

ISSP Regular Workshop: How high can we raise thermoelectric performance?

Program (ver. 12/4)

Day 1 (5 December)

10:00-10:05 Welcome Address (Takao Mori, Chairperson)

10:05-10:10 Greetings (Zenji Hiroi, ISSP Director)

10:10-11:50 Session 1 (5 Invited Talks, 100min)

Chair: Yoshihiko Okamoto (The University of Tokyo)

10:10-10:30 Takao Mori (National Institute for Materials Science) “Development of enhanced thermoelectric materials and viable devices”

10:30-10:50 Masao Ogata (The University of Tokyo) “Recent Development of Electrothermal Transport Properties in Microscopic Theory”

10:50-11:10 Kazuhiro Yanagi (Tokyo Metropolitan University) “Thermoelectric properties of single-walled carbon

nanotubes”

11:10-11:30 Takehiko Mori (Tokyo Institute of
Technology) “Temperature Dependence of Field-Effect
Thermoelectric Power in Rubrene Crystals”

11:30-11:50 Takahiro Yamamoto (Tokyo University of
Science) “Kubo-Luttinger linear response theory of thermoelectric
transport in disordered systems”

Lunch (60min)

12:50-14:50 Session 2 (6 Invited Talks, 120min)

Chair: Satoru Nakatsuji (The University of Tokyo)

12:50-13:10 Yoshiaki Nakamura (Osaka University) “Methodology of
thermoelectric performance enhancement in low dimensional Group
IV element materials”

13:10-13:30 Jun Hayakawa (Hitachi, Ltd) “High power and
environmentally friendly Si-based thermoelectric materials”

13:30-13:50 Manaho Matsubara (Tokyo University of

Science) “Theoretical analysis of thermoelectric effect in FeSe thin films based on two-band model”

13:50-14:10 Akitoshi Nakano (Nagoya University) “Thermoelectric property of uncompensated semimetal Ta_2PdSe_6 ”

14:10-14:30 Yoshihiko Okamoto (The University of Tokyo) “Electronic states of a one-dimensional van der Waals crystal Ta_4SiTe_4 ”

14:30-14:50 Yoshihiro Iwasa (The University of Tokyo) “Two dimensional materials”

Break (20min)

15:10-17:10 Session 3 (6 Invited Talks, 120 min)

Chair: Hatsumi Mori (The University of Tokyo)

15:10-15:30 Satoru Nakatsuji (The University of Tokyo) “Large Magnetothermoelectric Effects of Topological Magnets and Their Applications”

15:30-15:50 Masaki Mizuguchi (Nagoya University) “Thermoelectric

power generation by magnetic nano-structures”

15:50-16:10 Kenichi Uchida (National Institute for Materials Science) “Hybrid Transverse Magneto-Thermoelectric Cooling in Artificially Tilted Multilayers”

16:10-16:30 Akio Kimura (Hiroshima University) “Elucidating the 'actual' spin-resolved band structure of magnetic thin films for enhanced thermoelectric generations”

16:30-16:50 Taishi Takenobu (Nagoya University) “Unsolved problem in organic polymer materials”

16:50-17:10 Junichi Takeya (The University of Tokyo) “Thermoelectric properties of doped organic crystalline semiconductors”

Break (20min)

17:30-18:00 Keynote Talk (30 min)

Chair: Masao Ogata (The University of Tokyo)

17:30-18:00 Hidetoshi Fukuyama (Tokyo University of Science) “Search for good thermoelectrics based on Kubo-Luttinger theory”

Day 2 (6 December)

10:00-12:00 Session 4 (6 Invited Talks, 120min)

Chair: Ichiro Terasaki (Nagoya University)

10:00-10:20 Tsutomu Kanno (Panasonic Holdings Corporation) “Defect chemistry and phonon damping in high-efficiency n-type Mg_3Sb_2 -based thermoelectric materials”

10:20-10:40 Tsunehiro Takeuchi (Toyota Technological Institute) “Development of high-performance thermoelectric materials using constructive electronic structure modifications and composite effects”

10:40-11:00 Chul-Ho Lee (National Institute of Advanced Industrial Science and Technology) “Development of thermoelectric materials with low thermal conductivity”

11:00-11:20 Naohito Tsujii (National Institute for Materials Science) “Development of Thermoelectric Materials using Magnetic Interaction”

11:20-11:40 Kaoru Toko (University of Tsukuba) “Thermoelectric

properties of low-temperature polycrystalline group IV semiconductor thin films”

11:40-12:00 Kazuhiko Kuroki (Osaka University) “Theoretical studies on the thermoelectric properties of CaAl_2Si_2 -type Zintl phase compounds”

Lunch (60min)

13:00-13:45 Poster Session (45min)

13:45-15:15 Session 5 (3 Invited Talks, 2 Contributed Talks, 90min)

Chair: Takao Mori (National Institute for Materials Science)

13:45-14:05 Ichiro Terasaki (Nagoya University) “Scattering time: the last black box”

14:05-14:25 Hideaki Maebashi (The University of Tokyo) “Lorenz Ratio in Strongly Correlated Electron Systems: Effects of Umklapp Scattering”

14:25-14:45 Jun Fujioka (University of Tsukuba) “Thermoelectric oxide narrow-gap semiconductor: electron-doped Pd-oxide”

14:45-15:00 Masayuki Ochi (Osaka University) “**Electron-hole dichotomy and enhancement of thermoelectric power factor by electron-hole-asymmetric relaxation time: a model study on a two-valley system with strong intervalley scattering**”

15:00-15:15 Yoshiki Sato (The University of Tokyo) “**Orthogonal thermoelectricity in a multi-dimensional goniopolar conductor LaPt₂B**”

Break (20min)

15:35-16:35 Session 6 (General Discussion) (in Japanese)

Chair: Takahiro Yamamoto (Tokyo University of Science)

16:35-16:45 Closing