

# International Workshop: Novel Phenomena in Quantum Materials driven by Multipoles and Topology

April 9th (Mon)

|                    | Chair       | Start | End    | Name             | Affiliation        | Title   |
|--------------------|-------------|-------|--------|------------------|--------------------|---|
| Topological Phases | M. Oshikawa | 9:00  | 9:05   | Masaki Oshikawa  | ISSP               | Opening   |
|                    |             | 9:05  | 9:15   | Hatsumi Mori     | ISSP               |   |
|                    |             | 9:15  | 9:25   | Hisatomo Harima  | Kobe Univ.         |   |
|                    |             | 9:25  | 9:55   | Piers Coleman    | Rutgers University | SmB6: Strange insulator: a superdielectric with a Fermi surface   |
|                    |             | 9:55  | 10:25  | Satoshi Fujimoto | Osaka Univ.        | Chiral electromagnetism in Weyl/Dirac superconductors   |
|                    |             | 10:25 | 10:45  | Coffee Break     |                    |   |
| Weyl Magnets       | S. Fujimoto | 10:45 | 11:15  | Ying Ran         | Boston College     | Divergent nonlinear optical responses in Weyl semimetals  |
|                    |             | 11:15 | 11:45  | Takeshi Kondo    | ISSP               | Observation of magnetic Weyl state by angle-resolved photoemission spectroscopy   |
|                    |             | 11:45 | 12:15  | Tomoya Higo      | ISSP               | Large spontaneous electrical, thermal, and optical responses in the Weyl antiferromagnet Mn <sub>3</sub> Sn             |
|                    |             | 12:15 | 13:00  | Lunch            |                    |   |
|                    |             | 13:00 | 14:30  | Poster           |                    |   |
| Multipole Physics  | P. Chandra  | 14:30 | 15:00  | Zenji Hiroi      | ISSP               | Itinerant Multipole Orders in the spin-orbit-coupled metal Cd <sub>2</sub> Re <sub>2</sub> O <sub>7</sub>               |
|                    |             | 15:00 | 15:30  | Takahiro Onimaru | Hiroshima Univ.    | Non-Fermi liquid behaviors due to possible two-channel Kondo effect in non-Kramers doublet system                       |
|                    |             | 15:30 | 16:00  | Masashi Takigawa | ISSP               | Effects of magnetic field on the ferro-quadrupole order in PrTi <sub>2</sub> Al <sub>20</sub>                           |
|                    |             | 16:00 | 16:30  | Coffee Break     |                    |   |
| Strange Metal      | P. Coleman  | 16:30 | 17:00  | Hisao Kobayashi  | Univ. of Hyogo     | Synchrotron-Radiation-based <sup>174</sup> Yb Mössbauer spectroscopic studies on valence fluctuating YbAlB <sub>4</sub> |
|                    |             | 17:00 | 17:30  | Shintaro Suzuki  | ISSP               | The high temperature antiferromagnetism in Kondo insulator α-YbAl <sub>1-x</sub> Mn <sub>x</sub> B <sub>4</sub>         |
|                    |             | 17:30 | 18:00  | Yasuhiro Tada    | ISSP               | Giant magnetoresistance in Kondo superlattice   |
|                    |             | 19:00 | Dinner |                  |                    |   |

April 10th (Tue)

|  | Chair         | Start | End   | Name                  | Affiliation              | Title   |
|--|---------------|-------|-------|-----------------------|--------------------------|---|
| Quantum Spin Liquid                              | M. Takigawa   | 9:00  | 9:30  | Yuichi Kasahara       | Kyoto Univ.              | Majorana quantization and half-integer thermal quantum Hall effect in a Kitaev spin liquid                            |
|  |               | 9:30  | 10:00 | Masahiko Yamada       | ISSP                     | Emergent SU(4) symmetry and quantum spin-orbital liquid in $\alpha$ -ZrCl <sub>3</sub>                                |
|  |               | 10:00 | 10:30 | Minoru Yamashita      | ISSP                     | Universal thermal Hall conductivity of a kagome antiferromagnet   |
|  |               | 10:30 | 10:50 | Coffee Break          |                          |   |
| Strongly Correlated Multipoles                   | T. Takabatake | 10:50 | 11:20 | Premi Chandra         | Rutgers Univ.            | Hidden Orders in Rare Earth and Actinide Materials  |
|  |               | 11:20 | 11:50 | Akito Sakai           | ISSP                     | Multipole ordering in PrV <sub>2</sub> Al <sub>20</sub> studied by thermal expansion and magnetostriction             |
|  |               | 11:50 | 13:00 | Lunch                 |                          |   |
| Novel Superconductivity                          | Y. Yanase     | 13:00 | 13:30 | Dai Aoki              | Tohoku Univ.             | Tuning re-entrant superconductivity and Fermi surface instabilities in ferromagnetic superconductors                  |
|  |               | 13:30 | 14:00 | Kazuyuki Matsubayashi | Univ. of Electro-Commun. | High-pressure tuning of the quadrupole order and superconductivity in PrTr <sub>2</sub> Al <sub>20</sub> (Tr = Ti, V) |
|  |               | 14:00 | 14:30 | Takasada Shibauchi    | Univ. of Tokyo           | Nematic order and BCS-BEC crossover in iron-chalcogenide superconductors  |
|  |               | 14:30 | 15:00 | Coffee Break          |                          |   |
| Multipole Spintronics & Current Driven Phenomena | S. Nakatsuji  | 15:00 | 15:30 | Hiroshi Amitsuka      | Hokkaido Univ.           | Current-Induced Magnetization in Antiferromagnetic Metals   |
|  |               | 15:30 | 16:00 | Youichi Yanase        | Kyoto Univ.              | Classification theory of multipole order and emergent responses   |
|  |               | 16:00 | 16:30 | Shinji Miwa           | ISSP                     | Quantum spintronics for application   |
|  |               | 16:30 | 16:40 | Satoru Nakatsuji      | ISSP                     | Closing   |