

Hybrid QBIC Workshop 2023

Dates:

From October 11 Wednesday, to October 13 Friday, 2023

Venue:

Hybrid Workshop using Face to face and Zoom
Main Place : 6th floor Auditorium, Building No.7
Noda Campus of Tokyo University of Science
Noda City, Chiba 278-8510, Japan

a) Main Session (TUS & International Session)

October 11-13, Wednesday, Thursday, Friday 10:00 – 15:00 (**TUS Session**)
at Hybrid Workshop using (Face to face and Zoom)

October 11-13, Wednesday, Thursday, Friday 15:10 – 18:00 (**International Session**)
at Hybrid Workshop using Zoom

b) Poster Session

From October 11, Wednesday to October 12 Thursday
(Question and Answer, October 12, Thursday 12:05 - 12:50) web site and by zoom

URL <https://www.rs.noda.tus.ac.jp/qbic/VQBICworkshop2023new.html>

Hybrid QBIC Workshop 2023

Purpose

The main aim of QBIC and the conference is to create a new paradigm synthesizing Quantum Information and Bio-Informatics based on efforts by active researchers traversing various fields of Mathematics, Physics, Information and Life Science.

Organizer

N. Watanabe (Tokyo University of Science, Japan)

S. Iriyama (Tokyo University of Science, Japan)

Advisory Committee

L. Accardi (Roma II University, Italy)

A. Jamiolkowski, Nicolaus Copernicus University, Poland

A. Khrennikov, Linnaeus University, Sweden

I. Volovich (Steklov, Mathematical Institute, Russia)

Local Committee

T. Matsuoka (Suwa University of Science, Japan)

S. Miyazaki (Tokyo University of Science, Japan)

K. Sato (Tokyo University of Science, Japan)

T. Kamizawa (Sanyo-Onoda City University, Japan)

M. Kihara (Tokyo University of Science, Japan)

K. Jimbo (Tokyo University of Science, Japan)

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Invited Speakers

L. Accardi, Roma II University, Italy
M. Asano, Kindai University, Japan
R. Belavkin, Middlesex University, UK
I. Basieva, Linnaeus University, Sweden
D. Chruscinski, Nicolaus Copernicus University, Poland
F. Fagnola, Polytechnic University of Milan, Italy
W. Freudenberg, Brandenburg University of Technology, Germany*
F. Hiai, Emeritus Professor, Tohoku University, Japan*
A. Jamiolkowski, Nicolaus Copernicus University, Poland
Un Cig Ji, Chungbuk National University, Korea
A. Khrennikov, Linnaeus University, Sweden
S. Kozyrev, Russian Academy of Sciences, Russia
K. Kuchitsu, Tokyo University of Science, Japan
F. Mukhamedov, The United Arab Emirates University, U.A.E.
M. Yoshida, Kanagawa University, Japan
S. Lakaev, Samarkand State University, Uzbekistan
N. Obata, Tohoku University, Japan*
S. Oryu, Emeritus Professor, Tokyo University of Science, Japan
I. Ojima, Research Origin for Dressed Photon, Japan
R. Quezada, Universidad Autonoma Metropolitana, Iztapalapa Campus, Mexico
M. Regoli, Roma II University, Italy
K. Sanaka, Tokyo University of Science, Japan
Si Si, Emeritus Professor, Aichi Prefectural University, Myanmar
K. Sinha, Emeritus Professor of the Indian Statistical Institute & JNCASR, India
A. Stan, Ohio State University, U.S.A.
H. Takayanagi, Tokyo University, Japan *
J.S. Tsai, Tokyo University of Science & RIKEN, Japan
Y. Tanaka, National Collage of Nursing, Japan
S. Tarucha, RIKEN, Japan
T. Toyoda, Emeritus Professor, Tokai University, Japan*
D. Wanke, Ludwig-Maximilians-Universität München, Germany
S. Watabe, Shibaura Institute of Technology, Japan
I. Volovich, Steklov, Mathematical Institute, Russia
QBIC members in Tokyo University of Science

Sponsor

Tokyo University of Science
Nano-Quantum Information Research Division, RIST

Program of Hybrid QBIC Workshop 2023

October 11, 2023, Wednesday - Main Session (TUS session 1)

- 10:00 ~ 10:05 *Opening Address* (Tokyo University of Science, Japan)
- 10:10 ~ 10:55 S. Oryu, Emeritus Professor, Tokyo University of Science, Japan
Three-Body Cs(H₂, γ)La Nuclear Fusion in Cuboctahedron CsH₂ Pd₁₂
- 11:00 ~ 11:45 T. Toyoda, M. Fujita, T. Uchida, K. Yamada, N. Hiraiwa, Tokai University, Japan
Theory of localized light
- 11:45 ~ 13:15 **Lunch Break and Poster Presentation**
- 13:15 ~ 14:00 S. Iriyama, Tokyo University of Science
Digital Quantum Computation and Classical Teleportation Scheme
- 14:05 ~ 14:50 D. Wanke, Ludwig-Maximilians-Universität München, Germany
Gene expression regulation goes towards Artificial Intelligence

October 11, 2023, Wednesday - Main Session (International session 1)

- 15:00 ~ 15:10 *Opening Address* (Tokyo University of Science, Japan)
- 15:15 ~ 16:05 L. Accardi, Roma II University, Italy
The quantum mechanics canonically associated to free and monotone probability
- 16:10 ~ 17:00 F. Fagnola, Polytechnic University of Milan, Italy
Gaussian Quantum Markov Semigroups
- 17:00 ~ 17:15 **Coffee Break**
- 17:15 ~ 18:05 A. Khrennikov, Linnaeus University, Sweden,
What is life?": Open quantum systems approach
- 18:10 ~ 19:00 R. Quezada, UAM-Iztapalapa Campus, Mexico City, Mexico
Dynamics of Perturbed G-Circulant Quantum Markov Semigroups
- 19:05 ~ 19:55 A. Stan, Ohio State University, U.S.A.
Random variables for which some function of the number operator has a finite position-momentum decomposition

October 12, 2023, Thursday - Main Session (TUS session 2)

- 10:00 ~ 10:50 Un Cig Ji, Chungbuk National University, Korea
Quantum Analogues of White Noise Delta functions
- 10:55 ~ 11:40 C. Uchiyama, University of Yamanashi, Japan
Environmental engineering of energy transport
- 11:40 ~ 12:05 **Lunch Break**
- 12:05 ~ 12:35 **Poster Presentation (Breakout Room in Zoom)**
- 12:35 ~ 13:20 N. Watanabe, Tokyo University of Science, Japan
Note on Transmitted Complexity of Modified Compound States for Quantum Dynamical systems
- 13:25 ~ 14:10 T. Matsuoka, Suwa Tokyo University of Science, Japan
Quantum Clock Coordinate and A Generalized Hamiltonian
- 14:15 ~ 14:55 T. Kamizawa, Sanyo-Onoda City University, Japan
On Quintic Positive Polynomials and the P-Reducibility
- 15:00 ~ 15:50 K. Sinha, Emeritus Professor of the Indian Statistical Institute & JNCASR, India
The Story of Two Projections and Quantum Classification Error

October 12, 2023, Thursday - Main Session (International session 2)

- 16:00 ~ 16:50 A. Jamiolkowski, Nicolaus Copernicus University, Poland
Nonperiodic sampling - Identifiability and Observability of Dynamical Systems
- 16:55 ~ 17:45 F. Mukhamedov, The United Arab Emirates University, U.A.E.
Non-translation invariant Gibbs measures for the Ising model
- 17:45 ~ 18:00 **Coffee Break**
- 18:00 ~ 18:50 D. Chruscinski, Nicolaus Copernicus University, Poland
Quantum regression in dephasing processes
- 18:55 ~ 19:45 S. Sritharan, Air Force Research Laboratory, U.S.A.
Nonlinear Filtering of Commutative and Noncommutative Systems: Spin Systems, Quantum Fields and Fluid Dynamics
- 19:45 ~ 20:00 **Coffee Break**
- 20:00 ~ 20:50 K. Sanaka, Tokyo University of Science, Japan
Optical fiber-based single-photon emitter

October 13, 2023, Friday - Main Session (TUS session 3)

- 9:50 ~ 10:35 M. Asano, Kindai University, Japan
Clustering by simulation of self-organizing system
- 10:40 ~ 11:25 S. Watabe, Shibaura Institute of Technology, Japan,
Application of quantum computers to combinatorial optimization problem
- 11:30 ~ 12:15 Y. Sumino, Tokyo University of Science, Japan
Active matter - a type of information processing in biology
- 12:15 ~ 13:05 **Lunch Break**
- 13:05 ~ 13:50 M. Yoshida, Kanagawa University, Japan
A review on the historical developments of stochastic quantizations on Euclidean quantum fields and physical random medias
- 13:55 ~ 14:40 K. Kuchitsu, Tokyo University of Science, Japan
Spontaneous spikes, fluctuation and oscillation of calcium ion concentration in plants: possible significance in morphogenesis, signal transmission and environmental adaptation
- 14:45 ~ 15:30 Y. Tanaka, National Collage of Nursing, Japan
A Quantum-like approach to observing the heterogeneity in meta-analysis
- 15:35 ~ 16:25 R. Bhat, Indian Statistical Institute, Bangalore, India
Peripheral Poisson boundary

October 13, 2022, Friday - Main Session (International session 3)

- 16:30 ~ 17:20 I. Volovich, Steklov Mathematical Institute, Russia
Principle of Maximum Entropy in Quantum Cosmology and Negative Dimensions
- 17:25 ~ 18:15 S. Kozyrev, Steklov Mathematical Institute, Russia
Amplification of Quantum Transfer and Quantum Ratchet
- 18:15 ~ 18:30 **Coffee Break**
- 18:30 ~ 19:20 R. Belavkin, Middlesex University, UK
Value of Information Theory with Dynamic Information Constraints
- 19:25 ~ 20:15 R. Balu, US Army Research Lab, U.S.A.
Covariant Anyons via Mackey Machinery