December 2, Monday

10th NTT-BRL School

9:40 - 10:10	**Opening**

10:10 - 11:40	**Lecture 1**

Quantum Metrology - Observing what cannot be seen

Prof. William J. Munro

Okinawa Institute of Science and Technology

11:40 - 11:50	**School Photo**

11:50 - 12:40	**Lunch Time**

12:40 - 14:10	**Lecture 2**

Introduction to Quantum Key Distribution: From Theory to Experiments and Back

Prof. Marcos Curty

University of Vigo

14:10 - 14:30	**Coffee Break**

14:30 - 21:30	**NTT BRL School Scholarship Student Event**

December 3, Tuesday

9:30 - 11:00	**Lecture 3**

Introduction to Quantum Computing: From Qubit to Fault-tolerant Quantum Computing

Prof. Keisuke Fujii

Osaka University

11:00 - 11:20	**Coffee Break**

11:20 - 12:50	**Lecture 4**

What is a Quantum Internet?

Dr. Koji Azuma

NTT Basic Research Laboratories

12:50 - 13:40	**Lunch Time**

December 3, Tuesday

ISNTT2024 Symposium

13:40 - 14:00	**Opening Remarks**

Session 1 : Opening Keynote

14:00 - 15:00

1Tu-01 : **Classically Simulatable Quantum Computations – a Perspective on the Origin of QC Power**

(Keynote) R. Jozsa

University of Cambridge

15:00 - 15:20	**ISNTT2024 Symposium Photo**

15:20 - 15:40	**Coffee Break**

Session 2 : Quantum Computation, Communication, and Metrology

15:40 - 16:10

1Tu-02 : **Advances and Challenges in Quantum Key Distribution**

(Invited) M. Curty

University of Vigo

16:10 - 16:40

1Tu-03 : **Space and Time Overheads in Fault-Tolerant Quantum Computation**

(Invited) M. Koashi

The University of Tokyo

16:40 - 17:00

1Tu-04 : **Ultra-Broadband Quantum Infrared Spectroscopy**

T. Tashima, Y. Mukai, M. Arahata, N. Oda, M. Hisamitsu,K. Tokuda, R. Okamoto, S. Takeuchi

Kyoto University

17:00 - 17:20

1Tu-05 : **Efficient GHZ States Generation Protocol for Quantum Networks**

W. Roga, H. Shimizu, D. Elkouss, M. Takeoka

Keio University

17:20 - 17:40

1Tu-06 : **Time-Delayed Single Satellite Quantum Repeater Node for Global Quantum Communications**

M. Gundogan, J. S. Sidhu, M. Krutzik, D. K. L. Oi

University of Strathclyde

17:40 - 19:30 Poster Session I

December 4, Wednesday

Session 3 : Spintronics and 2D Materials

9:00 - 9:30

2We-01 : **Spintronics with 2D Materials**

(Invited) H. Yang

National University of Singapore

9:30 - 9:50

2We-02 : **Non-Local Signatures of Edge States Arising from Substrate-Induced Spin-Orbit Coupling in Graphene-on-Chromia**

K. He, H. Vakili, B. Barut, S. Yin, M. D. Randle, R. Dixit, N. Arabchigavkani, J. Nathawat, A. Mahmood, C. Binek, P. A. Dowben, A. A. Kovalev, J. P. Bird

University at Buffalo

9:50 - 10:10

2We-03 : **Anomalous Nernst Effect Induced Magnetic Imaging on CoPt Multilayer with Perpendicular Magnetic Anisotropy**

N. Budai, H. Isshiki, Y. Otani

The University of Tokyo

10:10 - 10:30

2We-04 : **Solid-State High-Harmonic Generation of Optical Spin-Orbit Angular Momentum Preserving Multiscale Dynamical Symmetry**

K. Nagai, T. Okamoto, Y. Shinohara, H. Sanada, K. Oguri

NTT Basic Research Laboratories

10:30 - 11:00	**Coffee Break**

Session 4 : Novel Physics in Topological Systems

11:00 - 11:30

2We-05 : **Detecting Topological Edge States with Mesoscopic Physics**

(Invited) S. Guéron

Université Paris-Saclay

11:30 - 11:50

2We-06 : **Emergent Nematic Phase Near Filling Factor ν = 7/3**

E. J. Bell, Y. J. Chung, K. W. Baldwin, L. N. Pfeiffer, K. W. West, M. A. Zudov

University of Minnesota

11:50 - 12:10

2We-07 : **Chiral Terahertz Photocurrent in Quantum Point Contact-Split Ring Resonator Coupled System in the Quantum Hall Regime**

J. Huang, K. Kuroyama, J. Kwoen, Y. Arakawa, K. Hirakawa

The University of Tokyo

12:10 - 12:40

2We-08 : **Electron Collision in a Two-Path Graphene Interferometer**

(Invited) P. Roulleau

CEA Saclay

12:40 - 14:00 **Lunch Time**

Session 5 : 2D Materials

14:00 - 14:30

2We-09 : **Optical Control of the Exciton Properties in Atomically Thin Transition Metal Dichalcogenides**

(Invited) X. Marie

Université de Toulouse

14:30 - 14:50

2We-10 : **Exciton-Driven Tunable Photodetection and Polarization Locking in Indium Selenide Homojunctions**

G. Pasquale, C. de Giorgio, R. Chiesa, K. Watanabe, T. Taniguchi, A. Kis

École Polytechnique Fédérale de Lausanne (EPFL)

14:50 - 15:10

2We-11 : **Many-Body Interactions and Non-Linear Optical Properties in Low-Dimensional Materials**

V. Perebeinos

University at Buffalo

15:10 - 15:30

2We-12 : **On-Chip Waveform Measurement of Ultrashort Graphene Plasmon Wavepackets Using THz Electronics**

K. Yoshioka, G. Bernard, T. Wakamura, M. Hashisaka, K. Sasaki, S. Sasaki, K. Watanabe, T. Taniguchi, N. Kumada

NTT Basic Research Laboratories

15:30 - 16:00 **Coffee Break**

Session 6 : Topological States of Matters and Hybrid Systems

16:00 - 16:30

2We-13 : **Spintronics Functionalities of Magnetic Weyl Semimetals**

(Invited) K. Nomura

Kyushu University

16:30 - 16:50

2We-14 : **Flux-Periodic Supercurrent Oscillations in an Aharonov-Bohm-Type Nanowire Josephson Junction**

P. Zellekens, R. Deacon, F. Basaric, M. Randle, A. Pawlis, D. Grützmacher, T. Schäpers, K. Ishibashi

RIKEN / NTT Basic Research Laboratories

16:50 - 17:10

2We-15 : **Microwave Transport in Quantum Anomalous Hall Edge States**

E. Bocquillon, T. Röper, H. Thomas, D. Rosenbach, A. Uday, G. Lippertz, A. Taskin, Y. Ando

University of Cologne

17:10 - 17:30

2We-16 : **Superconducting Diode Effect in Josephson Junctions Based on Selectively Grown Topological Insulator Nanoribbons**

G. Behner, A. R. Jalil, D. Grützmacher, Th. Schäpers

Peter Grünberg Institut (PGI-9) /

Forschungszentrum Jülich and RWTH Aachen University

17:30 - 19:30 Poster Session II

December 5, Thursday

Session 7 : Quantum Network

9:00 - 9:30

3Th-01 : **A Proposal for a Multidimensional Based Quantum Internet**

(Invited) D. Bacco

University of Florence

9:30 - 9:50

3Th-02 : **Heralding Higher-Dimensional Bell and Greenberger-Horne-Zeilinger States Using Multiport Splitters**

D. Bhatti, S. Barz

Okinawa Institute of Science and Technology Graduate University / University of Stuttgart

9:50 - 10:10

3Th-03 : **Quantum Networking with Tin Colour Centres in Diamond**

N. A. G. Timmerman, W. G. Roth, N. Mulholland, D. A. Gangloff, M. Atature

University of Cambridge

10:10 - 10:30

3Th-04 : **Strain Tuning of Individual Telecom Color Centers in Reconfigurable Silicon Photonics**

A. Buzzi, C. Papon, M. Pirro, O. Hooybergs, H. Raniwala C. Errando-Herranz, D. Englund

Research Laboratory of Electronics, Massachusetts Institute of Technology

10:30 - 11:00 **Coffee Break**

Session 8 : Optical Quantum Information Processing

11:00 - 11:30

3Th-05 : **Optics Interference and Quantum Information Processing**

(Invited) Q. Zhang

University of Science and Technology of China (USTC)

11:30 - 12:00

3Th-06 : **Time-Multiplexed Programmable Continuous-Variable Photonic Quantum Computing**

(Invited) S. Takeda

The University of Tokyo

12:00 - 12:20

3Th-07 : **Entanglement Manipulation through Multicore Fibres**

C. Marconi, E. Fanella, D. Bacco, A. Zavatta

Istituto Nazionale di Ottica del Consiglio Nazionale delle Ricerche (CNR-INO)

12:20 - 12:40

3Th-08 : **Resolving Photon Numbers Using Ultra-High-Resolution Timing of Superconducting Nanowire Detectors**

G. Sauer, M. Kolarczik, R. Gomez, O. Kohout, J. Conrad, F. Steinlechner

Friedrich Schiller University /

Fraunhofer Institute for Applied Optics and Precision Engineering (IOF)

12:40 - 14:00 **Lunch Time**

Session 9 : Quantum Algorithms and Quantum Computational Advantage

14:00 - 14:30

3Th-09 : **Quantum Advantage for Near-Term and Fault-Tolerant Quantum Computers**

(Invited)

X. Yuan

University of Peking

14:30 - 14:50

3Th-10 : **Catalytic Transformation from Computationally Universal to Strictly Universal Measurement-Based Quantum Computation**

Y. Takeuchi

NTT Communication Science Laboratories, /

NTT Research Center for Theoretical Quantum Information

14:50 - 15:10

3Th-11 : **Parallel Quantum Signal Processing via Polynomial Factorization**

J. M. Martyn, Z. M. Rossi, K. Z. Cheng, Y. Liu, I. L. Chuang

Center for Theoretical Physics, Massachusetts Institute of Technology

15:10 - 15:30

3Th-12 : **Optimizing a Parameterized Controlled Gate with Free-Quaternion Selection**

H. C. Watanabe, H. Kurogi, K. Endo, Y. Sato, M. Sugawara, K. Sugisaki, S. Kannno, K. Wada, H. Nakano

Kyushu University / Keio University

15:30 - 16:00 **Coffee Break**

Session 10 : Error Suppression and Quantum Control for Reliable Quantum Computation

16:00 - 16:30

3Th-13 : **Suppressing Quantum Errors via Continuous-Time Dissipation Engineering**

(Invited) H. Kwon

Korea Institute for Advanced Study (KIAS)

16:30 - 16:50

3Th-14 : **Highlighting Novel Bosonic Encoding and Novel Error Mitigation for Quantum Simulations**

G. Saxena, T. Ha Kyaw

LG Electronics Toronto AI Lab

16:50 - 17:10

3Th-15 : **Quantum Control in Complex Environments: A Reinforcement Learning Approach to Non-Markovian Dynamics**

A. Jaouadi, E. Mangaud, M. Desouter-Lecomte

LyRIDS, ECE-Paris, Graduate School of Engineering

17:10 - 17:30

3Th-16 : **Algebraic Analysis of BCH Formula for Quantum Control and Quantum Speed Limits**

G. Kato, M. Owari, K. Maruyama

University of Toyama / Osaka Metropolitan University

17:30 - 18:30	**Bus Transfer**

18:30 - 20:30	**Banquet**

December 6, Friday

Session 11 : Superconducting and Semiconductor Quantum Computing Devices

9:00 - 9:30

4Fr-01 : **Real-Time Quantum Error Correction Beyond Break-Even**

(Invited) V. V. Sivak

Google Quantum AI

9:30 - 10:00

4Fr-02 : **Coherence and Fidelity Improvement with IQM F1 Fabrication Facility**

(Invited) L. Zhu

IQM Quantum Computers

10:00 - 10:20

4Fr-03 : **Exchange Control in a MOS Double Quantum Dot made Using a 300mm Wafer Process**

J. F. Chittock-Wood, R. C. C. Leon, M. A. Fogarty, T. Murphy, S. M. Patomaki, G. A. Oakes, Felix-Ekkehard von Horstig, N. Johnson, J. Jussot, S. Kubicek, B. Govoreanu, D. F. Wise, M. Fernando Gonzalez-Zalba, J. J. L. Morton

Quantum Motion / University College London

10:20 - 10:40

4Fr-04 : **Noise Correlations in a Silicon Five-Qubit Array**

J. Rojas-Arias, L. Camenzind, Yi-Hsien Wu, A. Noiri, K. Takeda, T. Nakajima, T. Kobayashi, Ik K. Jin, A. Sammak, P. Stano, G. Scappucci, D. Loss, S. Tarucha

RIKEN

10:40 - 11:10 **Coffee Break**

Session 12 : Solid State Quantum Devices

11:10 - 11:40

4Fr-05 : **Single Atom Magnetic Resonance by Microwave Photon Counting**

(Invited) E. Flurin

Université Paris-Saclay

11:40 - 12:00

4Fr-06 : **Vacuum Noise Squeezing in a 3D Microwave Cavity**

I. Mahboob, T. Kawabata, S. Sasaki

NTT Basic Research Laboratories

12:00 - 12:20

4Fr-07 : **Bloch Transistor for Quantum Electronics**

I. Antonov, R. Shaikhaidarov, K. Ho Kim, D. Golubev, V. Antonov, O. Astafiev

Royal Holloway University of London

12:20 - 12:40

4Fr-08 : **Room Temperature Maser Oscillators**

C. W. Zollitsch, S. Ruloff, Y. Fett, H. T. A. Wiedemann, J. D. Breeze, C. W. M. Kay

Saarland University / University College London

12:40 - 14:00 **Lunch Time**

Session 13 : Attosecond Phenomena and Lightwave-driven Quantum Phenomena

14:00 - 14:30

4Fr-09 : **Floquet Engineering of Dirac Electrons Using Propagating Waves and AC Magnetic Fields**

(Invited) T. Oka

The University of Tokyo

14:30 - 15:00

4Fr-10 : **Control of Anomalous Hall Conductivity in Topological Semimetal $Co_3Sn_2S_2$ Using Mid-Infrared Light**

(Invited) N. Yoshikawa

The University of Tokyo

15:00 - 15:20

4Fr-11 : **Photocurrents from a Floquet Topological Insulator**

D. Lesko, T. Weitz, S. Wittigschlager, W. Li, C. Heide, O. Neufeld, P. Hommelhoff

FAU Erlangen-Nürnberg

15:20 - 15:40

4Fr-12 : **High-Harmonic Generation in Mott Insulators: Role of Spin-Charge Coupling**

Y. Murakami, K. Uchida, S. Takayoshi, T. Hansen, A. Koga, L. Bojer Madsen, K. Tanaka, P. Werner

RIKEN

15:40 - 16:00

4Fr-13 : **Attosecond Coherence Between a Vibrational Wavepacket of H_2^+ and a Continuum Electron**

Y. Nabekawa, K. Midorikawa

RIKEN

16:00 - 16:20

4Fr-14 : **Isospin Transport in Photoexcited 3D Dirac Semimetal Studied by Polarization-Resolved Terahertz Spectroscopy**

Y. Murotani, N. Kanda, T. Fujimoto, T. Matsuda, M. Goyal, J. Yoshinobu, Y. Kobayashi, T. Oka, S. Stemmer, R. Matsunaga

The University of Tokyo

16:20 - 16:40

4Fr-15 : **Filamentation-Assisted Isolated Attosecond Generation**

Y. E. Chien, M. S. Tsai, A. Y. Liang, M. C. Chen

National Tsing Hua University

16:40 - 17:00	**Closing**

17:00 - 17:20	Break

17:20 - 18:00	【BRL School】**Closing**

Poster Poster Session I (December 3, Tuesday)

Tu-02 : Explicit Quantum Surrogates for Quantum Kernel Models

A. Nakayama, H. Morisaki, K. Mitarai, H. Ueda, K. Fujii

Osaka University

Tu-03 : Development of WSi Films for Superconducting Nanowire Single Photon Detectors

A. Goldingay, H. J. Latief, J. Brown, U. Singh, G. de Boo, A. Lyasota, S. Rogge

University of New South Wales

Tu-04 : Squeezed Phonon Laser with Trapped Ions

C. Y. Lee, K. T. Lin, G. D. Lin

National Center for Theoretical Sciences

Tu-05 : Conditions for Observing the Effect of a Single Spin on a Mechanical Oscillator

E. Aspropotamiti, A. S. Sørensen

Niels Bohr Institute

Tu-06 : Valley Lifetime in Free-Standing WSe_2 Monolayers Studied by Kerr Spectroscopy

G. Mariani, Y. Kunihashi, L. Smet, T. Wakamura, S. Sasaki, J. Ishihara, M. Kohda, J. Nitta, H. Sanada

NTT Basic Research Laboratories

Tu-07 : Solution Search of Maximum Independent Set Problems with a Coherent Ising Machine

H. Takesue, K. Inaba, T. Honjo, Y. Yamada, T. Ikuta, Y. Yonezu, T. Inagaki

NTT Basic Research Laboratories

Tu-08 : Disti-Mator: an Entanglement Distillation-Based State Estimator

J. C. A. Casapao, A. G. Maity, N. Benchasattabuse, M. Hajdušek, R. Van Meter, D. Elkouss

Okinawa Institute of Science and Technology Graduate University

Tu-09 : Prospects for Strong Optical Coupling Between Single Erbium Ions and Silicon Photonic Cavities

J. Z. Brown, A. Lyasota, I. R. Berkman, G. G. de Boo, J. G. Bartholomew, S. Q. Lim, B. C. Johnson, J. C. McCallum, B.-B. Xu, S. Xie, R. L. Ahlefeldt, M. J. Sellars, C. Yin, S. Rogge

University of New South Wales

Tu-10 : Distribution of Atomic Qutrit Entanglement via Photonic Channels

K. Tanji, H. Shimizu, M. Takeoka

Keio University

Tu-11 : Phase Estimation and Error Mitigation in Superconducting Quantum Processors

C. E. Bello, A. Montoya

National University of Colombia

Tu-12 : Shallow Implementation of Complex Unitary Coupled Cluster Method

H. Hayashi, M. Harada, T. Sato, K. L. Ishikawa

The University of Tokyo

Tu-13 : Simulation and Optimal Control of Large Open Systems Using Matrix-Free Operators and Superoperators

I. Iakoupov, V. M. Bastidas, Y. Matsuzaki, S. Saito, W. J. Munro

Okinawa Institute of Science and Technology / NTT Basic Research Laboratories

Tu-14 : An Adaptive Strategy for Quantum Estimation Problems with Nuisance Parameters and its Application to Two Optical Point Sources

M. Kimizu, F. Tanaka

Osaka University

Tu-15 : Adiabatic-impulse Model Meets Quantum Signal Processing

O. V. Ivakhnenko, D. O. Shendryk, S. N. Shevchenko, F. Nori

RIKEN

Tu-16 : Linear-Optical Fusion Boosted by High-Dimensional Entanglement

T. Yamazaki, K. Azuma

NTT Basic Research Laboratories

Tu-17 : A Simple Self-Testing Quantum Random Number Generator

A. Bl´azquez, F. Gr¨unenfelder, A. Martin, H. Zbinden, D. Rusca

University of Vigo

Tu-18 : Pre-detection Squeezing as a Resource for High Dimensional Bell State Measurements

L. Bianchi, C.Marconi, J. Sperling, D. Bacco

University of Florence

Tu-19 : Spectral Engineering of Squeezed Light: Optimizing Detection Compatibility for Quantum Applications

Luis J. Gonzalez M. del C., V. Kaipalath, I. Ugarte, M. Leyendecker, F. Steinlechner

Fraunhofer Institute for Applied Optics and Precision Engineering /

Friedrich Schiller University Jena

Tu-20 : Compact and Ultrabright Entangled Photon Source for Quantum Communication from Geostationary Orbit

M. Leipe, U. Chandrashekara, S. Sharma, K. L. Mendez, C. A. M. Luna, F. Steinlechner

Fraunhofer Institute for Applied Optics and Precision Engineering /

Friedrich Schiller University Jena

Tu-21 : Towards 100 ms Electron Spin Coherence of Telecom Quantum Emitters in Silicon

A. Lyasota, I. R. Berkman, G. G. de Boo, J. G. Bartholomew, S. Q. Lim, B. C. Johnson, J. C. McCallum, B. B. Xu, S. Xie, R. L. Ahlefeldt, M. J. Sellars, C. Yin, S. Rogge

University of New South Wales

Tu-22 : Towards Electrical Quantum Metrology with Silicon Single Electron Devices from Qubit Technology Platforms

D. Wittbrodt, J. C. Bayer, J. Lethinen, L. Schreiber, M. Jaime, F. Hohls

Physikalisch-Technische Bundesanstalt

Tu-23 : RF-Induced Quantum Oscillations in a 2D Electron Gas

E. J. Bell, C. Hnatovsky, K. W. Baldwin, L. N. Pfeiffer, K. W. West, S. A. Studenikin, M. A. Zudov

University of Minnesota

Tu-24 : Fabrication and Optical Analysis of WSi Thin Films for Enhanced SNSPD Efficiency

H. J. Latief, A. Goldingay, J. Brown, U. Singh, G. de Boo, A. Lyasota1, S. Rogge

University of New South Wales

Tu-25 : Controlling Superconducting Qubits Using Nonadiabatic Transitions

I. Y. Hsaio, Y. H. Lin, Y. Teranishi

National Center of Theoretical Sciences

Tu-26 : High Gain and Bandwidth Josephson Parametric Amplifier Influenced by Fabry-Perot Interference

J. Ilves, S. Kono, A. F. van Loo, Y. Sunada, Y. Takeda, K. Yuki, K. Koshino, Y. Nakamura

The University of Tokyo

Tu-27 : Quantum State Encoding in Spatiotemporal Modes of Itinerant Microwave Photons

K. Sunada, T. Miyamura, Z. Wang, J. Ilves, K. Matsuura, S. Kono, Y. Nakamura

The University of Tokyo

Tu-28 : Investigation of the ZEFOZ Point in Erbium-Doped Crystals

K. Matsuura, S. Yasui, R. Kaji, T. Tawara, S. Adachi

Hokkaido University

Tu-29 : Performances of Chirped-Pulse Single-Shot Ultrafast Spectroscopy with Dispersion Compensation

A. Maeshiro, R. Tamaki, J. Takeda, I. Katayama

Yokohama National University

Tu-30 : Plateau High-Harmonics Generated by the Anomalous Hall Effect in 2D Weyl Semimetals

A. Hashmi, M. Tani, K. Yabana, T. Otobe, K. L. Ishikawa

The University of Tokyo

Tu-31 : Laser-Processing of Diamond for All-Carbon Active Electronics

C. S. Henderson, P. S. Salter, M. P. Villar, F. Lloret, D. Reyes, M. Krueger, R. J. Watkins, E. T. Jonasson, D. Araujo, R. B. Jackman

University College London

Tu-32 : First-Principles Calculations of Excitation Processes in Amorphous Silicon by Femtosecond Laser Pulses

E. Gushiken, T. Otobe, M. Tani, S. Yamada, H. Katow, K. L. Ishikawa

The University of Tokyo

Tu-33 : Dipole Moment and the Gauge Problem of the Light-Matter Interaction

H. Katow, K. L. Ishikawa

The University of Tokyo

Tu-34 : Stabilization of Strontium Optical Lattice Clock with Visible Planar Lightwave Circuit

H. Imai, T. Akatsuka, S. Konisho, J. Sakamoto, M. Takamoto, I. Ushijima, H. Katori, T. Hashimoto, H. Sanada, K. Oguri, T. Sogawa

NTT Basic Research Laboratories

Tu-35 : Propagation and Circulating Modes of Reciprocal Non-Hermitian Skin Effect

I. Takeda, T. Yoda, Y. Moritake, K. Takata, M. Notomi

Tokyo Institute of Technology

Tu-36 : Design and Fabrication of a Hex-SiGe NW-Induced Photonic Crystal Cavity

J. Zöllner, S. Meder, W. Peeters, E.P.A.M. Bakkers, G. Koblmüller, J. J. Finley

TUM School of Natural Sciences

Tu-37 : Circularly Polarized Light-Induced Terahertz Emission from Paramagnetic 3D Dirac Semimetal Phase of $Co_3Sn_2S_2$

K. Ogawa, N. Yoshikawa, K. Fujiwara, J. Ikeda, A. Tsukazaki, R. Shimano

The University of Tokyo

Tu-38 : Nonperturbative Effects in Second Harmonic Generation

K. Kitayama, M. Ogata

RIKEN

Tu-39 : High-Precision Optical Frequency Measurement Using a Tunable Mode Spacing Single-Comb System

K. Hitachi, A. Ishizawa, H. Sanada, K. Oguri

NTT Basic Research Laboratories

Tu-40 : Novel Hamiltonian for Optical Phenomena in Graphene

K. Sasaki

NTT Basic Research Laboratories

Tu-41 : Visualization of Off-Γ BIC Propagation in Si Grating at Near-Infrared Wavelength

K. Hamaya, Y. Moritake, T. Yoda, M. Ono, E. Kuramochi, M. Notomi

Tokyo Institute of Technology

Tu-42 : Quasi-Ballistic Interlayer Exciton Transport in van der Waals Heterostructures

F. Tagarelli, E. Lopriore, C. de Giorgio, K. Watanabe, T. Taniguchi, A. Kis

École Polytechnique Fédérale de Lausanne (EPFL)

Tu-43 : Electron g-factor at Γ Point in Strained Germanium

K. Imakire, A. Oiwa, Y. Tokura

University of Tsukuba

Tu-44 : Even-Odd Parity Effect Observed in the Cotunneling Peaks for a Superconductor-Semiconductor Nanowire Quantum Dot

K. Takase, Y. Ashikawa, G. Zhang, K. Tateno and S. Sasaki

NTT Basic Research Laboratories

Tu-45 : Manipulating Charge States of Donor-related Defects at InAs Surface Using Low-Temperature Scanning Tunneling Microscope

K. Kanisawa

NTT Basic Research Laboratories

Tu-46 : Evaluation of Variations in Josephson Junctions for Homogenization of Superconducting Qubit Characteristics

K. Kakuyanagi, N. Teran, H. Toida, S. Saito

NTT Basic Research Laboratories

Tu-47 : Group Velocity Dependence of Spin-Angular Momentum Structure in Space-Time Surface Plasmon Polariton Wavepackets

K. Kihara, K. Motoi, H. Kikuchi, N. Ichiji, A. Kubo

University of Tsukuba

Tu-48 : Enhanced Energy Transfer from Two-Color Intense Femtosecond Laser Pulses to Electrons in Crystalline Silicon

M. Tani, K. Sasaki, Y. Shinohara, K. L. Ishikawa

The University of Tokyo

Tu-49 : Fast and Slow Photocurrent Response in Black Phosphorus

K. Yoshioka, T. Wakamura, T. Okamoto, N. Kumada

NTT Basic Research Laboratories

Tu-50 : Mesoscopic Transport and Magnetoresistance Anisotropy in GeSn and GeSnC Hallbar Structures

P. Zellekens, O. Díaz, P. Kaul, S. Sasaki, K. Takase, K. Ishibashi, D. Grützmacher, D. Buca, N. Kumada

NTT Basic Research Laboratories

Tu-51 : Investigation of Quantum Anomalous Hall Edge States Using Noise Measurements

A. Rupp, D. Rosenbach, A. Uday, G. Lippertz, A. Taskin, Y. Ando, E. Bocquillon

University of Cologne

Tu-52 : Topological Edge States in Two-Dimensional Massless Dirac Fermion with Non-Quantized Berry Phase

F. R. Pratama, T. Nakanishi

National Institute of Advanced Industrial Science and Technology / Tohoku University

Tu-53 : Cyclotron Emission from Current-Injected Graphene

F. Inamura, S. Kim, I. Hosako, M. Patrashin, S. Komiyama, K. Ikushima

Tokyo University of Agriculture and Technology

Tu-54 : Establishing a Bridge Between Quantum Devices and Electrochemistry

H. V. V. Qui, I. Madrid, S. Grall, A. Fujiwara, L. Jalabert, T. Jonckheree, J. Rech, T. Martin, S. H. Kim, N. Clément

The University of Tokyo / CNRS

Tu-55 : Fabrication and Characterization of Plasmonic Molecules Involving Gold Nanoparticles

K. D Hiltz

University of Alberta

Tu-56 : One Dimensional Control of Valley Current via Split Gate Structure

K. Takahashi, Y. Nakayama, M. Ke, D. K. Ferry, J. P. Bird, N. Aoki

Chiba University

Tu-57 : Strain-Enhanced Rashba Spin-Orbit Interaction in Core-Shell Nanowires

K. Takase, S. D. Escribano, D. Ibrahimagic, K. Tateno, A. L. Yeyati, E. Pradada, S. Sasaki

NTT Basic Research Laboratory

Tu-58 : Plasmonically Active Nanostructures in Diamond for Robust SERS Sensing

K. N. Twaddle, M. L. A. Ramsay, R. B. Jackman

University College London

Tu-59 : Electron Quantum Optics in Graphene

L. Pugliese, A. Assouline, H. Chakraborti, M. Jo, K. Watanabe, T. Taniguchi, D. C. Glattli, F. D. Parmentier, N. Kumada, H.-S. Sim, P. Roulleau

Université Paris-Saclay

Tu-60 : Thermoelectric Conversion with Non-Thermal Tomonaga-Luttinger Liquid

M. Uemura, H. Yamazaki, T. Hata, C.J. Lin, T. Akiho, K. Muraki, T. Fujisawa

Tokyo Institute of Technology

Tu-61 : Towards a Massively Scalable Current Standard Operating at Room Temperature Based on Redox Molecules

N. Johnson, H. V. V. Qui, S. Grall, A. Fujiwara, L. Jalabert, S.-H. Kim, A. Chovin, C. Demaille, N. Clement

University College London

Poster Session II (December 4, Wednesday)

We-01 : Out-of-Time-Order Correlators in Electronic Structure Using Quantum Computers

KJ. Joven, VM. Bastidas

NTT Research, Inc.

We-02 : Synthetic Gauge Potentials for the Dark State Polaritons in Atomic Media

H.-C. Shia, D. A. Chen, K.-W. Shi, W.-C. Chiang, Y.-H. Kuan, S.-W. Shao, I-K. Liu, J. Ruseckas, G. Juzeliūnas, Y.-J. Lin, and W.-T. Liao

National Central University

We-03 : Engineering Propagating Cat States with Driving-Assisted Cavity QED

S. Kikura, H. Goto, T. Aoki

Waseda University

We-04 : Robust Error Mitigation for Physical and Algorithmic Errors in a Hamiltonian Simulation

S. Hakkaku, Y. Tokunaga, S. Endo

NTT Computerand Data-science Laboratories

We-05 : Enhancing Quantum Key Distribution with Entanglement Distillation and Classical Advantage Distillation

S. Sun, K. Goodenough, D. Bhatti, D. Elkouss

Okinawa Institute of Science and Technology

We-06 : Efficiency Enhancement of Atomic Frequency Comb Quantum Memory by Initializing Nuclear Spin in $^{167}Er^{3+}:Y_2SiO_5$

S. Yasui, T. Inaba, A. Ishizawa, K. Hitachi, H. Omi, K. Matsuura, R. Kaji, T. Tawara, S. Adachi, X. Xu, H. Sanada

NTT Basic Research Laboratories / Hokkaido University

We-07 : Chimera States in Photonic Spiking Neural Networks with Coupled Degenerate Optical Parametric Oscillators

T. Inagaki, K. Inaba, Y. Yamada, T. Ikuta, Y. Yonezu, T. Honjo, H. Takesue

NTT Basic Research Laboratories

We-08 : Optimal Dimension of Quantum Key Distribution Using High-Dimensional Time-Bin Entanglement Against a Multi-Photon Error

T. Ikuta, S. Akibue, Y. Yonezu, T. Honjo, H. Takesue

NTT Basic Research Laboratories

We-09 : Engineering Model of an Entangled Photon Source for Space Applications

U. Chandrashekara, P. S. Chauhan, R. Gómez, C. A. M. Luna, F. Steinlechner

Fraunhofer Institute for Applied Optics and Precision Engineering /

Friedrich Schiller University Jena

We-10 : On a Matrix Ensemble for Arbitrary Complex Quantum Systems

W. E. Salazar, J. D. Urbina, J. Madro˜nero

University of Valle

We-11 : Simple Quantum Error-Correcting Output Code for Multi-class Quantum Classifiers

S. Nomoto, W. Roga ,M. Takeoka

Keio University

We-12 : Efficient Ground State Preparation: Balancing Quantum Circuit Depth and Classical Optimization

T. Suzuki

NICT / RIKEN

We-13 : Variational Quantum Simulation for the Ground State of 6Li Nucleus

T. Ogata, T. Sato, H. Katow, S. Yoshida, T. Naito, M. Kimura

The University of Tokyo

We-14 : Super-Exponential Catastrophe in Variational Quantum Imaginary Time Evolution Quantum Algorithms

G. Saxena, A. Shalabi, T. H. Kyaw

LG Electronics Toronto AI Lab

We-15 : Sequential Optimization in Variational Quantum Algorithm for Solving the Poisson Equation

P. Luo, T. Sato

The University of Tokyo

We-16 : Quantum Advantage in Qubit and Qutrit Processor

W. Wang, S. Tateishi, W. Roga, T. Ono, M. Takeoka

Keio University

We-17 : Upper Bounds of the Heat Current Between an Apparatus and a Dissipative System under Continuous Measurements

Y. Fujimoto, T. Yamamoto, K. Yoshida, Y. Tokura

University of Tsukuba

We-18 : Entanglement Based QKD on the Berlin Quantum Communication Testbed

R. Gómez, P. Ancsin, G. Sauer, R. Gesele, P. Paul, S. Naik, N. Döll, T. Goebel, F. Steinlechner

Fraunhofer Institute for Applied Optics and Precision Engineering IOF /

Friedrich Schiller University Jena

We-19 : Characterization of a Microring Resonators for Quantum Information Processing

S. Häussler, A. M. Torres Novoa, M. Cabrejo Ponce, F. Steinlechner

Fraunhofer Institute for Applied Optics and Precision Engineering / Friedrich Schiller University

We-20 : Optimized Spectral Purity of Heralded Single Photons at a Telecom O-Band

W.-H. Cai, K. Edamatsu, F. Kaneda

Tohoku University

We-21 : Nanoelectromechanical Cantilever Waveguide Diagnosis via Visible Spectral Domain Optical Coherence Tomography

Y. M. Goh, C. Li, J. Fujimoto, D. Englund

Massachusetts Institute of Technology

We-22 : Fast Unconditional Reset and Leakage Reduction in Fixed-Frequency Transmon Qubits

L. Chen, S. P. Fors, Z. Yan, T. Abad, A. Ali, A. Osman, E. Moschandreou, B. Lienhard, S. Kosen, H.-X. Li, D. Shiri, T. Liu, S. Hill, A.-A. Amin, R. Rehammar, A. Nylander, M. Rommel, A. F. Roudsari, M. Caputo, G. Leif, J. Govenius, M. Dobsicek, M. F. Giannelli, A. F. Kockum, J. Bylander, G. Tancredi

Chalmers University of Technology

We-23 : Fast and Integrated On-Chip Thermometry Using Radio-Frequency Reflectomtery Techniques in an Industry Standard Silicon Process

M. de Kruijf, T. H. Swift, O. L. J. Osborne, G. M. Noah, R. C. C. Leon, A. Gomez-Saiz, J. J. L. Morton, M. Fernando

University College London / Quantum Motion

We-24 : Fast Multiplexed Superconducting Qubit Readout with Intrinsic Purcell Filtering

P. A. Spring, L. Milanovic, Y. Sunada, S. Wang, A. F. van Loo, S. Tamate, Y. Nakamura

RIKEN

We-25 : Solid-State Quantum Sensors for Robust Operation in Non-Ambient Environments

S. Mahajan, R. Kumar, J. JL Morton

University College London

We-26 : Quantum State Transfer Between Fixed-Frequency Superconducting Qubits Using an Itinerant Microwave Photon

T. Miyamura, K. Sunada, Y. Sunada, Z. Wang, K. Matsuura, K. Yuki, J. Ilves, Y. Nakamura

The University of Tokyo

We-27 : Design and Modelling of Superconducting Quantum Microwave Amplifiers for Fundamental Physics Experiments

T. Bai, T. Godfrey, P. Bhandari, J. Potter, G. Chapman, J. Gallop, L. Hao, E. Romans

University College London

We-28 : Diamond Quantum Sensor Toward Biological Application

Y. Shikano, K. Oshimi, M. Fujiwara

University of Tsukuba / Chapman University

We-29 : Generation of 2D-graph States of Itinerant Microwave Photonic Qubits Based on Time-Frequency Dimension with a Fixed-Frequency Circuit

Z. Wang, T. Miyamura, J. Ilves, K. Sunada, R. Zainudin, K. Matsuura, Y. Nakamura

RIKEN

We-30 : Negative Refraction of Light in Atomic Arrays

L. Ruks, K. Ballantine, J. Ruostekoski

NTT Basic Research Laboratories

We-31 : Thermal Infrared Detection with an Optically-Probed Photonic Crystal Bolometer

L. Follet, J. Goldstein, C. L. Panuski, I. Christen, D. R. Englund

Massachusetts Institute of Technology

We-32 : Anisotropy and Relative Phases of High Harmonic Generation in Ti-Based Metallic Materials

M. Kaiho, A. Kishioka, K. Uchida, S. Kusaba, R. Tamaki, J. Takeda, K. Tanaka, T. Matsunaga, I. Katayama

Yokohama National University

We-33 : 3D FEM Analysis of Photonic Crystal Structures that Enable Observation of Non-Hermitian Skin Effects

N. Ogawa, Y. Moritake, T. Yoda, K. Takata, E. Kuramochi, M. Notomi

Tokyo Tech / NTT Basic Research Laboratories

We-34 : OAM of Light Generation Using GaN Nanopillars and Metal Nanostructures

R. Kuruma, M. Takiguchi, P. Heidt, Y. Moritake, T. Yoda, A. Mock, M. Notomi

Tokyo Tech

We-35 : Spin and Valley Dynamics in 2D Materials: Real-Time First-Principles Computation for Quantum Devices

S. Yamada, T. Otobe

National Institutes for Quantum Science and Technology (QST)

We-36 : Ab Initio Calculation of Real-Space Current Distribution in Graphene Driven by Strong Laser Fields

S. Li, M. Tani, A. Hashmi, K. L. Ishikawa

The University of Tokyo

We-37 : Continuous Transition from Exceptional Point to a Bifurcation Point in the Dissipative Coupled-Cavity with Stuart-Landau Nonlinearity

T. Uemura, K. Takata, M. Notomi

Tokyo Institute of Technology / *NTT Basic Research Laboratories*

We-38 : Nonrelativistic Effective Field Theories for Composite Systems

T. Asano, E. Giese, F. D. Pumpo

Yokohama National University

We-39 : Discriminating the Origins of Photovoltaic Hall Response in Semiconductor by Using Terahertz Pulses

T. Fujimoto, Y. Murotani, T. Kurihara, T. Tamaya, N. Kanda, C. Kim, J. Yoshinobu, H. Akiyama, T. Kato, R. Matsunaga

The University of Tokyo

We-40 : First-Principle Simulation Program for Light-Matter Interaction, ” SALMON”

T. Otobe

KPSI QST

We-41 : Non-Adiabatic Transitions and Floquet Metal-Insulator Transition

V. M. Bastidas, L. Ruks

NTT Basic Research Laboratories

We-42 : First-Principles Study on Pressure-Induced Ferroelectricity and Bulk Photovoltaic Effect in Halide Perovskite $CsPbI_3$

Y. Y. S. Teweng, N. Yamaguchi, F. Ishii

Kanazawa University

We-43 : Spin-polarizer Utilizing the Zeeman Effect with InAs Nanowire Channel

S. Komatsu, M. Akabori

Japan Advanced Institute of Science and Technology

We-44 : Ultrafast Edge Photocurrent in WTe_2

S. Chatterjee, K. Yoshioka, T. Wakamura, N. Kumada

NTT Basic Research Laboratories

We-45 : Andreev Reflection in the Quantum Hall Regime Using an Al Superconductor on a Cleaved Edge of InAs Semiconductor

T. Akiho, H. Irie, Y. Nakazawa, S. Sasaki, N. Kumada, K. Muraki

NTT Basic Research Laboratories

We-46 : Giant Superconducting Nonreciprocal Transport in Few-Layer T_d-$MoTe_2$

T. Wakamura, M. Hashisaka, S. Hoshino, M. Bard, S. Okazaki, T. Sasagawa, T. Taniguchi, K. Watanabe, K. Muraki, N. Kumada

NTT Basic Research Laboratories

We-47 : Control of Photoinduced Carriers at Metal-Oxide-Semiconductor Interface on Wide Bandgap SiC at Room Temperature

T. Owa, J. Miura, F. Inamura, T. Ikuta, K. Maehashi, K. Ikushima

Tokyo University of Agriculture and Technology

We-48 : GaS Nanobelt for Nano-Optoelectronic Applications

Y. Endo, Y. Sekine, Y. Taniyasu

NTT Basic Research Laboratories

We-49 : Effects of a GaAs Buffer Layer on Magnetic and Transport Characteristics of the Quantum Anomalous Hall Insulators $V_y(Bi_xSb_{1-x})_{2-y}Te_3$ and $Cry(Bi_xSb_{1-x})_{2-y}Te_3$

Y. Nakazawa, T. Akiho, K. Kanisawa, H. Irie, N. Kumada, K. Muraki

NTT Basic Research Laboratories

We-50 : Topological Aggregation in Crystal Growth of Topological Material

Y. Tanaka, S. Zhang, T. Zhang, S. Murakami

RIKEN

We-51 : Probing Superconducting Pairing Symmetry in Magic-Angle Twisted Trilayer Graphene via Shot Noise Measurements

R. Ayache, H. Chakraborti, L. Pugliese, M. Kuiri, P. Agarwal , K. Watanabe, T. Taniguchi, P. Roulleau

Université Paris-Saclay

We-52 : Exploring Non-Linear Quantum Transport in Tungsten Ditelluride Using a 3ω Lock-In Method

S. Demetre, F. Dejene, C. Cox, K. Morrison, J. Wilson, M. Greenaway

Loughborough University / National Physical Laboratory

We-53 : Evaluation of Full Spin-Orbit Interactions in a Gated InSb Quantum well

T. Kawano, T. Fukuchi, T. D. Mishima, M. B. Santos, J. Ishihara, S. Yamamoto, K. Hashimoto, Y. Hirayama, J. Nitta, M. Kohda

Tohoku University

We-54 : Effects of Adsorbed Molecules on Charge Transfer in $MoTe_2$ Monolayers Prepared by Gold-Mediated Exfoliation

T. Yoshimura, K. Watanabe, T. Taniguchi, Y. Hoshi

Tokyo City University

We-55 : Nonequilibrium Spin Noise and Fano Factor of Spin Relaxation in Ferromagnetic Materials

T. Sato, S. Watanabe, M. Matsuo, T. Kato

The University of Tokyo

We-56 : Giant Excitonic Second Harmonic Generation from Aligned Enantiomer-Pure Carbon Nanotubes

V. Labuntsov, R. Xu, J. Doumani, N. Hong, A.C. Samaha, W. Tu, F. Tay, E. Blackert, J. Luo, M. El Tahchi, J. Lou, Y. Yomogida, K. Yanagi, R. Saito, A, Baydin, J. Kono, H. Zhu, V. Perebeinos

University at Buffalo

We-57 : Spin Polarized Current Generation in the Surface of a Three-Dimensional Topological Insulator Driven by a Linearly Polarized Ultrashort Pulse

Y. Shinohara, H. Sanada, K. Oguri

NTT Basic Research Laboratories / NTT Research Center for Theoretical Quantum Information

We-58 : Tunneling Spectroscopy Study of Field-Induced Superconductivity in MoS_2 Using Top Metal Contacts

Y. Shimazu, K. Yamada, H. Kobayashi, R. Ishikawa, H. Watanabe, T. Shinchi, K. Yanai

Yokohama National University

We-59 : Observation of the Scaling Dimension of Anyons in Fractional Quantum Hall States

Y. Sato, A. Veillon, C. Piquard, P. Glidic, A. Aassime, A. Cavanna, Y. Jin, U. Gennser, A. Anthore, F. Pierre

The University of Tokyo

We-60 : Long Range Transfer and Temperature Dependence of Valley Hall Effect in MoS_2 Narrow Hall Bar

Y. Nakayama, K. Takahashi, M. Ke, D. K. Ferry, J. P. Bird, N. Aoki

Chiba University

We-61 : Non-Hermitian Skin Effects and Their Optical Control in 2D Cuprate Superconductors with On-Site Dissipation

Y. Shigedomi, T. Yoshida

Kyoto University

We-62 : Observing the Berezinskii-Kosterlitz-Thouless Transition in a Coherent XY Machine with a Planar Lightwave Circuit Interferometer

Y. Yonezu, K. Inaba, Y. Yamada, T. Ikuta, T. Inagaki, T. Honjo, H. Takesue

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