

Nov. 5 Monday		Nov. 6 Tuesday	
9:45	Registration open	9:30	Registration open
10:30-10:35	Opening Address	9:45-10:55	Session 3: Sensing 1
10:35-12:00	Plenary Session Session 1: Particle Imaging	10:55-11:10	Special Session
		11:10-12:00	Group photo, Poster Viewing with Coffee Break
12:00-13:00	Lunch	12:00-12:45	Lunch
13:00-14:20	Session 2: Therapy	12:45-14:15	Session 4: Sensing 2
14:20-14:30	Coffee Break	14:15-14:30	Coffee Break
14:30-16:30	Poster Presentation	14:30-15:45	Session 5: Hyperthermia
17:00	Banquet	15:45-16:00	Closing and Poster Award Ceremony

### **Instruction to Oral Presentations**

Please bring your own laptop computers. Connectors to HDMI and VGA (D-Sub 15 pins) are available.

Plenary lecture and Plenary talk:	25 min (20 min presentation and 5 min discussion)
Invited talk and Lecture:	20 min (15 min presentation and 5 min discussion)
Other oral presentation:	15 min (12 min presentation and 3 min discussion)

### **Instructions to Poster Presentations**

Each poster should be fit within a 120 cm TALL by 90 cm WIDE board. Push pins and magnets are available, which are supplied by the workshop organizer.

All poster must be set up no later than 12:30 on Nov. 5th Monday, and removed between 12:30 and 16:00PM on Nov. 6th Tuesday.

**Poster award will be announced at the Closing Session on Nov. 6th, Tuesday.**

### **Registration**

We only accept On-site registration. Registration fee must be paid by cash (Japanese Yen) at the conference desk. Registration Fee includes technical sessions, coffee breaks, Abstract booklet, and Banquet. For international participants: it may be good to exchange to Japanese Yen at the airport.

Full Conference Participant	¥20,000
Student Participant:	¥15,000

### **Access to “Education and Culture Hall” of Yokohama National University and accommodation**

#### **1. Access to the venue: “Education and Culture Hall” (S1-2) of Yokohama National University**

The venue is close from the Main Entrance of Yokohama National University.

[http://www.ynu.ac.jp/english/access/map\\_campus.html](http://www.ynu.ac.jp/english/access/map_campus.html)

You may walk from Mitsuzawa-kamicho Station of Yokohama Municipal Subway for 15 min.

[http://www.ynu.ac.jp/english/access/train\\_front.html](http://www.ynu.ac.jp/english/access/train_front.html)

#### **2. Accommodation**

It would be convenient if you book your hotel at area of: Yokohama Station, Kannai Station, or Sakuragicho Station. You may reach to Mitsuzawa-kamicho Station from these stations by Yokohama Municipal Subway for 5-10 min.

Staying at Shi-Yokohama Station is NOT nice for banquet and other activities.

### **Conference Proceedings**

The authors are recommended to submit their manuscripts to *Journal of the Magnetics Society of Japan (JMSJ)*, a peer-review online journal with open access. Payment of publication charge is necessary for accepted papers.

<https://www.magnetics.jp/archive/english/paper/index.html>

### **WiFi**

eduroam is available in the campus Yokohama National University.

## November 5th, Monday

9:45-10:30 Registration

10:30-10:35 Opening Address

### Plenary Session and Session 1: Particle Imaging Chair: S. Tanaka

- 10:35-11:00 PL-1 *Plenary Lecture* 8  
Parameters Affecting Signal Strength and Spatial Resolution in Magnetic Particle Imaging  
Keiji Enpuku, Kyushu University, Japan
- 11:00-11:25 PT-1 *Plenary Talk* 9  
Magnetic Particles' Susceptibility Imaging  
Shiqiang Pi, Wenzhong Liu, Shuai Wang, Tao Jiang, Huazhong University of Science and Technology, China
- 11:25-11:45 I1-1 *Invited Talk* 10  
Novel spin dynamics of magnetic nanoparticles for bio-imaging and hyperthermia applications  
Sang-Koog Kim, Seoul National University, Korea
- 11:45-12:00 O1-1 Improvement of Spatial Resolution in Magnetic Particle Imaging Using Fractionated Magnetic Particles 11  
T. Yoshida, T. Nakamura, O. Higashi, and K. Enpuku, Kyushu University, Japan

12:00-13:00 Lunch

### Session 2: Therapy Chair: W. Liu

- 13:00-13:20 L2-1 *Lecture* 12  
Principles and applications of transcranial magnetic stimulation  
Masaki Sekino, The University of Tokyo, Japan
- 13:20-13:40 I2-1 *Invited Talk* 13  
Assembled Magnetic Nanomaterials for Mechanotransduction of Cancer Treatment  
Yu Cheng, Tongji University, China
- 13:40-14:00 I2-2 *Invited Talk* 14  
Magnetic ablation  
W. C. Wei<sup>1</sup>, M.H. Chiang<sup>2</sup>, S.H. Liao<sup>1</sup>, Y. B. Liu<sup>3</sup>, Kuo-Ti Peng<sup>4,5</sup>, J. J. Chieh<sup>1</sup>  
<sup>1</sup>National Taiwan Normal University, Taiwan, <sup>2</sup>National Taiwan University, Taiwan, <sup>3</sup>National Taiwan University Hospital and National Taiwan University, Taiwan, <sup>4</sup>Chang Gung Memorial Hospital, Taiwan, <sup>5</sup>Chang-Gung University, Taiwan
- 14:00-14:20 I2-3 *Invited Talk* 15  
Multifunctional Magnetic Nanocomposite Biomaterials for Cancer Multimodality Treatment and Image  
Wang Dan<sup>1</sup>, Xie Wensheng<sup>1</sup>, Liaw Bor-shuang<sup>1</sup>, Gao Fei<sup>2</sup>, Guo Zhenhu<sup>1</sup>, Zhao Lingyun<sup>1</sup>  
<sup>1</sup>Tsinghua University, China, <sup>2</sup>Northwest University, China

14:20-14:30 Coffee Break

14:30-16:30 **Poster Presentation** (see list on the next page) Chair: T. Sasayama and S. Ota

17:00-19:00 Banquet

**Poster Presentations** Chair: T. Sasayama and S. Ota

- P-1 Three Dimensional Imaging of Magnetic Nanoparticles Utilizing Field Free Line and Multiple Pickup Coils 16  
S. Hamanaga, T. Sasayama, T. Yoshida and K. Enpuku, Kyushu University, Japan
- P-2 High speed 2D-MPI by AC Scanning Field 17  
K.Nakashima, Y. Sanada and S. Tanaka, Toyohashi University of Technology, Japan
- P-3 Evaluation of Third Harmonic Signals from Mobile and Immobilized Magnetic Nanoparticles for MPI 18  
Takuru Nakamura, Oji Higashi, Takashi Yoshida, and Keiji Enpuku, Kyushu University, Japan
- P-4 Dependence of harmonic signal intensity on particle size in magnetic particle imaging 19  
Yu Ichikawa, Tsutomu Yamada, Satoshi Ota, Yasushi Takemura, Yokohama National University, Japan
- P-5 A Magnetic Nanoparticle Concentration Measurement based on NMR Para-Shift 20  
Silin Guo, Wenzhong Liu, Huazhong University of Science and Technology, China
- P-6 Peak to Peak Voltage Detector Type MI Gradiometer for Magnetoencephalogram Measurement 21  
Jiaju Ma, and Tsuyoshi Uchiyama, Nagoya University, Japan
- P-7 Wash Free Detection of Biological Target Utilizing Magnetic Markers and MR Sensor 22  
K. Irie, K. Akiyoshi, T. Yoshida, T. Sasayama, and K. Enpuku, Kyushu University, Japan
- P-8 Low Temperature Measurement of Magnetic Nanoparticles 23  
Shuai Wang, Wenzhong Liu, Silin Guo, Huazhong University of Science and Technology, China
- P-9 Frequency dependence of wireless power transmission using Wiegand wire for implantable medical devices 24  
Katsuki Takahashi, Tsutomu Yamada, Yasushi Takemura, Yokohama National University, Japan
- P-10 Co-Zn ferrite nanoparticles modified with PEG and magnetic hyperthermia effect 25  
Y. Takahashi<sup>a</sup>, A. Oshima<sup>a</sup>, K. Fujiwara<sup>a</sup>, T. Ide<sup>a</sup>, K. Kanda<sup>a</sup>, T. Hashimoto<sup>a</sup>, D. Aihara<sup>a</sup>, Y.Sahashi<sup>a</sup>, Y.Ito<sup>a</sup>, Y. Ichiyonagi<sup>a,b</sup>, <sup>a</sup>Yokohama National University, Japan, <sup>b</sup>Osaka University, Japan
- P-11 Development of Wireless Temperature and Position Monitoring for Magnetic Hyperthermia using Pickup Coils 26  
Loi Tonthat<sup>1</sup>, Yoshiyuki Yamamoto<sup>1</sup>, Fumitaka Aki<sup>1</sup>, Hajime Saito<sup>2</sup>, and Kazutaka Mitobe<sup>1</sup>, <sup>1</sup>Akita University, Japan, <sup>2</sup>Iwate Medical University, Japan
- P-12 High intrinsic loss power of multi-core magnetic nanoparticles for hyperthermia 27  
Kizuku Nishimoto, Suko Bagus Trisnanto, Tsutomu Yamada, Satoshi Ota, Yasushi Takemura, Yokohama National University, Japan
- P-13 Specific loss power of biocompatible magnetic nanoparticles for hyperthermia 28  
Guannan Shi, Suko Bagus Trisnanto, Tsutomu Yamada, Satoshi Ota, Yasushi Takemura, Yokohama National University, Japan
- P-14 Analysis of microRNA expression profiles in cancer cells exposed to iron oxide nanoparticles 29  
Sanai Takahashi, Shungo Saito, Kazutoshi Iijima, Hiroshi Itagaki, Masatoshi Watanabe\*, Yokohama National University, Japan, \*Mie University, Japan

## November 6th, Tuesday

9:30		Registration	
<b>Session 3: Sensing 1</b>		Chair: K. Enpuku	
9:45-10:05	I3-1	<i>Invited Talk</i> The in-situ Detection of Magnetic Nanoparticles for Cell Sorting Device Using Magnetic Susceptibility Reduction <u>Mean-Jue Tung</u> , Industrial Technology Research Institute, Taiwan	30
10:05-10:25	I3-2	<i>Invited Talk</i> A SQUID Biomagnetic Measurement System and Its Clinical Applications <u>Y. Adachi</u> <sup>1</sup> and S. Kawabata <sup>2</sup> , <sup>1</sup> Kanazawa Institute of Technology, Japan, <sup>2</sup> Tokyo Medical and Dental University, Japan	31
10:25-10:40	O3-1	Flow Measurement of Magnetic Nanoparticles by HTS Three Channel-SQUID Array <u>Saburo Tanaka</u> , Moriki Kabasawa, Ryugo Ito, Toyohashi University of Technology, Japan	32
10:40-10:55	O3-2	Quantification of SPIONs by view line sequence in MRI <u>Shuang Liu</u> <sup>1</sup> , Wenqi Qiu <sup>1</sup> , Gabriel Maggiora Della <sup>2</sup> , Akihiro Kuwahata <sup>1</sup> , Moriaki Kusakabe <sup>1</sup> , Pablo Irarrazaval <sup>2</sup> , Masaki Sekino <sup>1</sup> <sup>1</sup> The University of Tokyo, Japan, <sup>2</sup> Pontifical Catholic University of Chile, Chile	33
10:55-11:10		Special Session	
11:10-12:00		Group photo, <b>Poster Viewing</b> with Coffee Break	
12:00-12:45		Lunch	
<b>Session 4: Sensing 2</b>		Chair: T. Uchiyama and S. Yabukami	
12:45-13:05	L4-1	<i>Lecture</i> High-sensitive magnetic sensor for biomedical applications <u>Tusyoshi Uchiyama</u> , Nagoya University, Japan	34
13:05-13:25	I4-1	<i>Invited Talk</i> All-in-one Spin Hall Magnetic Sensor <u>Yihong Wu</u> , Yanjun Xu, Yumeng Yang, Mengzhen Zhang, and Ziyang Luo, National University of Singapore, Singapore	35
13:25-13:45	I4-2	<i>Invited Talk</i> Biomedical applications of magnetic particles: From immunoassay to imaging <u>Shu-Hsien Liao</u> , Yuan-Fu Tong, Yun-Hsuan Chen, Chia-Yu Wu, Mu-Hsiu Tsai, Chun-Ming Wang, Yu-Kai Su, Heng-Er Horng, Hong-Chang Yang National Taiwan Normal University, Taiwan	36
13:45-14:00	O4-1	Evaluation of bacteria using switching magnetic field <u>S. Yabukami</u> <sup>1,2</sup> , H. Onodera <sup>2</sup> , Y. Sato <sup>2</sup> , K. Miyauchi <sup>2</sup> , G. Endo <sup>2</sup> , M. Furuya <sup>1</sup> , H. Kanetaka <sup>1</sup> , Y. Miura <sup>3</sup> , H. Takahashi <sup>3</sup> , T. Kodama <sup>3</sup> , <sup>1</sup> Tohoku University, Japan, <sup>2</sup> Tohoku Gakuin University, Japan, <sup>3</sup> JNS Co., Ltd., Japan	37
14:00-14:15	O4-2	Effect of Viscosity on Harmonic Signals of Magnetic Nanoparticles for Temperature Measurement <u>A. L. Elrefai</u> , T. Sasayama, T. Yoshida and K. Enpuku, Kyushu University, Japan	38
14:15-14:30		Coffee Break	

**Session 5: Hyperthermia** Chair: T. Yoshida

14:30-14:50	IL-1	<i>Invited Lecture</i> Hyperthermia in cancer therapy: current status and future prospects <u>Masatoshi Watanabe</u> , Mie University, Japan	39
14:50-15:10	I5-1	<i>Invited Talk</i> Magnetic Delivery Technology for the Application of Magnetotactic Bacteria on Hyperthermia Changyou Chen <sup>1,2,3</sup> , Chuanfang Chen <sup>1,3</sup> , Linjie Chen <sup>1,2,3</sup> , Pingping Wang <sup>1,3</sup> , Long-Fei Wu <sup>1,4</sup> , <u>Tao Song</u> <sup>1,2,3</sup> , <sup>1</sup> Institute of Electrical Engineering, CAS, China, <sup>2</sup> Graduate University of Chinese Academy of Sciences, China, <sup>3</sup> France-China Bio-Mineralization and Nano-Structures Laboratory, China, <sup>4</sup> Aix Marseille University, France	40
15:10-15:30	I5-2	<i>Invited Talk</i> Large magnetic Fe <sub>3</sub> O <sub>4</sub> nanoparticles and their applications <u>Jun Ding</u> , National University of Singapore, Singapore	41
15:30-15:45	O5-1	Analysis on magnetization dynamics of magnetic nanoparticles for hyperthermia <u>Satoshi Ota</u> <sup>1</sup> and Yasushi Takemura <sup>2</sup> , <sup>1</sup> Shizuoka University, Japan, <sup>2</sup> Yokohama National University, Japan	42
15:45-16:00		Closing and Poster Award Ceremony	