

## KINKEN-KIST Joint Symposium 2018

Korea Institute of Science and Technology (KIST) is a long-term partner institute of IMR. A series symposium with KIST is important for connecting researchers by exchanging the idea in the broad range of the materials science. In 2018, “KINKEN – KIST joint symposium 2018” was held in IMR.

“KINKEN - KIST Joint Symposium” was held at IMR lecture hall on 4-5 July 2018. Tohoku University has a long history of academic exchange with KIST. As a commemoration of concluding university - level academic exchange agreement between KIST and Tohoku University in 2016, Institute for Materials Research (IMR, KINKEN) and KIST jointly held a “KINKEN-KIST joint seminar” in Sendai, and that led to a series symposium in 2017 in Seoul and in 2018 in Sendai alternatively. Dr. Joonyeon Chang, director of Post-silicon Semiconductor Institute (PSI) of KIST and six young and active KIST researchers participated in this symposium by supporting from ICC-IMR.

Starting from an opening address and brief introduction of exchange history between KIST and IMR by Prof. Koki Takanashi, director of IMR, Dr. J. Chang introduced recent research activities in PSI and KIST. In the scientific sessions, wide range of research topics such as spintronics, condensed matter physics and electronic materials and device applications were presented by both KIST and IMR researchers. During coffee breaks, lunch and banquet time, very vigorous discussions on each

presentation and future plan for effective exchange between KIST and IMR were conducted. In the afternoon of the second day, lab tours in IMR and group discussions were carried out.

We will deepen an academic relationship, exchange and collaboration with KIST continuously through holding this series symposium. Next symposium will be opened at KIST, Seoul in 2019.



Fig.1 Introduction talk by Dr. Joonyeon Chang, director of PSI, KIST



Fig. 2 Group photo of KINKEN - KIST symposium 2018

Keywords: spintronics, electronic materials

Takahiko Sasaki (Low Temperature condensed state physics)

E-mail: takahiko@imr.tohoku.ac.jp



# KINKEN-KIST joint symposium 2018

Auditorium, Institute for Materials Research, Tohoku University, Japan

July 4 (Wed) - 5 (Thu), 2018

## July 3(Tue)

Hotel check-in (KIST members) Hotel Bel Air Sendai (2 min. walk from IMR) or other hotels

(Group booking by IMR office)

## July 4 (Wed)

9:30-10:00 Registration

10:00-10:15 Opening remarks, Koki Takanashi (IMR)

10:15-10:30 Introduction of PSI and KIST, Joonyeon Chang (PSI, KIST)

### Session 1. Spintronics I

10:30-11:00 “Current-driven creation, translation, and annihilation of ferromagnetic skyrmions observed by scanning transmission X-ray microscopy”

Jun Woo Choi (Center for Electronic Materials, PSI, KIST)

11:00-11:30 “Nonreciprocal propagation of electromagnetic waves, magnons, and acoustic waves in multiferroics”

Yoshifumi Onose (Physics of Crystal Defects Lab., IMR)

11:30-12:00 “Spintronics phenomena in topological semimetals”

Kentaro Nomura (Theory of Solid State Physics, IMR)

12:00-13:30 Lunch (Group Photo)

### Session 2. Electronic materials

13:30-14:00 “Simple and scalable artificial neuron based on Ovonic Threshold Switch (OTS)”

Suyoun Lee, (Center for Electronic Materials, PSI, KIST)

14:00-14:30 “Microfabrication of functional thin films using LaAlO<sub>3</sub>/BaO<sub>x</sub> water-soluble sacrificial templates”

Takayuki Harada (Low Temperature Physics Lab., IMR)

14:30-15:00 “Complex hydrides for all solid-state battery electrolytes”

Sangryun Kim (Hydrogen Functional Materials, IMR)

15:00-15:30 Break

### **Session 3. Devices and microstructure materials**

- 15:30-16:00 "Three-dimensional organic field-effect transistors based on self-organization of organic semiconductor: Insulating polymer blends"  
Jung Ah Lim (Center for Opto-Electronic Materials and Devices Research, PSI, KIST)
- 16:00-16:30 "Temperature effect on the microstructure of FeCo porous produced by liquid metal dealloying: its long-range ordering and transformation behavior"  
Soo-Hyun, Joo (Non-Equilibrium Materials, IMR)
- 16:30-17:00 "Quantum phase transition in Electric-field-induced 2D superconductors"  
Tutomu Nojima (Laboratory of Low Temperature Materials Science, IMR)

Reception

### **July 5 (Thu)**

#### **Session 4. Spintronics II**

- 9:00-9:30 "Transmission line model for materials with Spin - Momentum locking"  
Seokmin Hong (Center for Electronic Materials, PSI, KIST)
- 9:30-10:00 "Spin Hall effect in metallic layered structures"  
Takeshi Seki (Magnetic Materials Lab., IMR)
- 10:00-10:30 "Control of spin caloritronic effects in nanostructured materials"  
Masaki Mizuguchi (Collaborative Research Center on Energy Materials, IMR)
- 10:30-10:50 break

#### **Session 5. Semiconductor Devices**

- 10:50-11:20 "Low dimensional nanostructured semiconductors for electronic and optoelectronic device applications"  
Do Kyung Hwang (Center for Opto-Electronic Materials and Devices Research, KIST)
- 11:20-11:50 "GaN growth and blue LED on novel oxide substrate  $\text{ScAlMgO}_4$ "  
Shigeyuki Kuboya (Physics of Electronic Materials Lab., IMR)
- 11:50-12:00 Closing remarks, Joonyeon Chang (KIST) and Koki Takanashi (IMR)
- 12:00-13:30 Lunch
- Lab tour (High magnetic field center, other labs and research centers)