

Transformative Research Areas (A) Unveiling, Design, and Development of Asymmetric Quantum Matters

FY2026 Annual Research Area Meeting & Kick-off Meeting for Publicly Offered Research

Tue, May 26, 2026

(2026.5.25)

13:00 - 13:10 ONIMARU, Takahiro Opening

Chair : TABATA, Chihiro

13:10 - 13:40 TABATA, Chihiro A01 Planned Research A01
SEKIYAMA, Akira A01 Crystalline-electric-field-split 4f ground state of DyB₂C₂ probed by linear dichroism in core-level photoemission and absorption

13:40 - 13:55 KIMURA, Akio A01 Electronically Driven Reentrant Structural Transition — A Photoemission Study —

13:55 - 14:10 ISHII, Kenji A01 Chiral excitations observed by resonant inelastic x-ray scattering

14:10 - 14:25 TOKIWA, Yoshifumi A01 TBC

14:25 - 14:55 Break

Chair : YANAGISAWA, Tatuya

14:55 - 15:25 YANAGISAWA, Tatuya A02 Planned Research A02
KIMATA, Motoi A02 Intra- and inter-collaborations via FIB microfabrication techniques

15:25 - 15:40 SHIOMI, Yuki A02 Spin current generation from ferroaxial materials

15:40 - 15:55 KANAZAWA, Naoya A02 Spontaneous time-reversal symmetry breaking at chiral interfaces and its application to Asymmetronics

15:55 - 16:10 HOTTA, Chisa B01 Loop state and its uasi particle excitations

16:10 - 16:40 Break

Chair : HATTORI, Kazumasa

16:40 - 16:55 ISHIDA, Kenji D01 TBC

16:55 - 17:10 HIRAI, Daigorou D01 Design of Functional Quantum Materials through the Interplay between Chemical Asymmetry and 5d Multipolar Degrees of Freedom

17:10 - 17:25 TOYODA, Shingo D01 Optical control of asymmetric quantum matters

17:25 - 17:40 TAKAHASHI, Kei D01 TBC

17:40 - 17:55 MATSUNO, Jobu D01 Asymmetric Quantum Magnetism: Spin Transport from Symmetry Breaking

Wed, May 27, 2026

Chair: OTSUKI, Junya

9:00 - 9:30 OTSUKI, Junya B01 Planned Research B01
NOMURA, Yusuke B01 First-Principles Calculations for Asymmetric Quantum Materials
KORETSUNE, Takashi B01 Progress and Outlook Toward the Design of Asymmetric Quantum Materials

9:30 - 9:45 Oiwa, Rikuto B01 Microscopic Description and Materials Exploration of Chiral and Ferroaxial Orders Using Multipole-Based Effective Wannier Models

9:45 - 10:00 OUE, Daigo B01 Inducing toroidal orders in solids by designing photonic environments

10:00 - 10:15 OKUMURA, Shun B01 TBC

10:15 - 10:45 Break

Chair : KOBAYASHI, Tatsuo

10:45 - 11:00 KITOU, Shunsuke A01 Visualization of asymmetric valence electron distribution and quantitative evaluation of orbital hybridization

11:00 - 11:15 YAMANE, Yu A02 Spatial Scalability of Nonreciprocal Transport in Metamaterials with Broken Time-Reversal and Spatial-Inversion Symmetries

11:15 - 11:30 ONOSE, Yoshinori A02 Metaflexoelectric transition in KTaO₃

11:30 - 11:45 MATSUBARA, Masakazu A02 Advanced detection and visualization techniques for asymmetric quanta and creation of artificial asymmetronic functionalities

11:45 - 12:00 KONO, Yohei A02 Development of a Novel Method for Direct Detection of Off-Diagonal Magnetization Components and Its Application to Cross Correlations in Augmented Multipole Order

12:00 - 13:30 **Group Photo & Lunch**

Chair: OHARA, Shigeo

13:30 - 14:00	OHARA, Shigeo	C01	Planned Research C01
14:00 - 14:15	OKAMOTO, Yoshihiko	D01	Exploration of Cubic Asymmetric Materials Based on Tetrahedral Clusters
14:15 - 14:30	SUGAWARA, Hitoshi	D01	TBC
14:30 - 14:45	KOUSAKA, Yusuke	D01	Enantiopure crystal growth and superconductivity in chiral inorganic compounds with C40 structure

15:00 - 17:00 **Poster Session**

- Odd Numbers: 15:00-16:00

- Even Numbers: 16:00-17:00

--->Please refer to the attached program for details.

Online Session

Chair: KOBAYASHI, Kaya

17:15 - 17:30	SUMITA, Shuntaro	B01	Construction of a microscopic theory for superconductivity coexisting or competing with multipole orders
17:30 - 17:45	IDEUE, Toshiya	D01	Novel asymmetric quantum responses in atomic layer materials
17:45 - 18:00	Hirschberger Maximilian	D01	TBC
18:00 - 18:15	KIMURA, Kenta	D01	TBC

18:45 - 20:45 **Networking Event**

Thu, May 28, 2026

Chair: YOSHIDA, Hiroaki

9:00 - 9:30	YOSHIDA, Hiroaki	C02	Planned Research C02
	MATSUHIRA, Kazuyuki	C02	Piezoelectric Effect in Asymmetric Quantum Matters
	HAGA, Yoshinori	C02	Sample Preparation in Actinide-based compounds
9:30 - 9:45	FUKUOKA, Shuhei	D01	Development of molecular asymmetric quantum materials and exploration of novel functionalities
9:45 - 10:00	TAKATSU, Hiroshi	D01	TBC
10:00 - 10:15	UCHIDA, Masaki	D01	Exploration of Off-Diagonal Nonlinear Magneto-Thermoelectric Functions

10:15 - 10:45 Break

Chair: IZAWA, Koichi

10:45 - 11:00	SASAGAWA, Takao	D01	Exploration of Asymmetric Quantum Materials with Strong Relativistic Effects
11:00 - 11:15	DAIDO, Akito	B01	Inducing toroidal orders in solids by designing photonic environments
11:15 - 11:30	NASU, Joji	B01	Thermally Induced Cross-Correlated Responses in Asymmetric Quantum Materials
11:30 - 11:45	MIZUKAMI, Yuta	A02	Exploring asymmetric thermal responses induced by chirality
11:45 - 12:00	YONEZAWA, Shingo	A02	TBC

12:00 - 13:00 Lunch

Chair: KIMARA, Motoi

13:00 - 13:15	HIBINO, Ruo	A02	Control of asymmetric quantum phenomena using surface acoustic waves
13:15 - 13:30	JIANG, Nan	A02	Nonreciprocal transport in the quasi-one-dimensional charge-density-wave conductor NbSe ₃
13:30 - 13:45	ISHIHARA, Kota	A02	Development of novel chiral physics in inorganic materials using high-resolution bulk
13:45 - 14:00	KITAGAWA, Shunsaku	A02	Observation of Odd-Parity Superconducting States via Cross-Correlated Responses

14:00 - **Closing**