited)

Bottom-Up Fabrication and Enhanced Properties of Advanced Ceramic Films

\*Kazumi Kato, Feng Dang, Xiulan Hu, Kazuyuki Suzuki, Yoshitake Masuda, Tatsuo Kimura

(\*National Institute of Advanced Industrial Science and Technology, Japan)

### 11:20 O-1C-01

ZnO nanoarrays film grown by forced-hydrolysis-initiated nucleation technique and its photo-induced electrical property

\*Xiulan Hu, Yoshitake Masuda, Tatsuki Ohji, Kazumi Kato

(\*National Institute of Advanced Industrial Science and Technology, Japan)

### 11:40 O-1C-02

Effect of Incubation Time on Deposition Behavior of MOCVD-Ruthenium Films from (2,4-Dimethylpentadienyl)(ethylcyclopentadienyl) Ruthenium

\*Masaki Hirano, Kazuhisa Kawano, Hiroshi Funakubo (\*Tokyo Institute of Technology, Japan)

### 12:00 O-1C-03

Effects of UV Irradiation on Microstructure and Properties of  $\text{HfO}_2$  Films Prepared from Alkoxy-derived Precursor Solution

\*Kazuyuki Suzuki, Kazumi Kato

(\*National Institute of Advanced Industrial Science and Technology, Japan)

12:20 **O-1C-04**

A study on the fabrication of nanoscale oxide structure and patterns using atomic force microscope

\*J.-C. Huang, Y.-J. Weng, S.-Y. Yang, R.-Y. Wang, X.-Y. Lu, J.-L. Wong

(\*Tungnan University, Taiwan)

## **Room: D    Optical Ceramics & Single Crystals**

(Chair-persons: X. M. Chen, Zhejiang Univ., and H. Takeda, Tokyo Inst. of Tech)

10:50 **I-1D-01 (Invited)**

Characterization of domain controlled nonlinear optical crystals

\*Junji Hirohashi (\*OXIDE corporation, Japan)

11:20 **O-1D-01**

QPM-SHG emission in ultraviolet wavelength region with ferroelectric fluoride single crystals

\*Kiyoshi Shimamura (\*National Institute for Materials Science, Japan)

11:40 **O-1D-02**

Li(Ga<sub>1-x</sub>M<sub>x</sub>)O<sub>2</sub> (M: B or Al) crystals growth by Floating zone method

\*H. Kimura, R. Tanahashi, K. Maiwa (\*National Institute for Materials Science, Japan)

12:00 **O-1D-03**

Defect-induced polarization switching for enhanced remanent polarization in BiFeO<sub>3</sub> single crystals

\*Yuji Chishima, Yuji Noguchi, Masaru Miyayama (\*The University of Tokyo, Japan)

12:20 **O-1D-04**

Crystallization Behavior Nano-Sodium Niobate Crystals in Na<sub>2</sub>O-Nb<sub>2</sub>O<sub>5</sub>-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Ferroelectric Glass-Ceramics System.

\*A. Niyompan, R. Tipakontitikul (\*Ubon Ratchathani University, Thailand)

12:40 Lunch

## ***Wednesday Afternoon, October 22***

### **Room: A    Lead-Free Piezoelectrics (2)**

(Chair-persons: D. Payne, Univ. of Illinois, and K. Kakimoto, Nagoya Inst. of Tech.)

14:40 **I-1A-03 (Invited)**

Domain wall Engineering in Lead-free Piezoelectric Materials

\*Satoshi Wada (\*University of Yamanashi, Japan)

15:10 **O-1A-04**

Dielectric and Electromechanical Properties of BaTiO<sub>3</sub> Ceramics Prepared by Spark Plasma Sintering

\*Hiroshi Maiwa (\*Shonan Institute of Technology, Japan)

15:30 **O-1A-05**

High-Oxygen-Pressure Single Crystal Growth for Bi-based Perovskite Ferroelectric Oxides

\*Yuji Noguchi, Muneyasu Suzuki, Yuuki Kitanaka, Masaru Miyayama

(\*The University of Tokyo, Japan)

15:50 **O-1A-06**

Crystal Growth and Electrical Properties of  $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3\text{-BaTiO}_3$  Lead-free Ferroelectric Piezocrystals

\*Xiangyong Zhao, Wenwei Ge, Dan Zhou, Haosu Luo, Chao Chen, Hong Liu, Xiangping Jiang

(\*Shanghai Institute of Ceramics, China)

## **Room: B Microwave Dielectrics (2)**

(Chair-persons: H. Osato, Nagoya Inst. of Tech., and E. S. Kim, Kyonggi Univ.)

14:40 **I-1B-03 (Invited)**

Investigation of Ferroelectric Materials for High Electron Density Emitters for Microwave Tube Applications

\*R.P.Tandon (\*University of Delhi, India)

15:10 **O-1B-04**

Low-loss temperature stable  $\text{Al}_2\text{O}_3\text{-TiO}_2$  composite for high-frequency microwave applications

\*Taras Kolodiazhnyi (\*National Institute for Materials Science, Japan)

15:30 **O-1B-05**

B-O Bond Character and Microwave Dielectric Properties of  $(1-x)\text{CaTiO}_3\text{-}x\text{Ca}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$  Perovskite Ceramics.

\*J. Shen, W. Chen, J. Zhou, J. Zhu, Q. Lei (\*Wuhan University of Technology, China)

15:50 **O-1B-06**

Effect of chemical coupling agents on the Mechanical Properties and Microwave Dielectric Properties of  $\text{SrTiO}_3$  / Elastomer Composites

\*Feng Xiang, Hong Wang, Haibo Yang, Xi Yao (\*Xi'an Jiaotong University, China)

16:10 **O-1B-07**

Microwave characterization Techniques. for High K Thin Films

\*K.Sudheendran, K.C.James Raju (\*University of Hyderabad, India)

## **Room: C Thin Films (2)**

(Chair-persons: N. Wakiya, Shizuoka Univ., and J. Zhou, Wuhan Univ. of Tech)

14:40 **I-1C-02 (Invited)**

Novel Mechanism for Large Piezoelectric Response Observed in Epitaxial  $\text{Pb}(\text{Zr,Ti})\text{O}_3$  Thick films

\*Hioroshi Funakubo, Hiroshi Nakaki, Rikyu Ikariyama, Nicolas Menou, Ken Nishida, Minoru Osada, Hitoshi Morioka, Keisuke Saito, Osami Sakata, Kazunori Fukuda, Shigeru Kimura

(\*Tokyo Institute of Technology, Japan)

15:10 **O-1C-05**

Measurement of  $d_{15}$  Shear-Mode Piezoelectric Response in PZT Thin Film

\*Tsuyoshi Aoki, Shigeyoshi Umemiya, Masaharu Hida, Kazuaki Kurihara

(\*Fujitsu Laboratories Ltd., Japan)

- 15:30 **O-1C-06**  
Composition shift of morphotropic phase boundary in epitaxial Nb-doped Pb(Zr,Ti)O<sub>3</sub> thin films  
\*Zhi-Xiang Zhu, \*Jing-Feng Li (\*Tsinghua University, China)
- 15:50 **O-1C-07**  
Characterization of uni-polar-axis oriented PZT thick film by polarized Raman spectroscopy  
\*Mitsumasa Nakajima, Takashi Fujisawa, Hiroshi Funakubo, Ken Nishida, Minoru Osada, Hiroshi Naganuma, Soichiro Okamura (\*Tokyo Tech, Japan)
- 16:10 **O-1C-08**  
Aqueous Slurry Processing of Piezoelectric Pb(Zr,Ti)O<sub>3</sub> Ceramic Sheets  
\*Wataru Sakamoto, Masato Fujioka, Toshiaki Yamaguchi, Koichi Kikuta, Sin-ichi Hirano  
(\*Nagoya University, Japan)

## **Room: D    Optical Crystals & Ceramics (ZnO)**

(Chair-persons: M. Takata, Nagaoka Univ. of Tech., and X. Hu, AIST)

- 14:40 **I-1D-02 (Invited)**  
ZnO Nanowires For Field Emission Application  
\*Tseung-Yuen Tseng (\*National Chiao Tung University, Taiwan)
- 15:10 **O-1D-05**  
Zinc Self-diffusion in Isotope Heterostructure Zinc Oxide Thin Films  
\*Kenji Matsumoto, Yutaka Adachi, Takeshi Ohgaki, Isao Sakaguchi, Naoki Ohashi, Hajime Haneda  
(\*Kyushu University & National Institute for Materials Science, Japan)
- 15:30 **O-1D-06**  
Concentration-Dependent Diffusion of Donor-Type Dopants in ZnO Single Crystal  
\*Tsubasa Nakagawa, Isao Sakaguchi, Kenji Matsumoto, Naoki Ohashi, Hajime Haneda, Yoshiyuki Sato, Masashi Uematsu (\*National Institute for Materials Science, Japan)
- 15:50 **O-1D-07**  
Impact of the electron beam irradiation on the luminescence properties of ZnO single crystals  
\*B. Dierre, T. Sekiguchi, X. L. Yuan, K. Ueda (\*National Institute for Materials Science, Japan)
- 16:10 **O-1D-08**  
Fabrication and characterization of ZnO nanostructures  
\*Makoto Sakurai, Yuguang Wang, Masakazu Aono  
(\*National Institute for Materials Science, Japan)
- 19:00 Yanagida's Night (OKURA Frontier Hotel Tsukuba)

## ***Thursday Morning, October 23***

8:30 – 18:00 Registration (Tsukuba Center for Institutes, Main Hall, 2F)

### **Room: A (Auditorium) Plenary Talk 2**

09:00 **Plenary Talk 2** (Chair-person: T. Takenaka, Tokyo Univ. of Sci.)

Pb-Free Piezoelectric Ceramics and Thin Films: Advances and Future Trends

\*Ahmad Safari (\*Rutgers University, U.S.A)

10:00 **Break**

### **Room: A Lead-Free Piezoelectrics (3)**

(Chair-persons: A. Bhalla, Univ. of Texas)

10:20 **I-2A-01 (Invited)**

Preparation of Sodium Bismuth Titanate  $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$  Templates for Textured Ceramics

\*Yongxiang Li, Mengjia Wu, James F. Carroll III, David A. Payne

(\*Shanghai Institute of Ceramics, China)

10:50 **O-2A-01**

Piezoelectric properties of c-axis-oriented  $(\text{Sr,Ca})_2\text{NaNb}_5\text{O}_{15}$  multilayer piezoelectric ceramics fabricated using high-magnetic-field method

\*Hiroyuki Shimizu, Yutaka Doshida, Satoshi Tanaka, Keizo Uematsu

(\*TAIYO YUDEN Co., Ltd., Japan)

11:10 **O-2A-02**

Mechanism of Texture Evolution and Control of Grain Size in  $\text{CaBi}_4\text{Ti}_4\text{O}_{15}$  made by Templated Grain Growth Process

\*Toshio Kimura, Ken Tamura (\*Keio University, Japan)

11:30 **Break**

### **Room: A Lead-Free Piezoelectrics (4)**

(Chair-persons: A. Safari, Rutgers Univ. and Y. Noguchi, The Univ. of Tokyo)

11:50 **I-2A-02 (Invited)**

Development of Environmentally Benign Piezoelectrics: Compositions and Fabrication

\*A.Thanaboonsombut, N. Vaneesorn, S. Danwittayakul, P. Setasuwan

(\*National Metal and Materials Technology Center, Thailand)

12:20 **O-2A-03**

Preparation and Characterization of Lead Free Multi-layer Ceramics Actuators with Ni inner electrodes prepared by inkjet printing

\*Yuichi Sakai, Tomoaki Futakuchi, Masatoshi Adachi

(\*Toyama Industrial Technology Center, Japan)

12:40 **O-2A-04**

Growth and Characterization of Bismuth Magnesium Titanate  $\text{Bi}(\text{Mg}_{1/2}\text{Ti}_{1/2})\text{O}_3$

\*Yasuhiro Yoneda, Hiroyuki Saitoh, Kenji Yoshii, Takashi Nishida

(\*Japan Atomic Energy Agency, Japan)

## **Room: B Dielectric & Ferroelectric Materials (1)**

(Chair-persons: K. Shinozaki, Tokyo Inst. of Tech., and H. Wang, Xi'an Jiaotong Univ.)

10:20 **I-2B-01 (Invited)**

Normal and Relaxor Ferroelectric Characteristics in Filled Tungsten Bronze Niobate Ceramics with Various Radium Difference of A1- and A2-Site Ions

\*Xiang Ming Chen, Xiao Li Zhu (\*Zhejiang University, China)

10:50 **O-2B-01**

Dielectric Properties of Barium Strontium Titanate (BST) Thick Film by Electrophoretic Deposition Technique

\*Ling Zhang, Jiwei Zhai, Xi Yao (\*Tongji University, China)

11:10 **O-2B-02**

Fabrication and Characterization of Perovskite  $\text{AZrO}_3$  (A =Ca, Sr, Ba) Ceramics through a Combustion Technique.

T. Bongkarn, \*A. Thongtha (\*Naresuan University, Thailand)

11:30 **Break**

## **Room: B Dielectric & Ferroelectric Materials (2)**

(Chair-persons: K. Z. Baba-kishi, The Hong Kong Poly. Univ., and S. Higai, Murata Mfg. Co., Ltd.)

11:50 **I-2B-02 (Invited)**

Microstructural Evolution and Dielectric Properties of Hexagonal  $\text{Ba}(\text{Ti}_{1-x}\text{Mn}_x)\text{O}_3$  ceramics

\*Sea-Fue Wang, Yu-Chuan Wu, Chuang-Chung Chiang

(\*National Taipei University of Technology, Taiwan)

12:20 **O-2B-03**

Stress Dependence of Dielectric Properties in Relaxor Ferroelectric : Monte Carlo Investigation

\*Yongyut Laosiritaworn, Rattikorn Yimnirun, Ruyan Guo, Amar S. Bhalla

(\*Chiang Mai University, Thailand)

12:40 **O-2B-04**

Hybrid-Doped Ferroelectric Modeling via Monte Carlo Simulation

\*Sukrit Sucharitakul, Rattikorn Yimnirun, Yongyut Laosiritaworn

(\*Chiang Mai University, Thailand)

## **Room: C MLCC Technology (1)**

(Chair-persons: A Hitomi, TDK Corp., and N. Wada, Murata Mfg. Co., Ltd.)

### 10:20 **I-2C-01 (Invited)**

Correlation between Microstructure and Temperature Characteristics of Capacitance for Ni-MLCC

\*Youichi Mizuno, Jun Nishikawa, Koichiro Morita, Keisuke Kobayashi

(\*TAIYO YUDEN Co., Ltd., Japan)

### 10:50 **O-2C-01**

Synthesis of Nano-sized Barium Titanate Powder by Rotary-hydrothermal Process

\*Takashi Kubo, Atsushi Nakahira, Masayuki Hogiri, Hiroshi Kagata

(\*Osaka Prefecture University, Japan)

### 11:10 **O-2C-02**

Wide Band Dielectric Spectroscopy of (Ba,Sr)TiO<sub>3</sub> Ceramics and its Microscopic Mechanism of Dielectric Property

\*Takashi Teranishi, Li Jianyong, Takuya Hoshina, Hirofumi Kakemoto, Takaaki Tsurumi

(\*Tokyo Institute of Technology, Japan)

### 11:30 **Break**

## **Room: C MLCC Technology (2)**

(Chair-persons: Y. Mizuno, Taiyo Yuden Co., Ltd., and H. Kagata, Panasonic ED Co. Ltd.)

### 11:50 **I-2C-02 (Invited)**

Study of oxidation behavior of Ni internal electrode in MLCC

\*Mari Miyauchi, Yukie Nakano, Ryo Kobayashi (\*TDK corporation, Japan)

### 12:20 **O-2C-03**

E-J Characteristics in Multilayer Ceramic Capacitors with the Thin Dielectric Layers

\*Makito Nakano, Akira Saito, Nobuyuki Wada (\*Murata Manufacturing Co., Ltd., Japan)

### 12:40 **O-2C-04**

Behavior of hydrogen atoms in perovskite type oxide thin films under electric fields

\*K. Morito, T. Suzuki, Y. Mizuno, I. Sakaguchi, N. Ohashi, K. Matsumoto, H. Haneda

(\*Taiyo Yuden Co., Ltd., Japan)

## **Room: D Advanced Ceramics for Sensors (1)**

(Chair-persons: Xu Chao-Nan, AIST, and K. Katayama, Tokai Univ.)

### 10:20 **I-2D-01 (Invited)**

Optically Readable Hydrogen Sensor Using Pd Thin Film

\*Masasuke Takata (\*Nagaoka University of Technology, Japan)

### 10:50 **O-2D-01**

Durability Improvement of Optical H<sub>2</sub> Gas Sensor Using Pd Thin Film on Sputter-Etched Glass Substrate

\*Yuichiro Kuroki, Yuji Yakushiji, Tomoichiro Okamoto, Masasuke Takata

(\*Nagaoka University of Technology, Japan)

11:10 **O-2D-02**

Sensing High Concentrations in Air of H<sub>2</sub> Based on Spin-coated Films of Flame-spray-made SnO<sub>2</sub> and Pd/SnO<sub>2</sub> Nanoparticles

\*Chaikarn Liewhiran, Anurat Wisitsoraat, Sukon Phanichphant (\*Chiang Mai University, Thailand)

11:30 **Break**

## **Room: D    Advanced Ceramics for Sensors (2)**

(Chair-persons: K. Toda, Niigata Univ., and S. Phanichphant, Chiang Mai Univ.)

11:50 **I-2D-02 (Invited)**

Elastico-Luminescent Ceramics and Its Applications

\*Chao-Nan Xu (\*National Institute of Advanced Industrial Science and Technology, Japan)

12:20 **O-2D-03**

Upgrade Mechanoluminescence by Sr<sup>2+</sup>.Substitution in. CaAl<sub>2</sub>Si<sub>2</sub>O<sub>8</sub>: Eu<sup>2+</sup> .....

\*Lin Zhang, Chao-Nan Xu, Hiroshi Yamada (\*Kyushu University, Japan)

12:40 **O-2D-04**

Mechanoluminescence of highly oriented SrAl<sub>2</sub>O<sub>4</sub>:Eu film and its role as a stress indicator

\*Xiaoyan Fu, Hiroshi Yamada, Chao-Nan Xu (\*AIST Kyushu, Japan)

13:00 **Group Photo & Lunch**

## ***Thursday Afternoon, October 23***

### **Room: A (Auditorium)    Yanagida Memorial International Symposium**

14:30 Opening Address by Prof. Masasuke Takata (Nagaoka Univ. of Technology, Japan)

14:35 Invited Talks

Prof. Richard J. Brook (Univ. of Oxford, UK: by Video)

Prof. Makoto Kuwabara (Kyushu Univ., Japan)

Prof. David A. Payne (Univ. of Illinois, USA)

16:05 Break

16:15 Invited Talks

Prof. Amar S. Bhalla (Univ. of Texas at San Antonio, USA)

Prof. Enrico Traversa (Univ. of Rome, Italy)

Prof. Hideki Ishida (Tohoku Univ., Japan)

Closing Address by Dr. Hideaki Matsubara (Japan Fine Ceramic Center, Japan)

18:00 AECA Board Meeting (NIMS, Sengen-site)

19:00 Banquet (OKURA Frontier Hotel Tsukuba)

## ***Friday Morning, October 24***

8:30 – 12:00 Registration (Tsukuba Center for Institutes, Main Hall, 2F)

### **Room: A (Auditorium) Plenary Talk 3**

09:00 **Plenary Talk 3** (Chair-person: H. Haneda, NIMS)

Multiferroic magnetoelectric ceramic composites

\*Ce-Wen Nan (\*Tsinghua University, China)

10:00 **Break**

### **Room: A Dielectric, ferroelectric & Piezoelectric ceramics (1)**

(Chair-persons: T. Tsurumi, Tokyo Inst. of Tech., and A. Thanaboonsombut, MTEC)

10:20 **I-3A-01 (Invited)**

Piezoelectric Ceramics for High Temperature Applications

\*Yukio HIGUCHI, Hirozumi OGAWA, Daisuke KURODA, Shinichiro KAWADA,

Masahiko KIMURA, Hiroshi TAKAGI, Yukio SAKABE (\*Murata Mfg. Co.,Ltd., Japan)

10:50 **O-3A-01**

Characterization of the  $(1-x)\text{PbZrO}_3\text{-}x\text{Pb}(\text{Co}_{1/3}\text{Nb}_{2/3})\text{O}_3$  ceramics by XRD, SEM, thermal and dielectric properties tests

\*Wanwimon Banlue, Naratip Vittayakorn (\*King Mongkut's Institute of Technology, Thailand)

11:10 **O-3A-02**

Improvement of Electromechanical Coupling Factor and Mechanical Quality Factor. in PZT-PMN Ceramics by  $\text{MnO}_2$  Addition

\*R. Tipakontitukul, Y.Suwan, A.Niyompan, P.Laoratanakul

(\*Ubon Ratchathani University, Thailand)

11:30 **Break**

11:50 **I-3A-02 (Invited)**

Piezoelectric single crystal PMN-PT: Field-induced actuation at temperature.

\*D. A. Payne, J. F. Carroll, M. Ehmke, J. Tian, P. Han

(\*University of Illinois at Urbana-Champaign, U.S.A)

12:20 **O-3A-03**

Dielectric and Ferroelectric Properties of (Cr,Nb)-doped Lead Zirconate Titanate Ceramics

\*Piyachon Ketsuwan, Supon Ananta, Rattikorn Yimnirun, Chien-Chih Huang, David P. Cann

(\*Naresuan University Phayao, Thailand)

12:40 **O-3A-04**

Phase Transitions of Lead Zirconate- Lead Nickel Niobate Ceramics Prepared by Reaction Sintering Process.

\*Supamas Wirunchit, Naratip Vittayakorn (\*King Mongkut's Institute of Technology, Thailand)

## Room: B Advanced Ceramics for Sensors (3)

(Chair-persons: M. Miyayama, The Univ. of Tokyo, and Y. Kuroki, Nagaoka Univ. of Tech.)

### 10:20 I-3B-01 (Invited)

Application of Nano-sized CeO<sub>2</sub> Powder for Fast Response Oxygen Sensors

\*Norimitsu MURAYAMA, Noriya IZU, Woosuck SHIN, Ichiro MATSUBARA

(\*National Institute of Advanced Industrial Science and Technology, Japan)

### 10:50 O-3B-01

V<sub>2</sub>O<sub>5</sub> Nanotubes Novel Gas Sensor with High Sensitivity for Ethanol

\*W. Jin, W. Chen, B. T. Dong, L. Q. Mai (\*Wuhan University of Technology, China)

### 11:10 O-3B-02

CO Sensor Based on Flame-spray-made Pt/ZnO Nanoparticles.

\*Nittaya Tamaekong, Sukon Phanichphat, Chaikarn Liewhiran, Anurat Wisitsoraat

(\*Chiang Mai University, Thailand)

### 11:30 Break

### 11:50 O-3B-03

Improving the Performances of High Temperature Protonic Conductor (HTPC) Electrolytes for Solid Oxide Fuel Cell (SOFC) Applications

\*Emiliana Fabbri, Daniele Pergolesi, Alessandra D epifanio, Elisabetta di Bartolomeo,

Giuseppe Balestrino, Silvia Licoccia, Enrico Traversa (\*University of Rome Tor Vergata, Italy)

### 12:10 O-3B-04

Development of Intermediate-Temperature Solid Oxide Fuel Cells Using Doped Lanthanum Gallate Electrolyte

\*Norihisa Chitose, Hiroyuki Eto, Taner Akbay, Jun Akikusa, Gakuji Uozumi, Toru Inagaki,

Tatsumi Ishihara (\*Mitsubishi Materials Corporation, Japan)

### 12:30 O-3B-05

TEM and XPS Analysis of Ca<sub>x</sub>Ce<sub>1-x</sub>O<sub>2-y</sub> (x = 0.05 - 0.5) as Electrolyte Materials for Solid Oxide Fuel Cells

\*M. Yan, T. Mori, J. Zou, F. Ye, D.R. Ou, J.Ye (\*National Institute for Materials Science, Japan)

## Room: C Thin film (3)

(Chair-persons: W. Sakamoto, Nagoya Univ., and K. Suzuki, AIST)

### 10:20 I-3C-01 (Invited)

Polarization fatigue investigations of ferroelectric Pb(Zr<sub>x</sub>Ti<sub>1-x</sub>)O<sub>3</sub> thin films

\*Jun-Ming Liu (\*Nanjing University, China)

### 10:50 O-3C-01

Resistance Changes of (La,Sr)MnO<sub>3</sub> Thin Film via Exchange Bias Tuning by the Application of an External Electric Field.

\*Takeshi Yokota, Shotaro Murata, Shinya Kito, Manabu Gomi

(\*Nagoya Institute of Technology, Japan)

11:10 **O-3C-02**

Ferroelectric properties of epitaxial BiFeO<sub>3</sub> thin films with different crystal orientations deposited on buffered Si substrate

\*HyunYoung Go, Tomohiko Yoshioka, Osamu Sakurai, Jeffrey. S. Cross, Junzo Tanaka, Kazuo Shinozaki, Takanori Kiguchi, Naoki Wakiya (\*Tokyo Institute of Technology, Japan)

11:30 **Break**

11:50 **O-3C-03**

Electrical Properties of Fluorite Oxide Thin Films on Silicon Substrate

\*Kazuo Shinozaki, Liu Yanyi, Yuji Ishikura, Tomohiko Yoshioka, Osamu Sakurai, Jeffrey S. Cross, Junzo Tanaka, Takanori Kiguchi, Naoki Wakiya (\*Tokyo Institute of Technology, Japan)

12:10 **O-3C-04**

Effect of Stacking Layers on the Structure and Properties of Ca(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>/CaTiO<sub>3</sub>.Thin Films

\*J. Zhou, J. Zhu, W. Chen, J. Shen, Q. Lei, H. M. He (\*Wuhan University of Technology, China)

12:30 **O-3C-05**

The structure and relaxor phase transformation behavior of (Pb<sub>1-x</sub>Ba<sub>x</sub>)ZrO<sub>3</sub> thin films

Xihong Hao, \*Jiwei Zhai (\*Tongji University, China)

## **Room: D    Advanced Ceramic Integration (1)**

(Chair-persons: Y. Yamashita, Toshiba Res. Cons. Corp., and T. Murase, TDK Corp.)

10:20 **I-3D-01 (Invited)**

Applications of ceramic superconducting films to microwave power filters for future wireless communications

\*Kazuaki Kurihara, Kazunori Yamanaka, Akihiko Akasegawa, Masatoshi Ishii, Teru Nakanishi (\*Fujitsu Limited, Japan)

10:50 **O-3D-01**

Mixed Conduction of Proton and Electron in Tungsten Phosphate Glass and Its Hydrogen Transport

\*Satoru Fujitsu, Hiroshi Kawazoe (\*Shonan Institute of Technology, Japan)

11:10 **O-3D-02**

Sulfonated aromatic polymer/Titania nanosheets composites as proton conducting membranes

\*Debora Marani, Masaru Miyayama, Silvia Licoccia, Enrico Traversa (\*The University of Tokyo, Japan)

11:30 **Break**

11:50 **I-3D-02 (Invited)**

Fine Powders Application in Medical Echo Probes

\*Yohachi (John) Yamashita, Noriko Yamamoto, Kazuhiro Itsumi (\*Toshiba Research Consulting Corp, Japan)

12:20 **O-3D-03**

Multiplication Photocurrent Gain in Silicon-Based Planar Metal-Semiconductor-Metal Structures

\*Narin Atiwongsangthong, Surasak Niemcharoen, Wisut Titiroongruang, Kazunori Sato

(\*King Mongkut's Institute of Technology, Thailand)

12:40 **O-3D-04**

Effect of Sendust Particle Size on Absorption Characteristics of Composite Electromagnetic Wave Absorber

\*Kenji Sakai, Yoichi Wada, Yuuki Sato, Shinzo Yoshikado (\*Doshisha University, Japan)

13:10 **Lunch**

## ***Friday Afternoon, October 24***

### **Room: A Okazaki International Symposium-1**

14:00 A memory of Prof. K. Okazaki,

\*Prof. Noboru Ichinose, (\*Waseda University, Japan)

14:10 Large CaF<sub>2</sub> single crystal for the next generation lithography by CZ method

\*Eiichi Nishijima (\*Tokuyama Corp., Japan)

14:40 Development and Industrialization of Fine Grain And High Crystalline

\*T. Shikida, K. Abe, K. Hidaka, Y. Ikeda, and S. Ogama,

(\*Sakai Chemical Industry Co., LTD, Japan)

15:10 Crystallographic aspects of microwave dielectric properties

\*Prof. Hitoshi Ohsato, Isao, Kagomiya, Ken-ichi Kakimoto, Eiichi Koga

(\*Nagoya Institute of Technology, Japan)

15:40 **Break**

### **Room: A Okazaki International Symposium-2**

16:00 High frequency characteristic of elements substituted hexagonal ferrites

\*Prof. Nobuyuki Hiratsuka (Saitama University, Japan)

16:30 Giant Dielectric Response and Relaxor-Like Behaviors in Perovskite and Perovskite-Related Ceramics with Mixed-Valent Structure

\* Prof. Xiang Ming Chen, Lei Ni, and Zhuo Wang (\*Zhejiang University, China)

### **Room: B Dielectric, ferroelectric & Piezoelectric ceramics (2)**

(Chair-persons: S. Wada, Univ. of Yamanashi, and N. Vittayakorn, King Mongkut's Inst of Tech.)

14:00 **I-3B-02 (Invited)**

Pb Displacements in Pb(ZrTi)O<sub>3</sub>

\*K.Z. Baba-Kishi (\*The Hong Kong Polytechnic University, Hong Kong)

14:30 **O-3B-06**

A Study of Textured PbTiO<sub>3</sub> Based Ceramics by Slip Casting in a High Magnetic Field

\*Yasunari Miwa, Shinichiro Kawada, Masahiko Kimura, Tohru S. Suzuki, Tetsuo Uchikoshi, Yoshio Sakka (\*Murata Mfg. Co.,Ltd., Japan)

14:50 **O-3B-07**

Scaling Behavior of Sub-Coercive Field Dynamic Hysteresis in BaTiO<sub>3</sub> Single Crystal

\*N. Wongdamnern, A. Ngamjarurojana, S. Ananta, Y. Laosiritaworn, R. Yimnirun

(\*Chiang Mai University, Thailand)

15:10 **O-3B-08**

Enhancement of Dielectric properties of Low Temperature Sintering Ba<sub>0.6</sub>Sr<sub>0.4</sub>TiO<sub>3</sub> Thick Film by Isostatic Pressing Technique

\*Minghui Zhang, Hong Wang, Huanfu Zhou, Feng Xiang, Xi Yao

(\*Xi'an Jiaotong University, China)

15:30 **Break**

### **Room: B Dielectric, ferroelectric & Piezoelectric ceramics (4)**

(Chair-persons: H. Maiwa, Shonan Inst. of Tech., and T. Bongkarn, Naresuan Univ.)

15:50 **O-3B-09**

Structural, Dielectric and Ferroelectric Properties of Ternary BaTiO<sub>3</sub>-CaTiO<sub>3</sub>-SrTiO<sub>3</sub> Ceramics

\*Xusheng Wang, Lingling Zhang, Xi Yao (\*Tongji University, China)

16:10 **O-3B-10**

Giant Dielectric Permittivity observed in Li and Fe doped NiO

\*P. Thongbai, S. Maensiri, T. Yamwong (\*Khon Kaen University, Thailand)

16:30 **O-3B-11**

Aging effect in paraelectric state of ferroelectrics

\*Dezhen Xue, Xiaobing Ren (\*National Institute for Materials Science, Japan)

16:50 **O-3B-12**

Dynamics of Central Peaks in the Brillouin Scattering Spectra of Relaxor Ferroelectrics

\*G. Shabbir, S. Kojima<sup>1</sup>, J. Bashir (\*Pakistan Institute of Nuclear Science & Technology, Pakistan)

### **Room: C MLCC Technology (3)**

(Chair-persons: S. Sato, TDK Corp.)

14:00 **I-3C-02 (Invited)**

High Temperature Guaranteed Multilayer Ceramic Capacitors for automotive applications

\*Hiroshi Takagi (\*Murata Mfg. Co.,Ltd., Japan)

14:30 **O-3C-06**

Size Effect and Domain Contribution of Barium Titanate Ceramics

\*Takaaki Tsurumi, Takuya Hoshina (\*Tokyo Institute of Technology, Japan)

14:50 **O-3C-07**

Atomic and Electronic Structures of BaTiO<sub>3</sub> Ceramic Nanoclusters: Theoretical Study

\*Shin'ichi Higai, Atsushi Honda, Keisuke Kageyama, Hiroshi Takagi, Yukio Sakabe, Hiroki Moriwake (\*Murata Mfg. Co.,Ltd., Japan)

15:10 **O-3C-08**

The Variation of Sintering temperatures and its effect on physical properties of  $\text{Al}_2\text{O}_3\text{-SiO}_2\text{-PbO-MgO}$  Laminated Tape System

\*Rosidah Alias, Azmi Ibrahim, Sabrina Mohd Shapee, Zulkifli Ambak, Mohamed Razman Yahya, Abd Fatah Awang Mat (\*Technology Incubation Center One, Malaysia)

15:30 **Break**

## **Room: C Nanocrystals & Processing**

(Chair-persons: S. F. Wang, National Taipei Univ. of Tech.)

15:50 **O-3C-09**

Novel application of hybrid multiferroic hybrid particles prepared by ultrasonic spray pyrolysis

\*Naoki Wakiya, Tomoyuki Adachi, Naonori Sakamoto, Hisao Suzuki, Osamu Sakurai, Kazuo Shinozaki (\*Shizuoka University, Japan)

16:10 **O-3C-10**

Electrical and Mechanical properties of in-suit doped polycrystalline 3C-SiC films

Gwiy-sang Chung, \*Kang-san Kim, Yun-myung Lee (\*University of Ulsan, Korea)

16:30 **O-3C-11**

Resolution of the Printed Silver Conductor on LTCC Tape by Optimization of Screen Printing Parameter

\*Sabrina Mohd Shapee, Rosidah Alias, Zulkifli Ambak, Mohd Zulfadli Mohamed Yusoff, Azmi Ibrahim, Mohamed Razman Yahya, Abdul Fatah Awang Mat (\*Technology Incubation Center One, Malaysia)

16:50 **O-3C-12**

Crystal growth of uniform 3C-SiC thin films by APCVD

\*Gwiy-sang Chung, Kyu-hyung Yoon (\*University of Ulsan, Korea)

## **Room: D Functional Materials (1)**

(Chair-persons: T. Y. Tseng, National Chiao Tung Univ., and N. Murayama, AIST)

14:00 **O-3D-05**

Relaxation Phenomena of MgCuZn ferrites

\* Taku Murase, Hidenobu Umeda (\*TDK Corporation, Japan)

14:20 **O-3D-06**

Dielectric and Magnetic Properties of  $\text{Ca}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3 / \text{Ni}_{0.8}\text{Zn}_{0.2}\text{Fe}_2\text{O}_4$  Composites

\*Haibo Yang, Hong Wang, Feng Xiang, Xi Yao (\*Xi'an Jiaotong University, China)

14:40 **O-3D-07**

Structural and Electrical Behavior Investigation of Fe doped  $\text{Ce}_{0.9}\text{Gd}_{0.1}\text{O}_{2-x}$ .

\*Pimpa Limthongkul, Pranuda Jivaganont, Sumittra Charojrochkul, Wararat Loyma (\*National Metal and Materials Technology Center, Thailand)

15:00 **O-3D-08**

Effects of Thermal Annealing on Electrical Degradation Characteristics of Sb<sub>2</sub>O<sub>3</sub>-Bi-Mn-Co-added ZnO Varistors

\*Masayuki Takada, Yuuki Sato, Shinzo Yoshikado (\*Doshisha University, Japan)

15:20 **Break**

## **Room: D Functional Materials (2)**

(Chair-persons: K. Kurihara, Fujitsu Limited, and S. Fujitsu, Shonan Inst. of Tech.)

15:50 **O-3D-9**

The Effect of Reoxidation on Thermal Shock Resistance of SrTiO<sub>3</sub>-based Varistors

\*Atsushi Hitomi, Naoki Chida, Minoru Ogasawara, Dai Matsuoka (\*TDK Corporation, Japan)

16:10 **O-3D-10**

Millimeter wave sintering of AlN ceramics for heat sink application

\*Akira Kishimoto, Yasuhiro Ogihara, Tetsuya Morimoto, Hidetaka Hayashi

(\*Okayama University, Japan)

16:30 **O-3D-11**

SAW characteristics using AlN films grown on Si substrate under various thermal annealing

\*Hoang si Hong, Gwi-yang Chung (\*University of Ulsan, Korea)

16:50 **O-3D-12**

Thermophysical Behaviour of Crystalline Halides with Temperature

\*M. Anis-ur-Rehman (\*COMSATS Institute of Information Technology, Pakistan)

17:45 – 19:15 Farewell Party (Cafeteria in NIMS)