

## The 3rd Symposium for The Core Research Clusters for Materials Science and Spintronics

The 3rd Symposium for The Core Research Clusters for Materials Science and Spintronics was held at Sendai International Center (Sendai, Japan) from February 9<sup>th</sup> to 11<sup>th</sup> 2020. The symposium consisted of 3 plenary speeches and 10 sessions which included 30 presentations and 86 poster presentations. About 250 researchers from all over the world participated this symposium, and we could show our research results and discuss future prospects.

Tohoku University was named one of the first three Designated National Universities in Japan on June 30, 2017 by the Japanese Government. As a Designated National University, Tohoku University initiated the Core Research Clusters in four research fields; materials science, spintronics, next-generation medical care and disaster science. We held the 3rd symposium on the two research fields, Materials Science and Spintronics at Sendai International Center (Sendai, Japan) from February 9<sup>th</sup> to 11<sup>th</sup> 2020 to show our research results and discuss future prospects.



Fig.1 Opening Remarks by Prof. Hideo OHNO, President of Tohoku University



Fig.2 Prof. Yoshiro HIRAYAMA, Director of Core Research Cluster for Spintronics. Chair of Plenary session.

Totally 3 Plenary speakers, 23 invited speakers, about 250 participants from 10 countries, and 86 poster presenters joined the symposium. The details are as follows;

### (1) Plenary Session

The first plenary speaker, Prof. Jerome B. HASTINGS, from SLAC National Accelerator Laboratory, USA, provided a lecture titled "Challenges and Opportunities with SLIT-J". The second plenary speaker, Prof. Stéphane MANGIN, from University of Lorraine, France, gave a lecture titled "Single femto second laser to switch ferromagnetic layers mediated by spin transport". The last plenary speaker, Prof. Maki KAWAI, who is Director General, Institute for Molecular Science, Japan, spoke on "Cutting edge research to lead materials science"



Fig.3 Plenary speakers; Prof. Jerome B. HASTINGS, Prof. Stéphane MANGIN, Prof. Maki KAWAI, from the photo left.

### (2) Sessions for Materials

The topic of the 1<sup>st</sup> session was on High Strength Materials chaired by Prof. Kyosuke YOSHIMI. The 2<sup>nd</sup> session was on the Biomaterials chaired by Prof. Ayumi HIRANO-IWATA. The 3<sup>rd</sup> session was on Advanced Electronic Materials chaired by Prof. Tomoteru FUKUMURA. The 4<sup>th</sup> session was on Advanced Energy Materials Chaired by Prof. Shin-ichi ORIMO. And the last session was on Materials Development Based on Microstructure Control chaired by Prof. Tadashi FURUHARA.

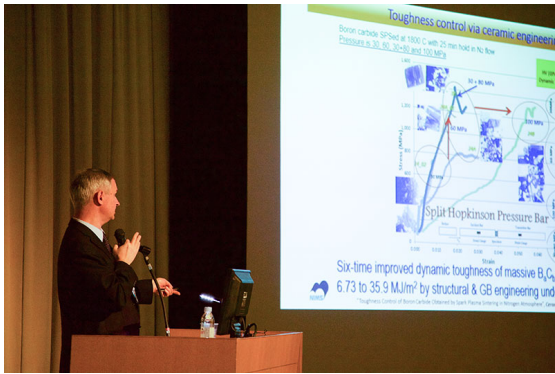


Fig.4 Lectures from invited speakers

(3) Sessions for Spintronics

The topic of the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> session was on the Spintronics Materials Research chaired by Prof. Koki TAKANASHI, Prof. Masafumi SHIRAI and Prof. Shigemi MIZUKAMI. The 4<sup>th</sup> session was on Spintronics Fundamental Research by Junsaku NITTA. And the last session was on Spintronics Device Research chaired by Prof. Fumihiko MATSUKURA.

(4) Poster Session

Committee members reviewed total 86 posters and bestowed the best poster award on 5 researchers and poster award on 3 researchers.

**Acknowledgements**

This symposium was held in collaboration with and partially supported by International Collaboration Center, Institute for Materials Research, Tohoku University. We take this opportunity to thank all the support and

collaboration.



Fig.5 Discussions at Poster Session



Fig.6 Best Poster Award winners



Fig.7 Participants of "The 3rd Symposium for The Core Research Clusters for Materials Science and Spintronics"



**The 3rd Symposium for  
The Core Research Clusters for Materials Science and Spintronics**  
February 9 (Sun) - 11 (Tue), 2020  
jointly organized with AMIS 2020



CORE RESEARCH CLUSTER

as of February 6

at Sendai International Center

Feb 9 (Sun)	Feb 10 (Mon)	Feb 11 (Tue)		
	Registration	Registration		
Satellite Event  Glass Workshop (Meeting Room, 1st floor, AIMR Main Bldg.)	<b>Opening Remarks (9:00-9:10) [Hagi]</b>  Chair: <b>Yoshiro Hirayama</b> Hideo Ohno, President of Tohoku University	<b>Session 3 (9:00-10:30) Parallel Session</b>		
		<Spintronics> [Tachibana]  Chair: <b>Shigemitsu Mizukami</b> 10-A. Christina Psaroudaki (Caltech) 11-A. Yutaka Tabuchi (The Univ. of Tokyo) 12-A. Ken-ichi Uchida (National Institute for Materials Science)	<Materials Science> [Hagi]  Chair: <b>Tomoteru Fukumura</b> 10-B. Hiroko Yamada (Nara Institute of Science and Technology) 11-B. Masataka Higashiwaki (NICT) 12-B. Emi Minamitani (Institute for Molecular Science)	
	<b>Plenary Session (9:10-11:25) [Hagi]</b>  Chair: <b>Yoshiro Hirayama</b> 1. Jerome B. Hastings (SLAC National Accelerator Laboratory) 2. Stéphane Mangin (University of Lorraine) 3. Maki Kawai (Institute for Molecular Science)	Coffee break (20 min.)		
		<b>Session 4 (10:50-12:20) Parallel Session</b>	<Spintronics> [Tachibana]  Chair: <b>Junsaku Nitta</b> 13-A. Jian-Ping Wang (Univ. of Minnesota) 14-A. Sumito Tsunegi (AIST) 15-A. Shunsuke Fukami (Tohoku Univ)	<Materials Science> [Hagi]  Chair: <b>Shin-ichi Orimo</b> 13-B. Miho Yamauchi (Kyushu Univ) 14-B. Gerrit E.-W. Bauer (Tohoku Univ) 15-B. Hirotomo Nishihara (Tohoku Univ)
	<b>Lunch &amp; Poster Session &amp; Free Discussion [Sakura] (11:25-13:40)</b>	<b>Lunch (12:20-13:20)</b>		
	<b>Session 1 (13:40-15:10) Parallel Session</b>	<b>Session 5 (13:20-14:50) Parallel Session</b>		
	<Spintronics:CSRN> [Tachibana]  Chair: <b>Koki Takanashi</b> 4-A. Yihong Wu (National Univ. of Singapore) 5-A. Masaaki Tanaka (The Univ. of Tokyo) 6-A. Takeshi Seki (Tohoku Univ)	<Materials Science> [Hagi]  Chair: <b>Kyosuke Yoshimi</b> 4-B. An-Chou Yeh (National Tsing Hua Univ) 5-B. Oleg Vasyukiv (National Institute for Materials Science) 6-B. Hiroyuki Yasuda (Osaka Univ)	<Spintronics:GP-Spin> [Tachibana]  Chair: <b>Fumihiko Matsukura</b> 16-A. Joseph Barker (Univ. of Leeds) 17-A. Yusuke Nambu (Tohoku Univ) 18-A. Akira Kamimaki (Tohoku Univ) 19-A. Koichi Oyanagi (Tohoku Univ)	<Materials Science> [Hagi]  Chair: <b>Tadashi Furuhashi</b> 16-B. Wenzheng Zhang (Tsinghua Univ) 17-B. Nobuhiro Tsuji (Kyoto Univ) 18-B. Ryosuke Kainuma (Tohoku Univ) Toshihiro Omori (Tohoku Univ) 19-B. Goro Miyamoto (Tohoku Univ)
	Coffee break (20 min.)		<b>Poster Award Ceremony (14:50-15:00)</b>	
	<b>Session 2 (15:30-17:00) Parallel Session</b>	<b>Closing Remarks (15:00-15:10)</b> Motoko Kotani, Director of Core Research Cluster for Materials Science		
	<Spintronics> [Tachibana]  Chair: <b>Masafumi Shirai</b> 7-A. Andrew Sachrajda (NRC Canada) 8-A. Shiro Saito (NTT) 9-A. Tomohiro Otsuka (Tohoku Univ)	<Materials Science> [Hagi]  Chair: <b>Ayumi Hirano-Iwata</b> 7-B. Yi-Tao Long (Nanjing Univ) Matsuhiko Nishizawa (Tohoku Univ) 8-B. Andreas Offenhäusser (Forschungszentrum Jülich) 9-B. Kaoru Tamada (Kyushu Univ)		
<b>Registration (16:00-)</b>	<b>Poster Session (17:00-17:30) [Sakura]</b>			
	<b>Move to Banquet (60 min)</b>			
<b>Welcome Reception (17:00-19:00) [Sendai Kokusai Hotel]</b>	<b>Banquet (18:30-20:00) [Sendai Kokusai Hotel]</b>			

Fig.8 shows the program of The 3rd Symposium for The Core Research Clusters for Materials Science and Spintronic