

# Symposium on Quantum Science



**8–10 March 2022**

**Universität Hamburg / Osaka University**

Remote

<https://indico.rcnp.osaka-u.ac.jp/e/OHS2022/>



We are organizing the 3-day Osaka-Hamburg Symposium 2022 to initiate the future research collaboration between Osaka University in Japan and Universität Hamburg in Germany.

The event is part of the Osaka University's Pioneering Quantum Beam Application (PQBA) doctoral program.

## Subjects

This symposium will focus on quantum science in general. The following subjects will be introduced as research areas:

1. Biophysics and biomedical applications
2. Targeted alpha therapy
3. Non-destructive elemental analysis method using negative muon beam
4. Quantum technologies and quantum computing
5. Quantum materials and topology
6. Photonics and ultrafast quantum dynamics

## Poster session

Students present their research in a virtual poster room. It will be a good opportunity for students to advertise their research activities to a broader public and get in contact with their international peers.

## Program

JST	CET	8 March (Tuesday)
16:40	8:40	Opening session
17:00	9:00	Keynote: Emergent Majorana states in atomic-scale magnet-superconductor hybrid systems Prof. Roland Wiesendanger (Hamburg)
17:40	9:40	
17:40	9:40	Keynote: Development of astatinated radiopharmaceuticals for targeted alpha therapy Prof. Koichi Fukase (Osaka)
18:20	10:20	
18:20	10:20	Introduction to the poster session
18:30	10:30	Break
18:40	10:40	Poster session
20:00	12:00	

JST	CET	9 March (Wednesday)
16:40	8:40	Tracking chemical dynamics with ultrafast time-resolved pump-probe methods Dr. Katharina Kubiczek (Hamburg)
17:10	9:10	
17:10	9:10	Towards an optical-fiber-based quantum internet Dr. Rikizo Ikuta (Osaka)
17:40	9:40	
17:40	9:40	Topological quantum effects in low-dimensional spin systems Dr. Thore Posske (Hamburg)
18:10	10:10	
18:20	10:20	Poster session
19:40	11:40	

JST	CET	10 March (Thursday)
16:40	8:40	Kaon rare decay experiment challenging the mystery of matter dominance in the universe Dr. Hajime Nanjo (Osaka)
17:10	9:10	
17:10	9:10	Principles of X-ray Fluorescence Imaging and Medical Applications Dr. Theresa Staufer (Hamburg)
17:40	9:40	
17:40	9:40	Application research using muons for archaeological samples Dr. Kazuhiko Ninomiya (Osaka)
18:10	10:10	
18:20	10:20	Introduction to student exchange program between Osaka and Hamburg
19:00	11:00	
19:00	11:00	Closing session
19:20	11:20	

## Speakers

Prof. Roland Wiesendanger (Institute for Nanostructure and Solid-State Physics, Universität Hamburg)  
Emergent Majorana states in atomic-scale magnet-superconductor hybrid systems

Dr. Katharina Kubicek (CUI: Advanced Imaging of Matter, Universität Hamburg and European XFEL Hamburg)  
Tracking chemical dynamics with ultrafast time-resolved pump-probe methods

Dr. Thore Posske (I. Institute for Theoretical Physics, Universität Hamburg)  
Topological quantum effects in low-dimensional spin systems

Dr. Theresa Stauer (Institute of Experimental Physics, Universität Hamburg)  
Principles of X-ray Fluorescence Imaging and Medical Applications  
Prof. Koichi Fukase (Graduate school of Science, Osaka University)

Development of astatinated radiopharmaceuticals for targeted alpha therapy

Dr. Rikizo Ikuta (Graduate school of Engineering Science, Osaka University)  
Towards an optical-fiber-based quantum internet

Dr. Hajime Nanjo (Graduate school of Science, Osaka University)  
Kaon rare decay experiment challenging the mystery of matter dominance in the universe

Dr. Kazuhiko Ninomiya (Institute for Radiation Science, Osaka University)  
Application research using muons for archaeological samples

## Organization

Prof. Tadafumi Kishimoto (Osaka University, PQBA Academic Affairs Committee)  
Prof. Michael Thorwart (Universität Hamburg, Department of Physics)  
Prof. Masaharu Nomachi (Osaka University, regional director of European Center)  
Mr. Gero Hemker (Universität Hamburg, Department of International Affairs)

## Technical support

Dr. Tomoaki Hotta (RCNP, Osaka University)  
Dr. Katsushige Kotera (RCNP, Osaka University)

## Secretaries

Ms. Atsuko Miyajima (RCNP/PQBA, Osaka University)  
Ms. Mitsuyo Ohtsuka (PQBA, Osaka University)

