

***Workshop on Advanced Materials
and Principles to Develop
Viable Thermoelectrics &
Effective Thermal Management***

Invited Speakers and Chairs

Jeff Snyder (Northwestern U)	Yuri Grin (Max Planck CPfS)
Anthony Powell (Reading U)	Thierry Caillat (NASA)
Kirill Kovnir (UC Davis)	Gao Min (Cardiff U)
Ichiro Terasaki (Nagoya U)	Xinfeng Tang (Wuhan U)
Jing-Feng Li (Tsinghua U)	Jong-Soo Rhyee (KyungHee U)
Kunihito Koumoto (Toyota RK)	Michitaka Ohtaki (U Kyushu)
David Berthebaud (CNRS)	Paolo Mele (Muroran U)
Pierre Poudeu-Poudeu (U Michigan)	Michihiro Ohta (AIST)
Kornelius Nielsch (IFW Dresden)	Xinbing Zhao (Zhejiang U)
Keiji Takeuchi (NTT)	Ngo Van Nong (TU Denmark)
Soonil Lee (KICET)	Yuzuru Miyazaki (Tohoku U)
Wenqing Zhang (SUSTech)	

Registration: free

Sept. 1-2, 2017

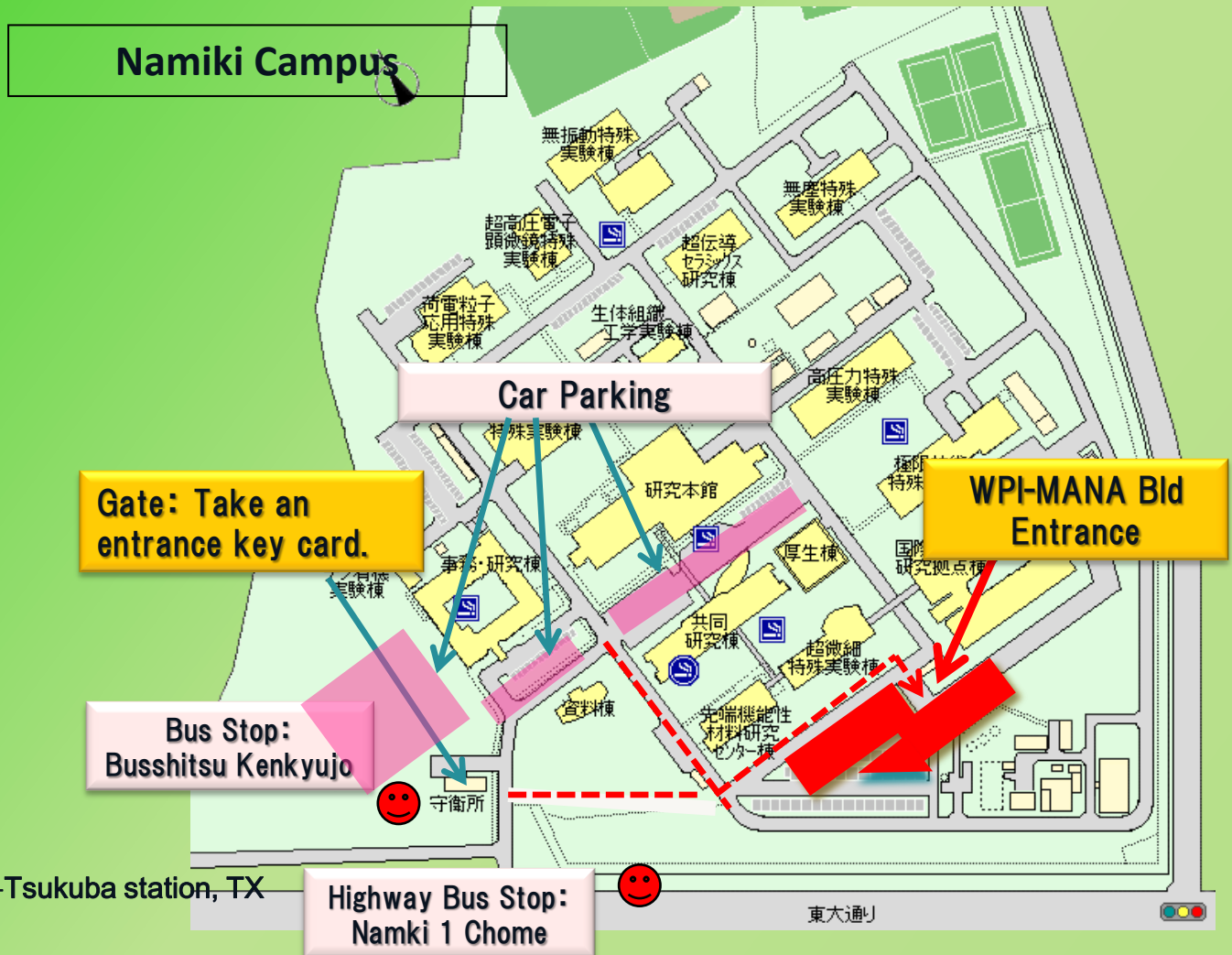
Auditorium

WPI-MANA Building

NIMS

Workshop on Advanced Materials and Principles to Develop Viable Thermoelectrics & Effective Thermal Management

**Venue: WPI-MANA Bld. Auditorium
Namiki, NIMS, Tsukuba**



Workshop Organizer: Takao Mori (NIMS, MANA)

Secretariat: Isao Ohkubo (OHKUBO.Isao@nims.go.jp, Naohito Tsujii (TSUJII.Naohito@nims.go.jp) Preregistration by email. Also register by 7/31 for Banquet: 9/2 18:30-20:30 5,000 yen and/or 9/2 Lunch 800 yen

Workshop on Advanced Materials and Principles to Develop Viable Thermoelectrics & Effective Thermal Management

Schedule Overview

September 1st (Friday) Arrival

September 2nd (Saturday)

Workshop Program

Venue: WPI-MANA Bldg. Auditorium

10:00-11:00 Panel Discussion

*Future Direction of Thermoelectrics and Key Issues for
Wide-scale Applications*

~~~11:00-11:15 Coffee Break~~~

11:15-12:15 Opening Session

~~~12:15-13:25 Lunch Break~~~

13:25-15:30 Afternoon Session I

~~~15:30-15:55 Coffee Break and Group photo~~~

15:55-17:55 Afternoon Session II & Closing

18:30-20:30 Workshop Banquet and Discussion

(Venue: Restaurant near Tsukuba Station)

**Workshop Organizer: Takao Mori (NIMS, MANA)**

**Secretariat: Isao Ohkubo (OHKUBO.Isao@nims.go.jp, Naohito Tsujii  
(TSUJII.Naohito@nims.go.jp) Preregistration by email. Also register by  
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September 1<sup>st</sup> – September 2<sup>nd</sup>, 2017

September 1<sup>st</sup>      Arrival (Reception)

September 2<sup>nd</sup>

Workshop Program

10:00-11:00 Panel Discussion WPI-MANA Bldg. Auditorium

Future Direction of Thermoelectrics and Key Issues for Wide-scale Applications

(Discussion Leaders: Takao Mori, Jeff Snyder, Thierry Caillat, Yuri Grin, Gao Min, Xinfeng Tang, Ohta Michihiro, Kunihiro Koumoto)

~~~11:00-11:15 Coffee Break~~~

11:15-12:15 Opening Session WPI-MANA Auditorium (Chair: Yuri Grin)

11:15 Opening Remarks *Takao Mori (PI, MANA& Research director CREST project)*

11:20-11:35 *Jeff Snyder (Professor, Northwestern U, USA)*

Identifying the Fermi Surface Complexity Factor for Thermoelectric Materials

11:35-11:50 *Thierry Caillat (Principal Member of Technical Staff, JPL, NASA, USA)*

Development of skutterudite thermoelectric materials for space power applications

11:50-12:00 *Takao Mori (Thermal Energy Materials Group PI, MANA, Japan& Research director CREST project)*

Overview of Thermoelectrics and Thermal Management Research in NIMS & CREST Project

12:00-12:15 *Jing-Feng Li (Professor, Tsinghua U, China)*

Nanostructured Bismuth Telluride Based Thermoelectric Materials

~~~12:15-13:25 Lunch Break~~~ (Invited speakers: lunch boxes)

13:25-15:30 Afternoon Session I WPI-MANA Auditorium (Chairs: Xinbing Zhao, Soonil Lee)

13:25-13:40 *Yuri Grin (Director, Max Planck Institute for Chemical Physics of Solids, Germany)*

Phase diagrams, crystal structure and thermoelectric properties of clathrates

13:40-13:55 *Ichiro Terasaki (Professor, Nagoya U, Japan)*

Oxide thermoelectrics: Beyond the conventional design rules

13:55-14:10 *Jong-Soo Rhyee (KyungHee U, Korea)*

Extremely low lattice thermal conductivity and point defect scattering of phonons in Ag-doped  $(\text{SnSe})_{1-x}(\text{SnS})_x$  compounds



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14:10-14:25 *Pierre Ferdinand Poudeu-Poudeu (Assoc. Professor, U Michigan, USA)*

Partial In solubility induces chemical stability and colossal thermoelectric figure of merit in Cu<sub>2</sub>Se

14:25-14:40 *Gao Min (Professor, Cardiff U, UK)*

Thermoelectric O/C relationship and its applications

14:40-14:50 *Yohei Kakefuda (CREST Postdoctoral Fellow, NIMS)*

In-situ TEM nanoscale evaluation of thermal conductivity & picosecond thermoreflectance development (CREST project, Nano Group)

14:50-15:05 *Kunihito Koumoto (Professor, Toyota Riken, Japan)*

Flexible TE Modules for Powering Wearable Electronic Devices

15:05-15:20 *Paolo Mele (Assoc. Professor, Muroran U, Japan)*

Development of nanostructured thermoelectric oxide thin films

15:20-15:30 *Nobuhiko Kobayashi (Professor, U Tsukuba)*

Thermoelectric properties calculations of magnetic systems (CREST project, Theory Group)

~~~15:30-15:55 Coffee Break and Group photo~~~

15:55-17:50 Afternoon Session II WPI-MANA Auditorium (Chairs: Yuzuru Miyazaki, Wenqing Zhang)

15:55-16:10 *Anthony Powell (Professor, Reading U, UK)*

Neutron Scattering: An Advanced Characterization Tool for Thermoelectric Materials

16:10-16:25 *Kirill Kovnir (Assi. Professor, UC Davis, USA)*

Layered tetrel-pnictides: A promising class of the van der Waals thermoelectrics

16:25-16:40 *David Berthebaud (Senior Researcher, CNRS, France)*

High temperature stability of thermoelectric silicides

16:40-16:55 *Kornelius Nielsch (Professor, Leibniz Inst. Dresden)*

The Importance of 3D Topological Insulator for Thermoelectric Applications

16:55-17:10 *Keiji Takeuchi (Senior Researcher, NTT)*

Industrialization Perspectives for Thermoelectrics

17:10-17:25 *Michitaka Ohtaki (Professor, Kyushu U, Japan)*

Rattling phenomena in oxides for enhanced phonon scattering

17:25-17:40 *Ngo Van Nong (Assoc. Professor, TU Denmark)*

Dynamic behavior of high performance thermoelectric materials under thermal cycling and large temperature gradient

17:40-17:50 *Rudder Wu (Senior Researcher, NIMS)*

Development of thermal insulation materials with thermal conductivity lower than air

17:50 - Closing Remarks *Daisuke Fujita (Executive Vice President, NIMS)*



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18:30-20:30 Workshop Dinner and Discussion



NATIONAL INSTITUTE FOR MATERIALS SCIENCE

