

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_2GeO_4

O-[3] 10:40-11:10 J.-M. Liu (Nanjing University)

Unusual dependence of multiferroicity on high-temperature electro-poling in $GdMn_2O_5$

(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 $Cu_2V_2O_7$

O-[5] 12:05-12:35 K.H. Kim (Seoul National University)

Magnetic field induced ferroelectricity in a $S=1/2$ kagome staircase compound $PbCu_3TeO_7$

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 aeschynite-type polar oxides: A new family of multiferroics

O-[9] 15:30-16:00 S. Dong (Southeast University)

Ferroelectric ferrimagnetic $LiFe_2F_6$: charge ordering mediated magnetoelectricity

O-[10] 16:00-16:20 R. Pisarev (Ioffe Physical Technical Institute)

Spontaneous magnetodielectric effect in fluoroperovskites ABF_3

(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, $BiFeO_3$; 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 $BiFeO_3$ 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 $(Zn_xFe_{1-x})_2Mo_3O_8$ 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 magnetoelectric 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 $DyFe_3(BO_4)_3$

(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

O-[28] 11:40-12:10 C.-H. Yang (KAIST)
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 $\text{Co}_4\text{Ta}_2\text{O}_9$

P-[2] M. Akaki (Osaka University)

Magneto-electric spin excitations in forced-ferromagnetic state of $\text{Sr}_2\text{CoSi}_2\text{O}_7$

P-[3] T. Aoyama (Tohoku University)

Anisotropic magnetodielectric effect in the honeycomb-type magnet $\alpha\text{-RuCl}_3$

P-[4] Y. Araki (University of Tokyo)

Proper-screw type helimagnetism in a chiral polar magnet $\text{Ni}_2\text{InSbO}_6$ 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 GaV_4Se_8

P-[8] S. Hasegawa (University of Tokyo)

Magnetic anisotropy in multiferroics $\text{Ba}_2\text{MnGe}_2\text{O}_7$

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 $^{154}\text{SmFe}_3(^{11}\text{BO}_3)_4$

P-[12] T. Honda (CMRC and PF, IMSS, KEK)

Peculiar magnetic-field response of chiral soliton lattice in CrNb_3S_6

P-[13] S. Iguchi (University of Tokyo)

Gyrotropic birefringence and natural optical activity with electromagnon resonance

P-[14] N. Iwata (Nihon University)

$\text{CaFeO}_x / \text{LaFeO}_3$ 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 $\text{La}_{0.875}\text{Sr}_{0.125}\text{MnO}_3$
- P-[21] J. Kumar (Indian Institute of Science Education and Research)
Multiferroicity in Bi_2CuO_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_2O_6
- P-[28] H. Mitamura (University of Tokyo)
Spin-chirality-driven ferroelectricity on a perfect triangular lattice antiferromagnet $\text{RbFe}(\text{MoO}_4)_2$
- 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 $Sr_3Co_2Fe_{24}O_{41}$
- P-[32] T. Murtaza (Jamia Millia Islamia)
Multiferroic $BiFeO_3$ and trends in its improvement
- P-[33] N. Nakagawa (University of Tokyo)
Magneto-chiral dichroism of a chiral helimagnet $CsCuCl_3$
- P-[34] D. Nakamura (University of Tokyo)
Ultrahigh-magnetic field magnetization in triangular-lattice $CuCrO_2$
- P-[35] N. D. Khanh (RIKEN CEMS/ University of Tokyo)
Manipulation of electric polarization with a rotating magnetic field in a honeycomb antiferromagnet $Co_4Nb_2O_9$
- 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 $GaFeO_3$
- P-[38] G. Panchal (UGC DAE Consortium for Scientific Research)
Study of magnetic and transport properties of epitaxial $La_{0.7}Sr_{0.3}MnO_3$ thin film integrated on ferroelectric $BaTiO_3$ (001)
- P-[39] S. N. Panja (Indian Institute of Science Education and Research)
 $Fe_4Ta_2O_9$ - 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 Co_2Y -type hexaferrites single crystals
- P-[41] R. Rawat (UGC DAE Consortium for Scientific Research)
Multiferroicity in hexagonal $Sr_{0.6}Ba_{0.4}MnO_3$
- P-[42] H. Sagayama (High Energy Accelerator Research Organization)
Magnetic excitations and electronic states of Co^{2+} ions in multiferroic $Co_4Nb_2O_9$
- P-[43] T. Sato (University of Tokyo)
Effect of magnetic ion (Fe , Cr) doping on a helical magnet Ni_2InSbO_6
- P-[44] Y. Sawada (Osaka University)
ESR measurements of the chiral magnet $CrNb_3S_6$

- 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 BiFe_{0.9}Co_{0.1}O₃ 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 Ba_{2-x}Sr_xCo₂Fe_{12-y}Al_yO₂₂
- P-[56] H. Yamamoto (Tokyo Institute of Technology)
Electric field induced reorientation of magnetic easy plane in BiFe_{1-x}Co_xO₃ 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 BaSrZnCoFe₁₁AlO₂₂ induced by magnetostriction