

RIMS conference

# MATHEMATICAL ASPECTS OF QUANTUM FIELDS AND RELATED TOPICS



We organize an international conference as one of the common enterprises of

Res. Inst. for Mathematical Sci., Kyoto Univ. as follows.

We welcome the participation of many all of you.

**Date** : 26 of June 2019 (Wed) 10:00 – 28 of June (Fri) 15:50

**Venue** : Room 111, RIMS, Kyoto University

**HP**: <http://www2.math.kyushu-u.ac.jp/~hiroshima/rims2019.html>

**Organizer** : Fumio Hiroshima (Kyushu University)

## PROGRAM

### 26 of June (Wed)

10:00 – 10:50 Akito Suzuki (Shinshu University)

Space-time continuous limits of discrete-time quantum walks

11:00 – 11:50 Yosuke Kawamoto (Fukuoka Dental College)

Stochastic analysis on infinite dimensional stochastic differential equations related to random matrices

### **LUNCH BREAK**

13:00 – 13:50 Zied Ammari (Université de Rennes 1)

Classical electrodynamics as an effective theory of quantum electrodynamics

14:00 – 14:50 Nobuhiro Asai (Aichi University of Education)

Deformed free Fock spaces and Meixner distributions.

15:00 – 15:50 Hayato Saigo (Nagahama Institute of Bio-Science and Technology)

Space-homogeneous quantum walks on  $\mathbb{Z}$  from the viewpoint of complex analysis

16:00 – 16:50 Itaru Sasaki (Shinshu University)

TBA

## **27 of June (Thu)**

9:30 – 10:20 Noriaki Teranishi (Hokkaido University)

On the existence of time operators.

10:25 – 11:15 Fumio Hiroshima (Kyushu University)

Positivity improving and spatial decays of bound states in quantum field theory

11:20 – 12:10 Izumi Ojima (Research Origin for Dressed Photon)

Categorical formulation of quantum field theory

### **LUNCH BREAK**

13:10 – 14:00 Seiichiro Kusuoka (Kyoto University)

Invariant measure and flow associated to the  $\Phi^4$ -quantum field model on the three-dimensional torus

14:10 – 15:00 Hirofumi Osada (Kyushu University)

Diffusion in Coulomb environment and a phase transition

15:10 – 16:00 Kenichi Ito (The University of Tokyo)

Zeroth order conjugate operator in N-body Schrödinger operators

16:10 – 17:00 Hiroyuki Ochiai (Kyushu University)

Symmetry raised from dressed photon

### **CONFERENCE DINNER**

Time: 18:00 –, Location: Luciano (<https://tabelog.com/kyoto/A2601/A260302/26021826/>)

Fee: 5,000 JPY

## **28 of June (Fri)**

10:00 – 10:50 Yuta Aihara (Hokkaido University)

On a general class of exterior differential operators in Boson-Fermion Fock spaces

11:00 – 11:50 Asao Arai (Hokkaido University)

Singular Bogoliubov transformations

### **LUNCH BREAK**

13:00 – 13:50 Keiji Nakatsugawa (Hokkaido University)

Time operators and time crystals in ring systems

14:00 – 14:50 Kazuya Okamura (Research Origin for Dressed Photon)

Towards new uncertainty relations

15:00 – 15:50 Fumihiko Nakano (Gakushuin University)

Asymptotic behavior of eigenfunctions of 1d random Schrödinger operators

※This conference is financially supported by KAKENHI (B) 16H03942(Fumio Hiroshima)