



**16 FEBRUARY  
2024**

**17:00-20:00(JST)/ 9:00-12:00(CET)**

# **QUANTUM BEAM SCIENCE AND ITS APPLICATIONS**

the Osaka-Groningen Symposium  
2024

The symposium will center on quantum beam science and its applications. Both Osaka University and the University of Groningen boast state-of-the-art accelerator facilities and engage in diverse research fields related to quantum beams. These fields span from fundamental science to practical applications.

Registration:

<https://indico.rcnp.osaka-u.ac.jp/event/2300/>



PARTREC: <https://umcgresearch.org/w/partrec>

PQBA: <https://www.rcnp.osaka-u.ac.jp/pqba/>

**\*Program Highlights\*** Two talks by senior scientists introducing accelerator facilities and their respective research fields in Osaka and Groningen.

Presentations by students and young scientists will follow.

**\*Subjects of the Presentations\***

From PARTREC in Groningen: FLASH irradiations, N-12 based PET, and pre-clinical research platform IMPACT.

From Osaka PQBA: Gantry system, PET detectors, Chemistry and Macromolecular science, Particle and Nuclear Physics.

**\*Active Participation Encouraged\***

We warmly invite your active participation in this symposium. Any subject relevant to quantum science is welcome, and we look forward to the valuable insights and discussions that will contribute to the advancement of quantum beam research.

**CONTACT:**

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# Quantum Beam Science and Its Applications

## the Osaka-Groningen Symposium 2024

### 《Time Schedule》

#### I. < Opening Remarks >

17:00-17:05	Prof. Takashi NAKANO, RCNP Osaka University
9:00-9:05	

#### II. < Invited Lectures >

17:05-17:30	Prof. Dr. Alexander Gerbershagen (University of Groningen)
9:05-9:30	“PAricle Therapy REsearch Center (PARTREC) at UMCG”
17:30-17:55	Prof. Nori AOI (RCNP, Osaka University)
9:30-9:55	“Cyclotron Facility at RCNP, Osaka University”

#### III. < Flash presentations from students >

18:00-18:10	Felix Ludwig
10:00-10:10	“Advanced particle irradiations for high-precision image guided preclinical research”
18:10-18:20	Yunpeng Qian
10:10-10:20	“Adhesion between Hard Substrates using Movable Crosslinked Materials and Evaluation of Cohesive Properties”
18:20-18:30	Hang Zhao
10:20-10:30	“Conceptual Design of a High Temperature Superconducting Spectroscopy-type Gantry System for Particle Therapy”
18:30-18:40	Rutger Koster
10:30-10:40	“Proton FLASH at UMCG”
18:40-18:50	Atia Ibrahimi
10:40-10:50	“FLASH radiotherapy with helium ion beams”
18:50-19:00	VIET VAN HOANG NGUYEN
10:50-11:00	“Study of side-readout slab-based monolithic scintillation crystals for total-body PET application”
19:00-19:10	Katsuyuki Tokoi
11:00-11:10	“Halogen bonding of astatine in gas phase”
19:10-19:20	Zahra Ahmadiganjeh
11:10-11:20	“In vivo range verification using N-12 imaging based on the new Monte Carlo framework for proton therapy”
19:20-19:30	Brian Zapien Campos
11:20-11:30	“Towards real-time in vivo verification based on N-12 positron imaging for proton therapy”
19:30-19:40	Ayumu Kitagawa
11:30-11:40	“Performance Evaluation of the KOTO Charged Particle Detector Operated in the Neutral Beam under High Rate Conditions”
19:40-19:50	Tianchen Zhang
11:40-11:50	“Gauge dependence of c $\bar{c}$ potential from Nambu-Bethe-Salpeter wave function in Lattice QCD”

#### IV. < Concluding Remarks >

19:50-19:55	Prof. Peter Dendooven, University of Groningen
11:50-11:55	