

FY2015~2019 MEXT KAKENHI on Innovative Areas #2704



J-Physics : Physics of Conductive Multipole Systems

FY 2016 Annual Meeting

Thu. May 26, 13:00 ~ Sat. May 28, 15:30

Frontier Research in Applied Sciences Building, Hokkaido University
(N13W8, Kita-ku Sapporo)

Supported by Graduate School of Science Hokkaido University



May 26 (Thu.)

Opening

13:00 - 13:20	Hisatomo Harima <i>Kobe University</i>	Perspective of the J-Physics project in 2016
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D01

Chairperson: Minoru Nohara

13:20 - 13:40	Shigeki Miyasaka <i>Osaka University</i>	Control of electron correlation/spin-orbit interaction and exotic physical properties in transition-metal chalcogenides and pnictides
13:40 - 14:00	Nobuyuki Abe <i>The University of Tokyo</i>	Odd parity multipole ordering and off-diagonal response in 3d electron system
14:00 - 14:20	Yoshihiko Okamoto <i>Nagoya University</i>	Superconductivity in the hexagonal iridium phosphide ScIrP
14:20 - 14:40	Kosmas Prassides <i>Tohoku University</i>	Towards hybrid f-/p-electron molecular materials
14:40 - 15:00	Coffee Break	

A01 Part 1

Chairperson: Satoru Nakatsuji

15:00 - 15:20	Akira Sekiyama <i>Osaka University</i>	Probing the localized 4f orbital symmetry of the ground and excited states by linear dichroism in "angle-resolved" core-level photoemission
15:20 - 15:40	Hisao Kobayashi <i>The University of Hyogo</i> [Planed Research Group]	Valence fluctuations in 4f compounds probed by synchrotron radiation Mössbauer spectroscopy
15:40 - 16:00	Toru Sakai <i>The University of Hyogo</i>	Spin nematic phase in low-dimensional quantum spin systems
16:00 - 16:20	Michiyasu Mori <i>Japan Atomic Energy Agency</i>	Phonon Hall effect in rear-earth garnet
16:20 - 16:40	Coffee Break	

A01 Part 2

Chairperson: Toshiro Sakakibara

16:40 - 17:00	Kazuhiko Deguchi <i>Nagoya University</i>	Magnetism and superconductivity of icosahedral quasicrystals and approximants with concentric shell structure
17:00 - 17:20	Shinji Watanabe <i>Kyushu Institute of Technology</i>	Clarification of new quantum critical phenomena universal to periodic- and quasi-periodic heavy-electron systems
17:20 - 17:40	Akihisa Koga <i>Tokyo Institute of Technology</i>	Valence fluctuations in the heavy fermion systems on the quasiperiodic lattice
17:40 - 18:00	Taku Sato <i>Tohoku University</i> [Planed Research Group]	Neutron scattering study on PrTr ₂ Al ₂₀ (Tr = Ti, V)

May 27 (Fri.)

Chairperson:

Topical Session: Current Status and Issues of Research on “1-2-20 Systems” I Shinsaku Kambe

9:00 – 9:45	Takahiro Onimaru <i>Hiroshima University</i>	Exotic multipolar phenomena in non-Kramers doublet of $4f^2$ systems
9:45 – 10:15	Kazuaki Iwasa <i>Ibaraki University</i>	Neutron scattering study on multipole degrees of freedom in Pr1-2-20 systems
10:15 – 10:45	Koichi Izawa <i>Tokyo Institute of Technology</i>	Phase diagram of Pr1-2-20 system studied by transport coefficients
10:45 – 11:00	Coffee Break	

A01 Part 3

Chairperson: Yoshiki Nakanishi

11:00 – 11:20	Ryousuke Shiina <i>University of the Ryukyus</i>	Theory on composite magnetic and charge ordered state and anomalous transport properties of $\text{SmRu}_4\text{P}_{12}$ in magnetic field
11:20 – 11:40	Junya Otsuki <i>Tohoku University</i>	Theory of superconductivity in heavy-fermion systems with itinerant/localized dual characters
11:40 – 13:10	Group Photo • Lunch	

13:10 – 14:40 Poster Session (1F Hall / 2F Foyer)

C01 Part 1

Chairperson: Hideki Tou

14:40 – 15:00	Toshiro Takabatake <i>Hiroshima University</i>	Dilution and doping effects on the antiferromagnetic Kondo semiconductor $\text{CeOs}_2\text{Al}_{10}$
15:00 – 15:20	Yusuke Kousaka <i>Hiroshima University</i> [Planed Research Group]	Chiral helimagnetic ordering in inorganic chiral magnetic compounds
15:20 – 15:40	Shigeo Ohara <i>Nagoya Institute of Technology</i>	The study of anomalous magnetoelectric effects in two dimensional honeycomb-lattice magnet
15:40 – 16:00	Kenya Ohgushi <i>Tohoku University</i>	Exploration of Novel quantum transport in odd-parity multipole ordered system
16:00 – 16:20	Coffee Break	

C01 Part 2

Chairperson: Hiroaki Kusunose

16:20 – 16:40	Hiroshi Shinaoka <i>Saitama University</i>	Developing many-body numerical techniques for conductive multipole systems
16:40 – 17:00	Mikito Koga <i>Shizuoka University</i>	Kondo controlled spin and charge distributions in multiple-quantum-dot systems: a new approach to nanoscale multipole physics

B01 Part 1

Chairperson: Kenji Ishida

17:00 – 17:20	Yoshichika Ōnuki <i>University of the Ryukyus</i>	Characteristic Fermi surfaces in cubic compounds
17:20 – 17:40	Tsutomu Nojima <i>Tohoku University</i>	Electric-field-induced superconductivity protected by spin-orbit interaction
18:00 – 20:00	Get-Together and Free Discussion (Restaurant “Elm” in Faculty House “Enreisou”)	

May 28 (Sat.)

Chairperson:

Topical Session: Current Status and Issues of Research on “1-2-20 Systems” II Yoichi Yanase

9:00 – 9:30	Yosuke Matsumoto <i>The University of Tokyo</i>	Multipolar ordered states and heavy fermion superconductivity in $\text{PrT}_2\text{Al}_{20}$ (T = Ti, V)
9:30 – 10:00	Kazuyuki Matsubayashi <i>The University of Electro-Communications</i>	Effect of pressure on quadrupole order and superconductivity in $\text{PrT}_2\text{Al}_{20}$ (T = Ti, V)
10:00 – 10:20	Hiroaki Kusunose <i>Meiji University</i>	Quadrupolar Kondo physics in non-Kramers Pr 1-2-20 systems
10:20 – 10:40	Coffee Break	

B01 Part 2

Chairperson: Dai Aoki

10:40 – 11:00	Hiroyuki Nojiri <i>Tohoku University</i>	High magnetic field phases of URu_2Si_2 and the origins of magnetic correlation
11:00 – 11:20	Hiroaki Ikeda <i>Ritsumeikan University</i>	Itinerant multipole and multipole superconductors
11:20 – 11:40	Shin-ichi Fujimori <i>Japan Atomic Energy Agency</i>	Electronic structures of strongly correlated uranium compounds studied by three-dimensional ARPES
11:40 – 12:00	Kazumasa Hattori <i>Tokyo Metropolitan University</i>	Theory of ferromagnetic tricritical point and ferromagnetic superconductivity

12:00 – 13:10 Lunch

13:10 – 15:10

J-Physics Outreach Seminar

“Communication skills” we never thought — various techniques used in TV production

Takashi Kobayashi

*Office Chief, Public Relations Office, National Institute for Materials Science***Closing**

15:10 – 15:30	Advisors' comments
	Remarks by project representative

Poster Session (May 27, 13:10 - 14:40)

- P01: **Yuu Yamane**
Hiroshima University Non-Fermi liquid behavior of a Pr-dilute system $\text{Y}_{1-x}\text{Pr}_x\text{Ir}_2\text{Zn}_{20}$
- P02: **Hideki Tou**
Kobe University NMR study of Low energy excitation in $\text{PrTi}_2\text{Al}_{20}$
- P03: **Kazumasa Miyake**
Toyota Phys. and Chem. Res. Inst. Relationship between multipole degrees of freedom and pseudo-spin degrees of freedom in Ce- and Yb-based heavy fermions
- P04: **Yasuhiro Nakatani**
Osaka University Momentum-dependent heavy fermionic electronic structure of CeNi_2Ge_2 observed by soft X-ray ARPES
- P05: **Yuina Kanai**
Osaka University Anisotropic 4f charge distributions probed by linear dichroism in 3d core-level and 4f photoemission spectra of heavy fermionic Yb compounds
- P06: **Takaki Taniguchi**
The University of Tokyo NMR and low temperature magnetic measurements of quadrupole transition in $\text{PrTi}_2\text{Al}_{20}$
- P07: **Junya Otsuki**
Tohoku University Theory of magnetic fluctuations and valence states in Yb quasicrystals
- P08: **Hidekazu Fujiwara**
Osaka University Ground state symmetry on CeAg_2Sb_2 probed by soft X-ray spectroscopies
- P09: **Mamoru Yogi**
Hiroshima University Ni substitution effect on heavy fermion compound $\text{YbCo}_2\text{Zn}_{20}$: ^{59}Co -NQR study
- P10: **Ilya Sheikin**
CNRS High magnetic fields in Grenoble for studying heavy fermion materials
- P11: **Yo Tokunaga**
Japan Atomic Energy Agency NMR study of ferromagnetic superconductivity in URhGe
- P12: **Yoshikazu Mizuguchi**
Tokyo Metropolitan University Exploration of new Bi chalcogenides with a rock-salt-type crystal structure
- P13: **Kaya Kobayashi**
Okayama University Exploring chalcogenide superconductors
- P14: **Shota Nakamura**
The University of Tokyo Magnetization measurements of Ising ferromagnet URhGe in magnetic fields along the hard axis
- P15: **Yo Machida**
Tokyo Institute of Technology Pressure effect on non-Fermi liquid behavior of UBe_{13}
- P16: **Tatsuma D. Matsuda**
Tokyo Metropolitan University Heavy fermion like behavior in $\text{NdO}_{(1-x)}\text{F}_x\text{BiS}_2$ superconductor
- P17: **Zhuo Xu**
Japan Atomic Energy Agency Towards the control of the sign of spin Hall effect in heavy metal alloys
- P18: **Satoru Hayami**
Hokkaido University Emergent spin-valley-orbital physics by spontaneous parity breaking
- P19: **Yusei Shimizu**
Tohoku University Low-temperature dc magnetization studies for heavy-fermion antiferromagnetic superconductor UPd_2Al_3
- P20: **Joe Kajitani**
Tokyo Metropolitan University Single crystal growth and physical properties of EuFBiS_2
- P21: **Kazunori Umeo**
Hiroshima University Distinct pressure effects on the quadrupolar and superconducting transitions in $\text{PrT}_2\text{Zn}_{20}$ (T=Ir, Rh)
- P22: **Akira Yamada**
Tokyo Metropolitan University Low-temperature magnetic states in SmT_2X_2
- P23: **Satoshi Ikegaya**
Hokkaido University Degeneracy of Majorana bound states and fractional Josephson effect in a dirty SNS junction
- P24: **Akihiro Sasaki**
Hokkaido University Odd-frequency Cooper pairs in two-band superconductors and their magnetic response
- P25: **Jun'ichi Ieda**
Japan Atomic Energy Agency Spin-transfer torque and spinmotive force in antiferromagnets

P26:	Ai Yamakage <i>Nagoya University</i>	Line-node Dirac semimetal and topological insulator CaAgX ($\text{X}=\text{P}, \text{As}$)
P27:	Akito Daido <i>Kyoto University</i>	Paramagnetically-induced noncentrosymmetric topological superconductors
P28:	Taichi Yoshida <i>Tokyo Institute of Technology</i>	Anisotropic temperature-field phase diagram and peculiar transport properties in $\text{PrRh}_2\text{Zn}_{20}$ with quadrupole degree of freedom
P29:	Hiroyuki Hidaka <i>Hokkaido University</i>	X-ray crystal structure analysis of the cage-structural compound MBe_{13} ($\text{M} = \text{La}, \text{Sm}, \text{and U}$) at low temperatures
P30:	Takanori Hitomi <i>Kyoto University</i>	Electric octupole order by spin-orbit coupling in bilayer Rashba system
P31:	Taisuke Aoyama <i>Kobe University</i>	NMR studies of coexistence of superconductivity and CDW in LaPt_2Si_2
P32:	Hisashi Kotegawa <i>Kobe University</i>	Pressure-induced superconductivity and magnetic correlations in a helimagnet CrAs
P33:	Kazutaka Kudo <i>Okayama University</i>	Composition-induced structural instability and strong-coupling superconductivity in $\text{Au}_{1-x}\text{Pd}_x\text{Te}_2$
P34:	Youichi Yanase <i>Kyoto University</i>	Nonsymmorphic superconductivity and gap structure in UPt_3
P35:	Akito Sakai <i>The University of Tokyo</i>	T/B scaling without quasiparticle mass divergence in YbCo_2Ge_4
P36:	Takeshi Mito <i>The University of Hyogo</i>	Crossover between localized and itinerant 5f states and magnetic correlations in URu_2Si_2
P37:	Naoya Emi <i>The University of Hyogo</i>	Valence fluctuation and gap formation in SmB_6 and dilute $(\text{Sm}, \text{La})\text{B}_6$
P38:	Yasuki Kishimoto <i>Kobe University</i>	Growth and NMR evaluation of single crystal CePd_2Ga
P39:	Kenji Ishida <i>The University of Tokyo</i>	NMR studies on CeCoIn_5 superlattices & Cu-NQR studies on single-crystal CeCu_2Si_2
P40:	Yuki Yanagi <i>Meiji University</i>	Theoretical study on electronic structures of $\text{LnT}_2\text{Al}_{10}$ ($\text{Ln}=\text{La}, \text{Ce}, \text{T}=\text{Fe}, \text{Ru}, \text{Os}$)
P41:	Yuji Matsumoto <i>Nagoya Institute of Technology</i>	Single crystal growth of ternary compounds $\text{R}_{0.67}\text{T}_n\text{M}_{2n+m}$ ($\text{R}=\text{Yb}, \text{U}, \text{T}=\text{Pt}, \text{Ir}, \text{M}=\text{Al}, \text{Ga}$)
P42:	Tatsuya Yanagisawa <i>Hokkaido University</i>	Ultrasonic study of $\text{U}_{1-x}\text{Th}_x\text{Be}_{13}$ in its non-Fermi liquid state and unconventional superconducting state
P43:	Chihiro Tabata <i>KEK-CMRC</i>	Low-temperature magnetism of UAu_2Si_2
P44:	Norimasa Sasabe <i>Osaka Prefecture University</i>	Study on core-level spectroscopies of 4f multipole ordering
P45:	Atsushi Tsuruta <i>Osaka University</i>	Theoretical study for non-Fermi liquid behaviors and ordered states in Pr 1-2-20 compounds
P46:	Naoyuki Miura <i>Hokkaido University</i>	Anomalous-Fermi-liquid and normal-Fermi-liquid state in $(\text{Th}, \text{U})\text{Be}_{13}$
P47:	Ai Nakamura <i>Tohoku University</i>	Superconductivity in Th_7Ni_3 and La_7Ni_3
P48:	Shuntaro Sumita <i>Kyoto University</i>	Superconducting states coexisting with magnetic multipole orders
P49:	Satoru Nakatsuji <i>The University of Tokyo</i>	Large anomalous Hall effect in chiral antiferromagnets Mn_3Sn , Mn_3Ge
P50:	Kazumasa Horigane <i>Okayama University</i>	High-pressure synthesis, crystal structure and magnetic properties of $\text{Sr}_2\text{IrO}_{4-x}\text{H}_x$

- P51: Kentaro Kuga
RIKEN SPring-8
Linear dichroism of hard X-ray-excited Yb 3d core-level photoemission in orthorhombic compound YbCo_2Ge_4
- P52: Yoshiki Nakanishi
Iwate University
Ultrasonic investigation of the transition at 2 K in the multipole-order candidate $\text{SmTa}_2\text{Al}_{20}$
- P53: Akira Miura
Hokkaido University
Superconductive property of CeOBiS_2
- P54: Hisatomo Harima
Kobe University
Fermi surfaces in cubic pyrite-type CoSe_2 and chiral cubic ullmannite-type NiSbS and PdBiSe
- P55: Hiroshi Amitsuka
Hokkaido University
Tests for the theoretical predictions of anomalous Hall effects in toroidal ordered state of UNi_4B
- P56: Dai Aoki
Tohoku University
Single crystal growth and superconductivity in U_6Co
- P57: Yoshihiko Ihara
Hokkaido University
 π -d interactions in organic conductors with localized Fe spins
- P58: Hikaru Ueki
Hokkaido University
Vortex-core charging due to the Lorentz force in type-II superconductors

