

Summit of Materials Science SMS 2019 and Global Institute for Materials Research Tohoku (GIMRT) User Meeting 2019, 27th-29th November

The Summit of Materials Science (SMS) 2019 and Global Institute for Materials Research Tohoku (GIMRT) User Meeting 2019 were jointly held in November 27th-29th as an international conference organized by and at the IMR. 20 invited/keynote speakers gave presentations during sessions on Spintronics and Electronics, Nuclear Engineering, Structural Materials, Energy Materials and Crystal Growth, Neutron and High Field, and so on. Younger researchers presented 72 poster.

The conference session on “Spintronics and Electronics”, “Nuclear Engineering”, “Structural Materials”, “Energy Materials and Crystal Growth”, “Quantum Beam and High Field” and “Recent Activities in Research Divisions and Centers” reflected the actual IMR research topics. Speakers were selected to represent cutting-edge research in those fields and IMR staff members used the opportunity to advertise ongoing research activities.

In the afternoon of the first day of the conference, young researchers and students presented their poster. More than 100 people gathered in the poster room to engage in heated discussions in front of the posters. A grand prizewinner and six merit award runners-up were selected from 67 competing abstracts.

The satellite workshop "GIMRTxISS-"Kibo" x AIRC" was held on the 29th. During the “Collaborative Research Platform on Ground and in Orbit” advanced research projects of three organizations were introduced and results on various topics of aerospace and materials science were presented. The lively exchange of ideas helped promoting future collaborations.

Participants unanimously appreciated the spirit and scope of this SMS conference and are looking forward to the next installment.

It was to the fourth Summit of Materials Science conferences that started with SMS2011, held in the years of the Great East Japan Earthquake. SMS2016 celebrated the 100th anniversary of the IMR.

The plenary session with 20 invited speakers from Japan and abroad as well as selected IMR faculty members attracted a large audience including many interested guests from outside the IMR.

DATE
November 27-29, 2019

VENUE
IMR Auditorium
Tohoku University Katahira Campus

PROGRAM

Day1 27 th	10:00-19:30 Opening ceremony of GIMRT, Oral and Poster Scientific Session
Day2 28 th	9:00-17:00 Oral Scientific Session
Day3 29 th	9:00-17:00 Satellite Workshop GIMRTxISS-"Kibo" x AIRC Collaborative Research Platform on Ground and in Orbit

Keynote/Invited SPEAKERS

Keynote Speakers

K. Amezama Research Institute, Japan	M. Chen Johns Hopkins University, USA	Y. Hatano University of Tsukuba, Japan
H. S. Kim Korea University of Science and Technology, Korea	T. Ono Kyushu University, Japan	J. Sinova University of Duisburg-Essen, Germany
J. Tranquada Brookhaven National Laboratory, USA	E. Weschke Helmholtz-Zentrum Berlin, Germany	

Invited Speakers

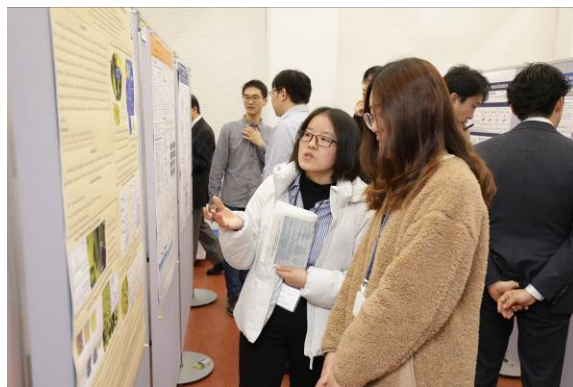
M. Arivanandhan Imperial College London, UK	X. Gu University of Science and Technology of China, China	W. Han Tsinghua University, China
W. Kofoed Sandia National Laboratories, USA	H. Nishiyoshi University of Central Florida, USA	Y. Ma University of Tsukuba, Japan
M. Matsuda Sandia National Laboratories, USA	L. Miao Case Western Reserve University, USA	E. Minamitani Institute for Materials and Chemical Process, Japan
J. Stelhorn Research Institute, Japan	M. Tano Tohoku University, Japan	A. Nakamura Tohoku University, Japan

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**Institute for Materials Research,
Tohoku University**



Invited/Keynote speakers



(Upper) Poster presentation
(Lower) Winners of the Young Scientist
Poster Presentation Award



"SMS2019 & GIMRT User Meeting Program 2019" Nov. 27-28, 2019
Venue: Auditorium, IMR, Tohoku Univ.

Nov. 27 (Wed.) : Day 1	
9:00-	Registration
Opening Ceremony of GIMRT Chair: G. Bauer	
10:00-10:40	Welcome Address K. Takanashi (Director, IMR)
	Greeting from President H. Ohno (President, Tohoku Univ.)
	Greeting from MEXT T. Nishii (Director, SRID, RPB)
	Introduction of GIMRT Program T. Furuwara
Scientific Session I : Spintronics and Electronics Chair: R. Umetsu	
11:00-11:30	"Ferrimagnetic Spintronics" T. Ono (Kyoto Univ.) Keynote
11:30-12:00	"The Crystal Hall Effect and Topological Spintronics in Antiferromagnets" J. Sinova (Johannes Gutenberg Univ. Mainz) Keynote
12:00-12:20	"Electric Control of Magnetism in a Two-dimensional van der Waals Ferromagnet Cr ₂ Ge ₂ Te ₅ " H. Kurebayashi (Univ. College London) Invited
12:20-12:40	"Spin Superfluidity Materials" W. Han (Peking Univ.) Invited
12:40-12:45	Technical Announcement H. Kato
Group Photo	
12:45-15:00	Lunch and Poster (Lobby, IMR)
Recent Activities in Research Divisions and Centers Chair: T. Sasaki	
15:00-15:20	"Collaborative Research with IMR Research Divisions and Groups" K. Fujiwara
15:20-15:40	"Introduction and Recent Activities of IRCNMS (Oarai Center)" Y. Nagai
15:40-16:00	"Recent Activities of HF LSM" H. Nojiri
Scientific Session II : Nuclear Engineering Chair: S. Kondo	
16:00-16:30	"Interactions of Hydrogen Isotopes and Radiation-induced Defects in Tungsten and its Impact on Performance as Plasma-facing Material of Fusion Reactor" Y. Hatano (Univ. of Toyama) Keynote
16:30-16:50	"Dynamical Ag ⁺ -Intercalation with AgSnSe ₂ Nano-precipitates in Cl-doped Polycrystalline SnSe ₂ toward Ultra-high Thermoelectric Performance" L. Miao (Guilin Univ. Electronic Technology) Invited
16:50-17:10	"Metamagnetism and Superconductivity in UTe ₂ under Intense Magnetic Field" W. Knafo (LNCMI-Toulouse) Invited
17:10-18:00	Lab. Tour
18:00-19:30	Mixer (IMR Lounge)

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Nov. 28 (Thu.) : Day 2	
Scientific Session III : Structural Materials Chair: G. Miyamoto	
09:00-09:30	"New Era of Metallurgy through High Entropy Alloys" H. S. Kim (Pohang Univ. of Science and Technology) Keynote
09:30-10:00	"Unique Mechanical Properties by Nano-Macro Synergy Effects in Harmonic Structure Designed Metallic Materials" K. Ameyama (Ritsumeikan Univ.) Keynote
10:00-10:20	"The Effect of Crystalline Defects on Transformation Crystallography in Mg Alloys" X. Gu (Univ. of Science and Technology Beijing) Invited
10:20-10:50 Coffee Break	
Scientific Session IV : Energy Materials and Crystal Growth Chair: T. Wada	
10:50-11:20	"Dealloyed Porous Materials for Advanced Batteries" M. Chen (Johns Hopkins Univ.) Keynote
11:20-11:40	"Thermoelectric Performance and Defect Studies of Compositionally Homogeneous $\text{Si}_{1-x}\text{Ge}_x$ " M. Arivanandhan (Anna Univ.) Invited
11:40-12:00	"Diffusionless Isothermal Omega Transformation in Titanium Alloys: Thermodynamics and Kinetics of Displacive Phase Transition Driven by Quenched-in Compositional Fluctuations" M. Tane (Osaka Univ.) Invited
12:00-13:30 Lunch	
Scientific Session V : Quantum Beam and High Field Chair: S. Kimura	
13:30-14:00	"Competition and Collaboration Are Key to Understanding High-Temperature Superconductors" J. Tranquada (Brookhaven National Lab.) Keynote
14:00-14:30	"Studying Collective States in Materials with Soft X-rays at High Magnetic Fields at BESSY II" E. Weschke (Helmholtz-Zentrum Berlin) Keynote
14:30-14:50	"Development of Iron-based Wires and Tapes for High Field Applications" Y. Ma (Inst. of Electrical Engineering, Chinese Academy of Sciences) Invited
14:50-15:10	"Magnetic Field Induced Transitions in Multiferroic BiFeO_3 " M. Matsuda (Oak Ridge National Lab.) Invited
15:10-15:30 Coffee Break	
Scientific Session VI : GIMRT Activities Report from Young Researchers Chair: K. Yubuta	
15:30-15:50	"Single Crystal Growth and Physical Properties of Unconventional Superconductor UTe_2 " A. Nakamura (Tohoku Univ.) Invited
15:50-16:10	"Structural Investigations on the Rejuvenation Effect by Thermal Strain in Metallic Glasses" J. Stellhorn (Hiroshima Univ.) Invited
16:10-16:30	"Computation of Phonon Related Transport Properties in Semiconducting Materials" E. Minamitani (Inst. for Molecular Science) Invited
16:30-17:00 Closing K. Sugiyama	

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