

## Symposium B-1: Call for Paper

### Materials frontier for transparent advanced electronics

### (3<sup>rd</sup> Bilateral MRS-J / E-MRS symposium)

**Abstract Submission Deadline: Feb. 28<sup>th</sup> 2017.**

#### Scope:

Research and development for wide bandgap oxide materials and their applications have been increasingly pervasive in many fields such as high-performance thin film transistors (TFTs/TTFTs) or storage devices, renewable energy technologies, various kinds of display devices, and many other optoelectronic applications. In particular, transparent oxide semiconductors (TOSs) and amorphous oxide semiconductors (AOSs) such as indium-gallium-zinc-oxide ( $\alpha$ -IGZO) and related materials, have attracted much attention as high-performance channel materials for thin film transistors. Moreover, transparent conductive oxides (TCOs) have also been the key enabling materials for the emerging technologies driving the sophisticated applications needed to realize a "Ubiquitous Society" and a "Universal Design". These topics will be discussed in a framework of traditional and emerging fields of oxide materials and their device applications including but not limited to: TOSs, AOSs and TCOs for high-performance TFTs/TTFTs, solar cells, displays, lighting, storage, flexible electronics and other transparent electronics.

#### Topics:

1. Materials for transparent oxide semiconductors
2. Materials for metal nano-network or carbon based transparent contacts
3. Indium-based or Indium-free high performance transparent conducting oxides
4. Theory-based guidance for new materials development and optimization
5. Non-vacuum based deposition and processing of transparent contacts
6. Applications of transparent materials for renewable energy technologies including photocatalyst
7. Applications of transparent materials to new and emerging electronics

#### Keynote Speakers & Invited Speakers (tentative)

Prof. Andreas Klein (Technische Universität Darmstadt, Germany), Prof. Toshio Kamiya (TIT, Japan), Prof. Christian Elsässer (Universität Freiburg, Germany), Dr. Peter Frach (FEP, German), Prof. Pedro Barquinha (CENIMAT, Portugal), Prof. David Paine (Brown University, USA), Dr. John Perkins (NREL, USA), Prof. Qun Zhang (Fudan University, China), Prof. Sang Yeol Lee (Cheongju University, Korea), Prof. Pung Keun Song (Pusan National University, Korea), Dr. Wang Shijie (IMRE, Singapore), Prof. Akira Ohtomo (TIT, Japan), Prof. Norifumi Fujimura (Osaka Prefecture University, Japan), Prof. Takaya Kubo (The University of Tokyo, Japan), Prof. Taro Hitosugi (TIT, Japan), Prof. Naho Itagaki (Kyusyu University, Japan), Prof. Yasushi Hirose (The University of Tokyo, Japan), Prof. Nobuto Oka (Kindai University, Japan), Prof. Naoomi Yamada (Chubu University, Japan), Prof. Kentaro Kaneko (Kyoto University, Japan), Dr. Takashi Koida (AIST, Japan), Prof. Kazushige Ueda (Kyusyu Institute of Technology, Japan), Prof. Hiroshi Yanagi (Yamanashi University, Japan), Prof. Tadatsugu Minami (Kanazawa Institute of Technology, Japan),

#### Special Topics on theoretical approaches for material design:

Prof. Fumiyasu Oba (TIT, Japan), Dr. Stephan Lany (NREL, USA), Dr. Kee Joo Chang (KAIST, Korea), Prof. Julia E. Medvedeva (Missouri University of Science and Technology, USA)

#### Organizing Committee:

**Representative:** Prof. Yuzo Shigesato (Aoyama Gakuin University) and Prof. Andreas Klein (Technische Universität Darmstadt)

**Correspondence:** Dr. Junjun Jia (Aoyama Gakuin University), Ms. Yoko Kusumi (Aoyama Gakuin University)

#### Co-Organizers:

Prof. David Paine (Brown University), Dr. John Perkins (NREL, USA), Prof. Qun Zhang (Fudan University), Prof. Zheng Cui (Chinese Academy of Science), Prof. Sang Yeol Lee (Cheongju University), Prof. Pung Keun Song (Pusan National University), Dr. Pedro Barquinha (CENIMAT), Prof. Norifumi Fujimura (Osaka Prefecture University), Prof. Takaya Kubo (The University of Tokyo), Prof. Yasushi Hirose (The University of Tokyo), Prof. Nobuto Oka (Kindai University), Prof. Naoomi Yamada (Chubu University)