The 9th APCTP Workshop on Multiferroics
RIKEN CEMS Topical Meeting on Multiferroics

Nov. 9th (Thu) – 11th (Sat), 2017, University of Tokyo, Kashiwa campus, Japan

Program

Nov. 9 (Thu)
9:30-9:40 Opening (T. Kimura, M. Takigawa)

Manganese oxides; Chair M. Tokunaga] @Media Hall, Library
O-[1] 9:40-10:10 J.-G. Park (Seoul National University)
Doping and multiferroicity of hexagonal RMnO$_3$
O-[2] 10:10-10:40 J.S. White (Paul Scherrer Institut)
Coupled multiferroic domain switching in the canted conical spin spiral system Mn$_2$GeO$_4$
O-[3] 10:40-11:10 J.-M. Liu (Nanjing University)
Unusual dependence of multiferroicity on high-temperature electro-poling in GdMn$_2$O$_5$
(Break)

S = 1/2 systems; Chair J. G. Park] @Media Hall, Library
O-[4] 11:35-12:05 I. Dasgupta (Indian Association for Cultivation of Science)
Origin of quantum magnetism and giant Ferroelectric polarization in copper pyrovanadate Cu$_2$V$_2$O$_7$
O-[5] 12:05-12:35 K.H. Kim (Seoul National University)
Magnetic field induced ferroelectricity in a S=1/2 kagome staircase compound PbCu$_3$TeO$_7$
O-[6] 12:35-12:55 K. Kimura (University of Tokyo)
Square cupola spin cluster as a source for unique magnetoelectric response
(Lunch)

New multiferroics; Chair J.-M. Liu] @ISSP 6th floor
O-[7] 14:30-15:00 T. Saha-Dasgupta (S.N. Bose National Center for Basic Sciences)
Towards high-temperature multiferroicity
O-[8] 15:00-15:30 A. Sundaresan (Jawaharlal Nehru Center for Advanced Sci. Res.)
Ordered aescynite-type polar oxides: A new family of multiferroics
O-[9] 15:30-16:00 S. Dong (Southeast University)
Ferroelectric ferrimagnetic LiFe$_2$F$_6$: charge ordering mediated magnetoelectricity
O-[10] 16:00-16:20  R. Pisarev (Ioffe Physical Technical Institute)

  Spontaneous magnetodielectric effect in fluoroperovskites ABF₃

(Break)

16:30-18:00  Poster session @ISSP 6th floor

18:00-20:00  RUMP session (Coordinators S.W. Cheong, R. Ramesh) & Reception @Cafeteria

**Nov. 10 (Fri)**

[Thin films, BiFeO₃; Chair C.-H. Yang] @Media Hall, Library

O-[11] 9:30-10:00  Y.-H. Chu (National Chiao Tung University)

  Ferroic orders induced by atomic engineering of inhomogeneity

O-[12] 10:00-10:20  N. Valanoor (UNSW, Sydney)

  Ferroelectric domain wall memory and nanoscale bubble domains in ultrathin ferroelectric films

O-[13] 10:20-10:50  M. Azuma (Tokyo Institute of Technology)

  Magnetization reversal by electric field at room temperature in Co substituted BiFeO₃ thin film

O-[14] 10:50-11:10  S. Kawachi (University of Tokyo)

  The magnetoelectric effect in bismuth ferrite around room temperature

(Break)

[Magnetoelectric magnetic textures; Chair D.J. Huang] @Media Hall, Library

O-[15] 11:35-12:05  D. I. Khomskii (Cologne University)

  Electric activity of different magnetic textures

O-[16] 12:05-12:35  A. Pyatakov (M.V. Lomonosov Moscow State University)

  Electric-field effect as a new lever in micromagnetism

O-[17] 12:35:13:05  M. Mostovoy (University of Groningen)

  Electric excitation of topological states in frustrated magnets

(Photo & Lunch)

[Optical measurements; Chair T. Arima] @Media Hall, Library

O-[18] 14:30-15:00  M. Fiebig (ETH, Zurich)

  Fun stuff to do with multiferroic order parameters

O-[19] 15:00-15:30  H.-Y. Huang (National Synchrotron Radiation Research Center)

  Elementary excitations and local electronic structure in polar magnet (ZnₓFe₁₋ₓ)₂Mo₃O₈ probed by resonant inelastic X-ray scattering
O-[20] 15:30-16:00  S. Kamba (Institute of Physics, Czech Academy of Sciences)
   Static and dynamic magnetolectric coupling in multiferroics with Y- and Z-type hexaferrite structures

O-[21] 16:00-16:30  A. Chainani (National Synchrotron Radiation Research Center)
   Electronic structure of DyFe₂(BO₄)₃

(Break)

[Topological matters; Chair Khomskii] @Media Hall, Library

O-[22] 16:55-17:15  K. Yamauchi (Osaka University)
   DFT calculations on spin-valley coupling and topological property in ferroelectric transition-metal oxides

O-[23] 17:15-17:35  Y. H. Jeong (Pohang University of Sci & Tech)
   Violation of Ohm’s law in a Weyl metal

O-[24] 17:35-18:20  Y. Tokura (RIKEN CEMS/University of Tokyo)
   Nonreciprocal responses from multiferroics

18:50-       Banquet @Oak Village Kashiwanoha

Nov. 11 (Sat)

[Electrical control of magnetism; Chair Y.-H. Chu] @Media Hall, Library

O-[25]  9:30-10:15  R. Ramesh (University of California, Berkeley)
   Electric field control of magnetism

O-[26] 10:15-10:45  P. Yu (Tsinghua University)
   Triple-faced oxide: Electric-field controlled dual-ion switch

(Break)

[Topological defects; Chair M. Fiebig] @Media Hall, Library

O-[27] 11:10-11:40  S.-W. Cheong (Rutgers University)
   Topological vortex domains at oxygen cage tilting plethora

   Configurable topological textures in strain graded ferroelectric nanoplates

O-[29] 12:10-12:30  T. Nakajima (RIKEN CEMS)
   Uniaxial-stress control of spin-driven ferroelectricity, magnetization and magnetic skyrmions

12:30-12:40  Summary & Closing  (T. Kimura)
**Poster presentations** [16:30-18:00, Nov. 9th (Thu) @ISSP 6th floor]

P-[1] N. Abe (University of Tokyo)
*Magnetic structure and magnetoelectric effect in buckled honeycomb lattice antiferromagnet Co₄Ta₂O₉*

P-[2] M. Akaki (Osaka University)
*Magneto-electric spin excitations in forced-ferromagnetic state of Sr₂CoSi₂O₇*

P-[3] T. Aoyama (Tohoku University)
*Anisotropic magnetodielectric effect in the honeycomb-type magnet α-RuCl₃*

P-[4] Y. Araki (University of Tokyo)
*Proper-screw type helimagnetism in a chiral polar magnet Ni₂InSbO₆ probed by soft X-ray and neutron magnetic scattering*

P-[5] Y.-S. Chai (Institute of Physics, Chinese Academy of Sciences)
*Hidden spin-order-induced room-temperature ferroelectricity in a peculiar conical magnetic*

P-[6] K. Chu (KAIST)
*Nonlinear flexoelectricity in noncentrosymmetric crystals*

P-[7] Y. Fujima (University of Tokyo)
*Transverse AC susceptibility of Néel-type skyrmion-lattice host GaV₄Se₈*

P-[8] S. Hasegawa (University of Tokyo)
*Magnetic anisotropy in multiferroics Ba₂MnGe₂O₇*

P-[9] E. Hassanpour (ETH Zurich)
*Multiferroic domain walls as seeding centers for antiferromagnetic domain nucleation*

P-[10] Y. Hayashi (University of Tokyo)
*Terahertz dynamics of conduction electrons in skyrmion-hosting B20-type alloy thin films*

P-[11] S. Hayashida (University of Tokyo)
*Inelastic neutron scattering on multiferroics ¹⁵⁴SmFe₃(¹¹BO₃)₄*

P-[12] T. Honda (CMRC and PF, IMSS, KEK)
*Peculiar magnetic-field response of chiral soliton lattice in CrNb₃S₆*

P-[13] S. Iguchi (University of Tokyo)
*Gyrotropic birefringence and natural optical activity with electromagnon resonance*

P-[14] N. Iwata (Nihon University)
*CaFeOₓ / LaFeO₃ superlattices and/or multilayers, candidate materials for electric field driven magnetic memory*
P-[15] H. Katsumoto (Osaka University)
First-principles study on interplay between crystal structural distortion and spin state in cobaltates

P-[16] K.-E. Kim (KAIST)
Manipulation of topological textures in ferroelectric nanoplates by partial domain switching

P-[17] J. Y. Kim (KAIST)
Exploring topological defects in ferroelectric nanostructures

P-[18] Y. J. Kim (KAIST)
Distinctive local electrical conduction in twin domains of LaMnO$_3$ thin films

P-[19] V. Kocsis (RIKEN CEMS)
THz optical magnetoelectric effects in the multiferroic LiCoPO$_4$

P-[20] A. Kotani (Osaka Prefecture University)
Formation of magnetic bubbles in the charge/orbital ordered phase of $La_{0.875}Sr_{0.125}MnO_3$

P-[21] J. Kumar (Indian Institute of Science Education and Research)
Multiferroicity in Bi$_2$CuO$_4$

P-[22] J. Lehmann (ETH Zurich)
Artificial magneto-toroidal crystals –domains and their manipulation

P-[23] J. S. Lim (KAIST)
Visualization of collective oxygen-vacancy flow in a crystalline solid

P-[24] Th. Lottermoser (ETH Zurich)
A Monte Carlo approach to the ferroelectric phase transition in multiferroic hexagonal manganites

P-[25] C. Lu (Huazhong University of Science and Technology)
The duality of multiferroicity in DyMnO$_3$

P-[26] R. Masuda (University of Tokyo)
Natural optical activity with electromagnon resonance in helical magnet CuO

P-[27] K. Matsuura (University of Tokyo)
Large lattice rotational effect near quantum critical point in a transverse field Ising magnet CoNb$_2$O$_6$

P-[28] H. Mitamura (University of Tokyo)
Spin-chirality-driven ferroelectricity on a perfect triangular lattice antiferromagnet RbFe(MoO$_4$)$_2$

P-[29] A. Miyake (University of Tokyo)
Magnetic field induced polar phase in the chiral magnet CsCuCl$_3$
P-[30] S. Mori (Osaka Prefecture University)
Atomic-resolved HAADF-STEM study of charged domain walls in improper ferroelectric materials

P-[31] H. Nakajima (Osaka Prefecture University)
Temperature evolution of unconventional magnetic domains in multiferroic Sr₂Co₂Fe₂₄O₄₁

P-[32] T. Murtaza (Jamia Millia Islamia)
Multiferroic BiFeO₃ and trends in its improvement

P-[33] N. Nakagawa (University of Tokyo)
Magneto-chiral dichroism of a chiral helimagnet CsCuCl₃

P-[34] D. Nakamura (University of Tokyo)
Ultrahigh-magnetic field magnetization in triangular-lattice CuCrO₂

P-[35] N. D. Khan (RIKEN CEMS/University of Tokyo)
Manipulation of electric polarization with a rotating magnetic field in a honeycomb antiferromagnet Co₄Nb₂O₉

P-[36] M. Ogino (University of Tokyo)
Gyrotropic birefringence on electromagnon driven by magnetostriction in perovskite manganite

P-[37] T. Omi (University of Tokyo)
Observation of a nonreciprocal signal in ferromagnetic resonance in multiferroic GaFeO₃

P-[38] G. Panchal (UGC DAE Consortium for Scientific Research)
Study of magnetic and transport properties of epitaxial La₀.₂Sr₀.₈MnO₃ thin film integrated on ferroelectric BaTiO₃ (001)

P-[39] S. N. Panja (Indian Institute of Science Education and Research)
Fe₄Ta₂O₉— a promising new multiferroic

P-[40] C. B. Park (Seoul National University)
Optimization of magnetoelectric coupling by systematic control of magnetic anisotropy and phase competition in Co₂Y-type hexaferrites single crystals

P-[41] R. Rawat (UGC DAE Consortium for Scientific Research)
Multiferroicity in hexagonal Sr₀.₈Ba₀.₂MnO₃

P-[42] H. Sagayama (High Energy Accelerator Research Organization)
Magnetic excitations and electronic states of Co²⁺ ions in multiferroic Co₄Nb₂O₉

P-[43] T. Sato (University of Tokyo)
Effect of magnetic ion (Fe, Cr) doping on a helical magnet Ni₂InSbO₆

P-[44] Y. Sawada (Osaka University)
ESR measurements of the chiral magnet CrNb₃S₆
P-[45] K. Shimizu (Tokyo Institute of Technology)
  Direct observation of magnetization reversal by polarization switching
  in multiferroic Co-substituted BiFeO₃ thin film

P-[46] H. Shimizu (Tokyo Institute of Technology)
  Stable polarization reversal in third elements substituted multiferroic
  BiFe₀.₉Co₀.₁O₃ thin films

P-[47] H. Shishikura (University of Tokyo)
  Terahertz Faraday effect on electromagnon resonance
  in Y-type hexaferrite Ba₂Mg₂Fe₁₂O₂₂

P-[48] H. Sim (Seoul National University)
  Single ferroelectric transition of weak first-order in multiferroic hexagonal
  manganite RMnO₃

P-[49] N. Terada (National Institute for Materials Science)
  Spherical neutron polarimetry analysis under pressure for delafossite CuFeO₂

P-[50] K. Tokumura (University of Tokyo)
  Determination of the sign of DM vectors in YFeO₃ using circularly polarized x-ray

P-[51] M. Tokunaga (University of Tokyo)
  Magnetoelectric effects in Ba₂CuGe₂O₇ beyond the saturation field

P-[52] M. Toyoda (Tokyo Institute of Technology)
  Magnetic properties of magnetoelectric BaTiOCu₄(PO₄)₄

P-[53] H. Ueda (Osaka University)
  Observation of ferrimagnetic and ferroelectric-cycloidal domains in
  magnetoelectric Z-type hexaferrite

P-[54] V. Ukleev (RIKEN CEMS)
  Polarized neutron reflectometry probe of exotic ε-Fe₂O₃ thin film grown on GaN

P-[55] Y. Umimoto (University of Tokyo)
  Control of the toroidal moment in a room-temperature multiferroic
  Y-type hexaferrite Ba₂ωSr₅Co₂Fe₁₂₋ωAl₂O₂₂

P-[56] H. Yamamoto (Tokyo Institute of Technology)
  Electric field induced reorientation of magnetic easy plane in BiFe₁₋ₓCoₓO₃
  single crystal

P-[57] R. Yamamoto (Osaka University)
  Relationship between strengths of structural chirality and optical
  activity in Ba(TiO)Cu₄(PO₄)₄ and related materials

P-[58] J. Vit (Institute of Physics, Czech Academy of Sciences)
  Electromagnon in Y-type hexaferrite BaSrZnCoFe₁₋ₓAlO₂₂ induced by magnetostriction