Workshop:
TIA "Kakehashi" on Organic/Inorganic Spin Electronics Research

Scope :

There are growing demands for variety of precisely-controlled and emerging devices. We believe that elucidation of phenomena and improvement of devices must be supported by cutting-edge materials science and technology; molecular and atomic-level micro-analytical techniques, i.e., based on operando spin analysis, and theoretical analysis. Research and development using such techniques will deepen the analysis of organic and inorganic materials and their devices, and performance based on this knowledge. In this workshop, being held as a part of a "TIA Kakehashi" project, we discuss future possibility in devices and systems for different technology fields.

Co-chairs:
Kazuhiro Marumoto (Univ. of Tsukuba)
Masayuki Chikamatsu (AIST)
Tomonobu Nakayama (WPI-MANA, NIMS)

13:00-13:30 Greeting and Presentation
"Operando electron spin resonance of organic and inorganic electronic devices"
○ Kazuhiro Marumoto, University of Tsukuba

13:30-13:50
"Theory of electronic devices by large-scale first-principles charge transport calculations,"
○ Nobuhiko Kobayashi, University of Tsukuba

13:50-14:10
"Neuromorphic optimization of largely-connected memristive elements"
○ Tomonobu Nakayama[1,2)], 1) WPI-MANA, NIMS, 2) Univ. Tsukuba

14:10-14:30
"Ionic nanoarchitectonics for physical property tuning and information processing"
○ Takashi Tsuchiya and Kazuya Terabe, WPI-MANA, NIMS

14:30-14:50
〝Observation of enhanced thermoelectric properties due to spin and charge interaction〞
○ Naohito Tsujii and Takao Mori, WPI-MANA, NIMS

(10 minutes break)

15:00-15:20
“ Advanced contact materials for Si solar cells and their tandem cell application"
○ Takuya Matsui, AIST

15:20-15:40
“Crystal growth of organolead halide perovskite”
○ Tetsuhiko Miyadera, AIST

15:40-16:00
〝Direct arylation polycondensation: facile access to semiconducting polymers〞,
○ Takaki Kanbara, University of Tsukuba

16:00-16:20
〝Elucidation of deterioration mechanism of polymer solar cells using ESR spectroscopy and improvement of nanosheet performance〞
○ D. Xue[1)], K. Tsukagoshi[2)], K. Marumoto[1)], 1) Univ. Tsukuba, 2) WPI-MANA, NIMS

16:20-16:30
Wrap-up of the WS, K. Marumoto

Organized by TIA collaborative research program "Kakehashi".
Co-organized by Pre-strategy initiative, Research unit enhancement project, and Tsukuba Research Center for Energy Materials Science (TREMS), University of Tsukuba.