4th QST International Symposium

—Innovation from Quantum Materials Science—

on https://www.qst.go.jp/site/intl-symposium2020/

Day 1: Wednesday 4 Nov. 2020

1. Opening (chair: OHSHIMA Takeshi, QST, Japan)

   14:00 - 14:05 Opening Address (ITOH Hisayoshi, QST, Japan)

   14:05 - 14:15 Opening Remarks (HIRANO Toshio, QST, Japan)

   14:15 - 14:20 Greeting (YAMAMOTO Ichita, Gunma Prefectural Government, Japan)

   14:20 - 14:25 Greeting (ITAKURA Yasuhiro, Ministry of Education, Culture, Sports, Science and Technology, Japan)

2. Plenary Talk 1 (chair: OHSHIMA Takeshi, QST, Japan)

   14:30 - 15:20 “Probing material properties with a nanoscale quantum sensor”

   WRACHTRUP Jörg, The University of Stuttgart, Germany

   【Remote live】

   15:30 - 17:30 Poster Session

   17:30 - 19:30 Online Social Gathering

Day 2: Thursday 5 Nov. 2020

3. Plenary Talk 2 (chair: ITOH Hisayoshi, QST, Japan)

   11:00 - 11:50 “Emergent phenomena and functions of topological magnets”

   TOKURA Yoshinori, The University of Tokyo / RIKEN, Japan

   【On-site live】

   12:00 - 13:00 Lunch

4. Session 1: Materials for Quantum Sensing I (chair: OHSHIMA Takeshi, QST, Japan)

13:00 - 13:40 Keynote Lecture

"Quantum Diamond Sensors"

WALSWORTH Ronald, University of Maryland, USA

【Pre-recorded】

13:40 - 14:10 "Bright colour centers for quantum biophotonics applications"

GIBSON Brant, RMIT University, Australia

【Remote live】

14:10 - 14:40 "Exploration of various color centers in diamond for quantum applications"

MEIJER Jan, University of Leipzig, Germany

【Remote live】

14:40 - 15:00 Coffee Break

5. Session 2: Materials for Quantum Sensing II (chair: OHSHIMA Takeshi, QST, Japan)

15:00 - 15:30 "Diamond spin defects for quantum sensing and quantum network"

IWASAKI Takayuki, Tokyo Institute of Technology, Japan

【Remote live】

15:30 - 16:00 "Creation of spin defects in silicon carbide for quantum sensing"

OHSHIMA Takeshi, QST, Japan

【On-site live】

16:00 - 16:20 Coffee Break

6. Session 3: Quantum Beam Analysis for Materials Science I (chair: KATAYAMA Yoshinori, QST, Japan)

16:20 - 17:00 Keynote Lecture

"Incorporating magnetism into topological quantum materials for innovative functions"

KIMURA Akio, Hiroshima University, Japan

【Remote live】

17:00 - 17:30 “Imaging of three-dimensional magnetic systems with X-rays”

DONNELLY Claire, University of Cambridge, UK

【Remote live】

17:30 - 18:00 “Investigations on local magnetic properties of magnetic thin films using synchrotron-radiation Mössbauer spectroscopy”

MITSUI Takaya, QST, Japan

【Remote live】

Day 3: Friday 6 Nov. 2020

7. Session 4: Quantum Beam Analysis for Materials Science II (chair: MAEKAWA Yasunari, QST, Japan)

13:00 - 13:30 “Positron diffraction (TRHEPD and LEPD) for the surface structure analysis”

HYODO Toshio, KEK, Japan

【On-site live】

13:30 - 14:00 “Spintronics materials studied by spin-polarized positron beam”

KAWASUSO Atsuo, QST, Japan

【On-site live】

14:00 - 14:20 Coffee Break

8. Session 5: Materials for Spintronics I (chair: WATANUKI Tetsu, QST, Japan)

14:20 - 15:00 Keynote Lecture

“Spin orbit torque devices using quantum topology materials”

YANG Hyunsoo, National University of Singapore, Singapore

【Remote live】

15:00 - 15:30 “Development of novel graphene-based heterostructures for spintronic applications”

SAKAI Seiji, QST, Japan

【On-site live】

15:30 - 15:50 Coffee Break

9. Session 6: Materials for Spintronics II (chair: SAKAI Seiji, QST, Japan)

15:50 - 16:20 “Hyperfine-mediated transport properties in semiconductor quantum systems”

HIRAYAMA Yoshiro, Tohoku University, Japan

【On-site live】

16:20 - 16:50 “Interface spin-orbit coupling in magnetic tunnel junctions”

MITANI Seiji, NIMS, Japan

【Remote live】

16:50 - 17:20 “Spin current physics and materials”

SAITOH Eiji, The University of Tokyo, Japan

【On-site live】

10. Summary Talk (chair: SATOH Takahiro, QST, Japan)

17:20 - 17:40 ITOH Hisayoshi, QST, Japan

11. Closing (chair: SATOH Takahiro, QST, Japan)

17:40 - 17:45 Closing Remarks (NODA Koji, QST, Japan)