ExpRes道場

A Joint Workshop of Pioneering Projects,
"Fundamental Principles Underlying the Hierarchy of Matter: A Comprehensive Experimental Study"
「**物質階層の原理**を探求する統合的実験研究」 &
"Heterogeneity at Materials Interfaces"「**ヘテロ界面**研究」

2018年5月8日（金）
鈴木梅太郎ホール

13:00 - 13:10 はじめに（金 有洙）
13:10 - 14:00 特別講義「サルでもわかる量子コンピューター」
大野圭司（石橋極微デバイス工学研究室）
14:00 - 14:30 見学対象研究室からの概要説明（3分ずつ、研究テーマと場所について）
14:40 - 16:10 南地区の研究室（加藤研、前田研、田原研、Kim研）の見学
14:40 - 15:20 1st round
15:30 - 16:10 2nd round
16:30 - 18:00 研究本館（加藤（雄）研、岩崎研、）、レーザー棟（東研、上野研）、仁科（上野研）の見学
16:30 - 17:10 1st round (上野研はRIBFのみ)
17:20 - 18:00 2nd round (上野研はレーザー棟のみ)
18:00 - 金酒（自由討論）

見学場所及び担当者
金研（ナノ棟）；横田　加藤（礼）研（物質棟）；大島　田原研（物質棟）；石井　前田研（交流棟）；藤田
加藤（雄）研（研究本館）；石井　岩崎研（研究本館）；石田　東研（レーザ棟）；久間　上野研（RIBF棟、レーザー棟）；田島

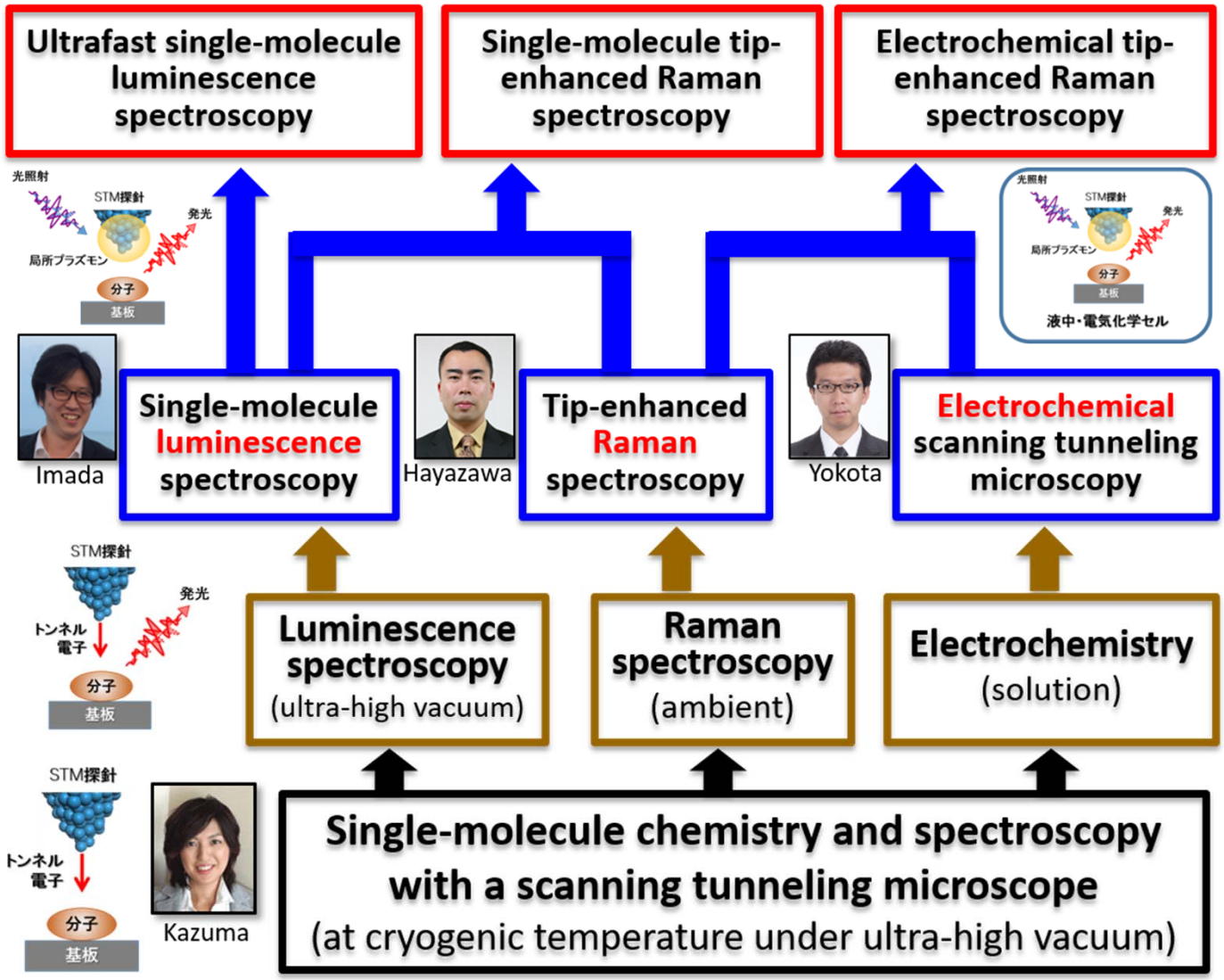
2018/6/8 13:00 ExpRes道場@梅太郎ホール

サルでもわかる量子コンピューター

石橋極微デバイス工学研究室
専任研究員
大野圭司

Surface and Interface Science Laboratory

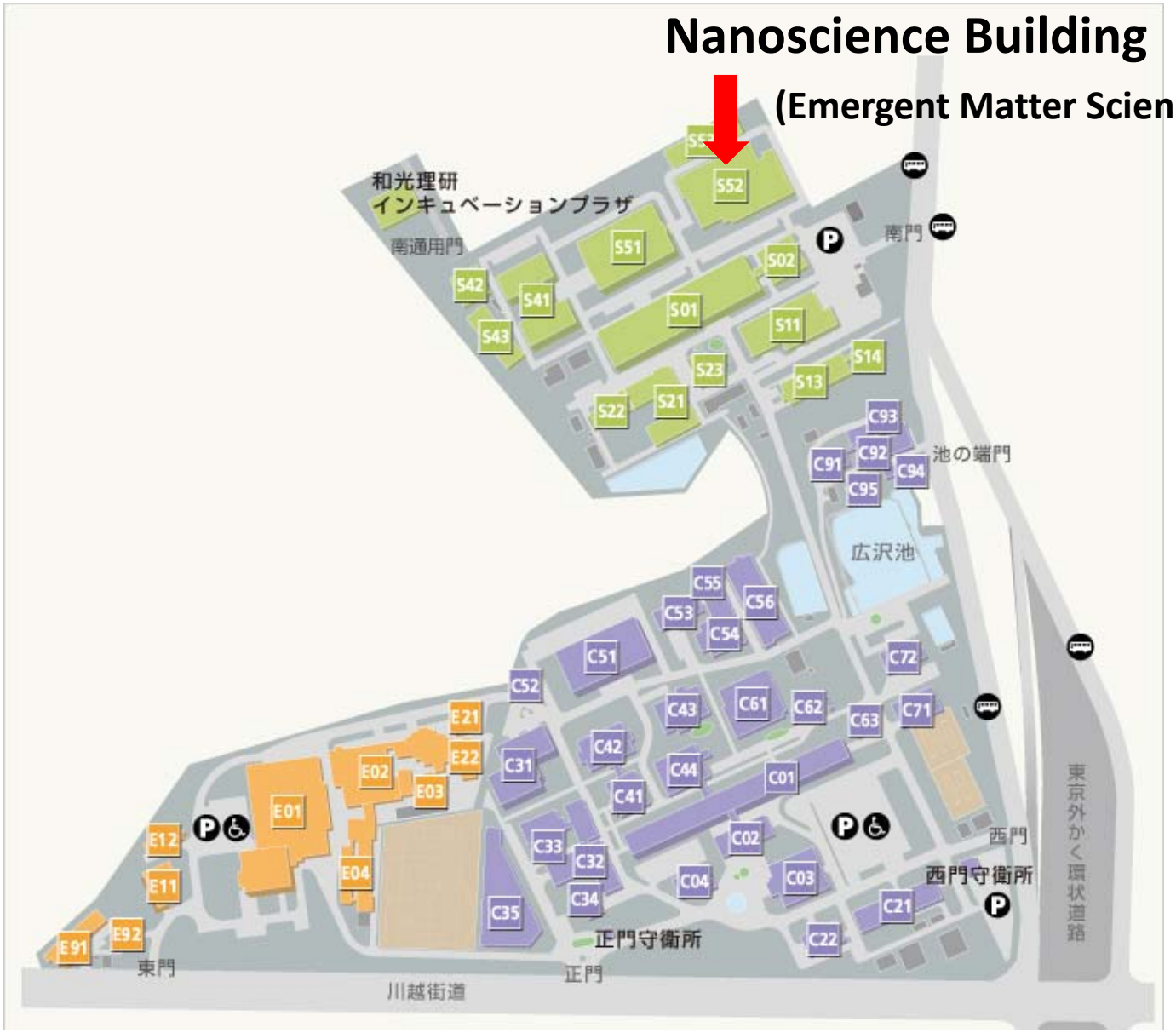
Lab Overview



The Place for Lab Tour

Nanoscience Building

(Emergent Matter Science Research Laboratory)



Gather at
Nanoscience lab # 1

1st: 14:40 - 15:20

2nd: 15:30 - 16:10

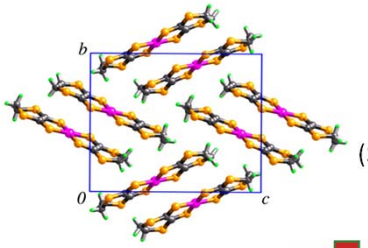
Host
Dr. Yasuyuki Yokota

Condensed Molecular Materials Laboratory

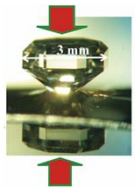
RIKEN ExpRes

-Molecular Materials (Molecular Conductors, Molecular Magnets)-

- Flexibility (Molecular Design & Soft)
- Strongly correlated (Variety of ground states, tunable)
- Clean



TypeII-[Pt(dddt)$_2$]
Single Component
Molecular Crystal



Cui
(Synthesis, X-Ray, High Pressure)

Uebe
(Synthesis)

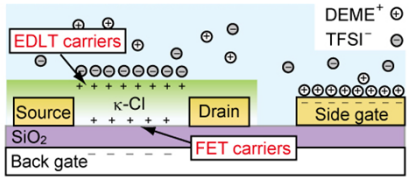
Synthesis

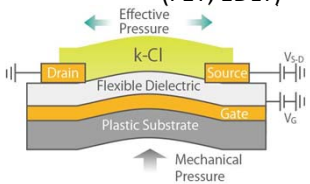
Kato
(Synthesis)

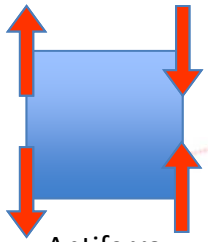
Kawasugi
(FET, EDLT)

Minamidate
(EDLT, Synthesis)

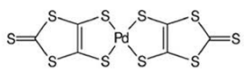
Device Application

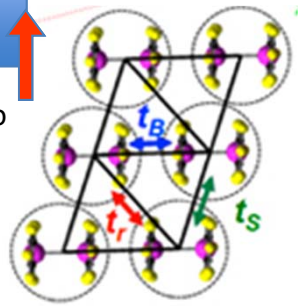




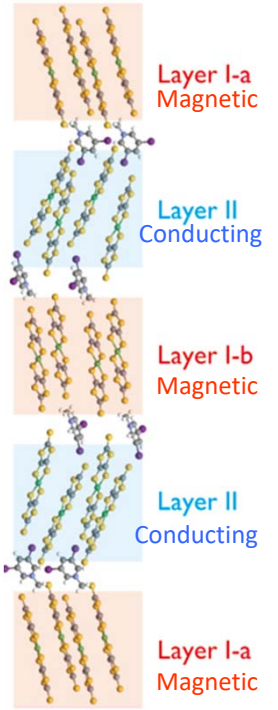


Antiferro





Triangular Lattice
X[Pd(dmit)$_2$]$_2$



Bi-layer system
(Me-3,5-DIP)[Ni(dmit)$_2$]$_2$

Characterization

Geometrical Frustration
Spin Liquid?

Fujiyama
(NMR)

Oshima
(ESR)

Structural Analysis
Transport Properties
Magnetic Properties
Thermal Properties
Magnetic Resonance

The Place for Lab Tour

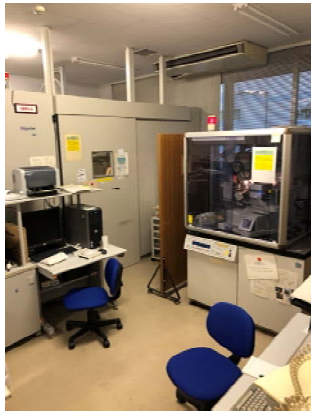
Gather at
Chem. & Materials Phys. Bldg.
@3F Room N-307

1st: 14:40 - 15:20

2nd: 15:30 - 16:10

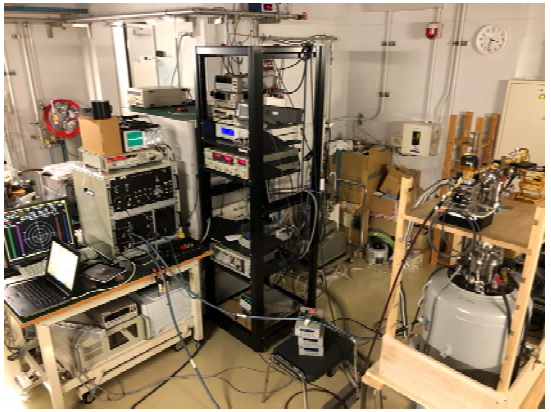
Host
Yugo Oshima





Materials Bldg. (3F)

Materials Bldg. (1F)



Nanoscience Bldg. (1F)

Molecular Spectroscopy Laboratory

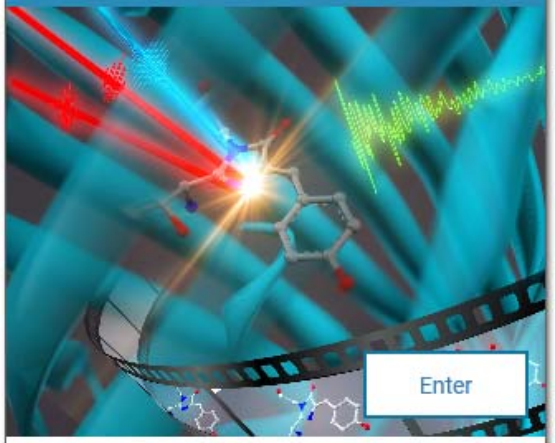
Lab Overview

https://spectroscopy.riken.jp

Spectroscopy is the "eyes" of modern science, and hence it plays essential roles in a variety of research fields covering physics, chemistry, and biology. We develop and utilize the most advanced spectroscopy for molecular science of complex systems in the condensed phase. To elucidate a variety of complex phenomena occurring in the condensed phase, we need to clarify the electronic and vibrational states of molecules, the response of surroundings, and the fluctuation and dissipation of energy behind. Based on this view, we carry our fundamental research using the most advanced linear/nonlinear spectroscopic methods with most suitable time- and space-resolution for the problems to be studied.

Director: Tahei Tahara

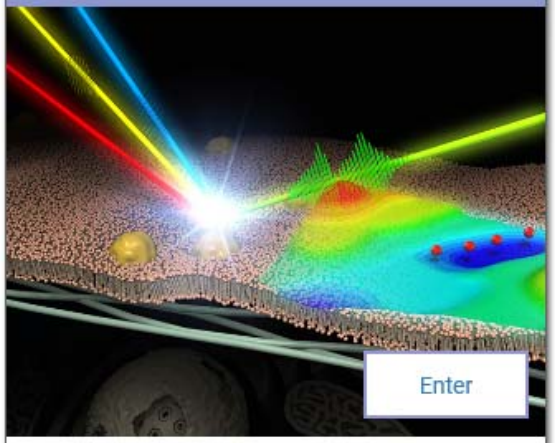
ULTRAFAST SPECTROSCOPY



Observation and elucidation of ultrafast molecular dynamics by advanced time-resolved spectroscopy

Hikaru Kuramochi

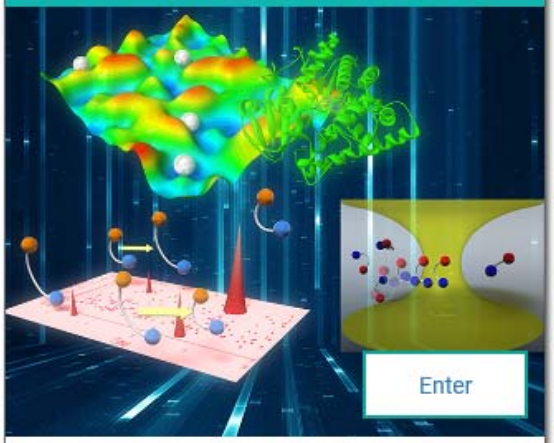
INTERFACE SPECTROSCOPY



Developments of novel inteface-selective nonlinear spectroscopies and elucidations of molecular mechanisms of interfacial phenomena

Satoshi Nihonyanagi

SINGLE-MOLECULE SPECTROSCOPY

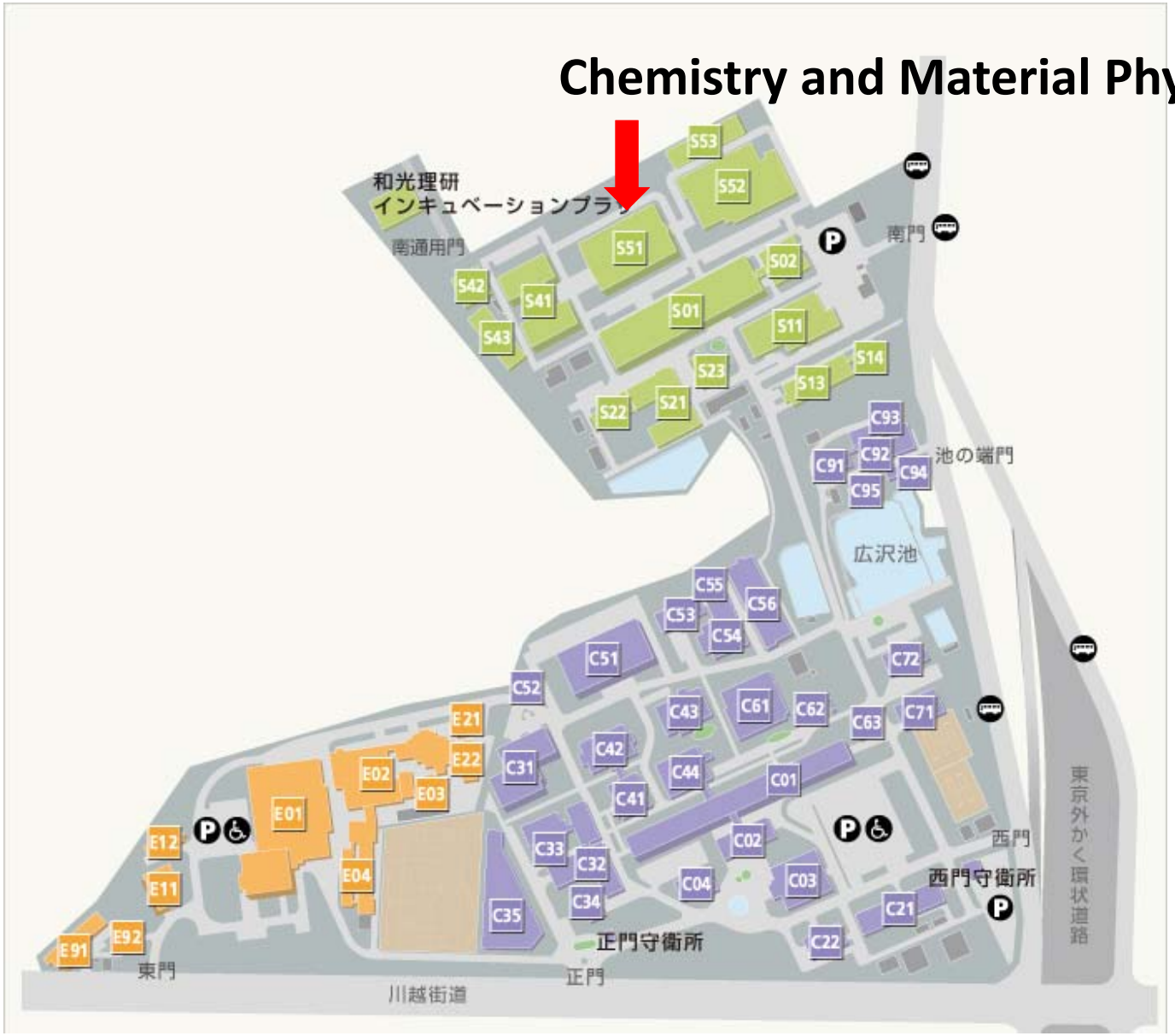


Development of novel single-molecule methods and application to elucidate complex behavior of biomolecular systems

Kunihiko Ishii

The Place for Lab Tour

Chemistry and Material Physics Bldg.



Gather at **S-402 (office)**

1st: 14:40 - 15:20

2nd: 15:30 - 16:10

Host
Dr. Kunihiko Ishii

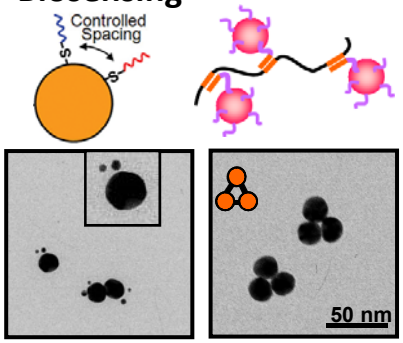
Bioengineering Laboratory

Lab Overview

DNA-directed Assembly of Nanomaterials

Takarada

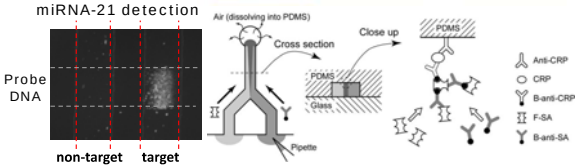
- Bioconjugate Chemistry
- Nucleic Acids Chemistry
- Biosensing



Bioanalytical Systems Engineering

Hosokawa

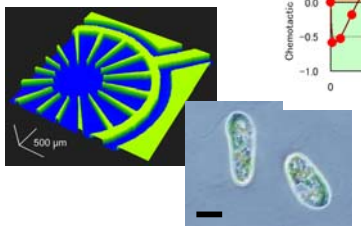
- Microfluidic Chips
- Immunodiagnosis
- MicroRNA Diagnostic Assay

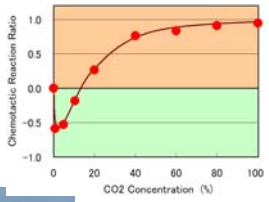


Microalgae in a Chip

Ozasa

- Stimulation to Cells
- Response of Cells
- Adaptation Anal.

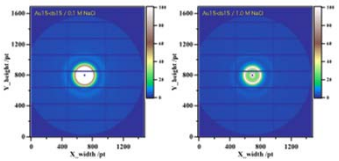




Nanomaterials for Genetic Diagnosis

Fujita

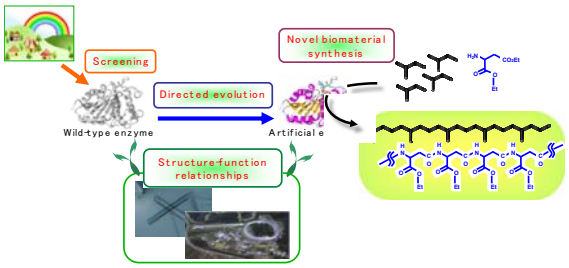
- Nanomaterials
- Polymer Chem. & Phys.
- X-ray Structural Analysis



Biomacromolecular Science

Hiraishi

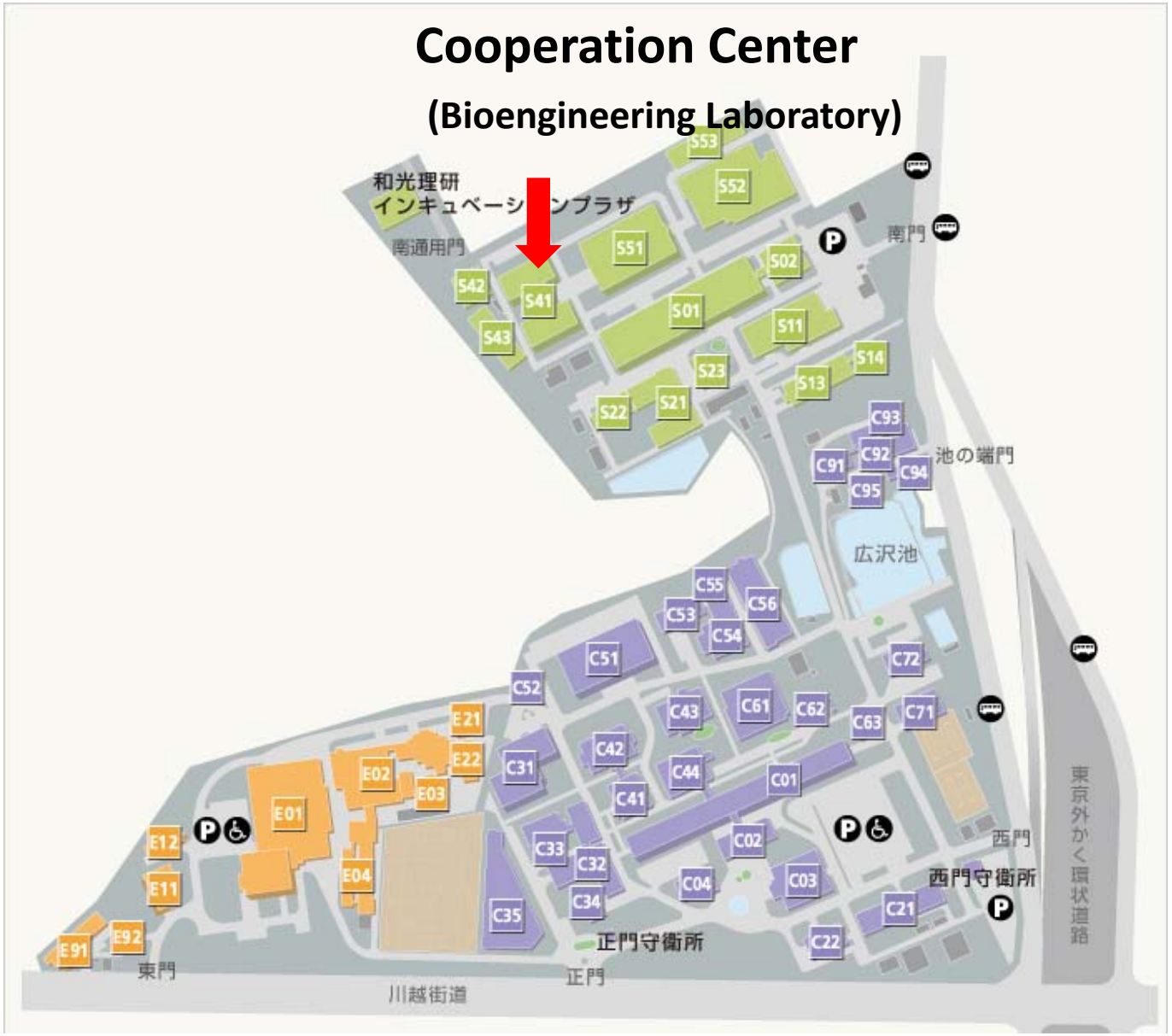
- Biodegradable Polymers
- Molecular Evolution Engineering



The Place for Lab Tour

Cooperation Center

(Bioengineering Laboratory)



Gather at
Room W216 (2F)

1st: 14:40 - 15:20

2nd: 15:30 - 16:10

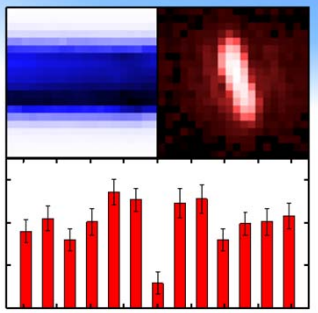
Host
Dr. Masahiro Fujita

Nanoscale Quantum Photonics Laboratory

RIKEN ExpRes

Lab Overview

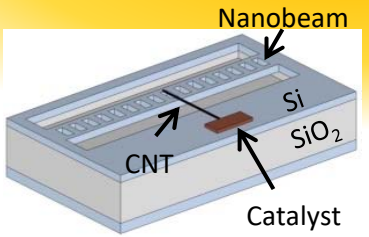
カーボンナノチューブの光物性
Optical properties of carbon nanotubes

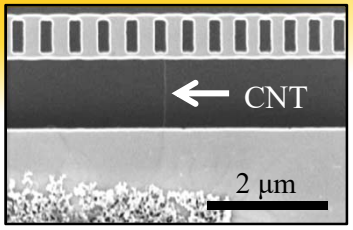


PL microscopy and photon correlation measurements

Single photon emitter

カーボンナノチューブ・フォトニクス
Carbon nanotube photonics

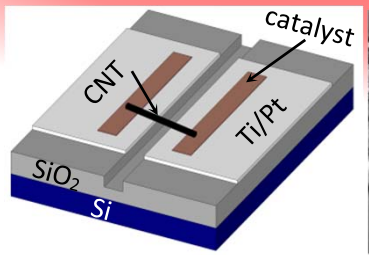


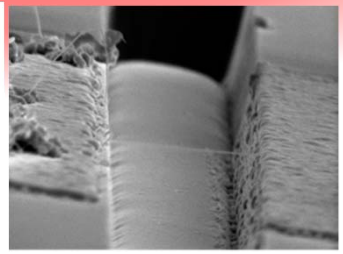


Optical coupling to silicon microcavities

CNT nano-laser

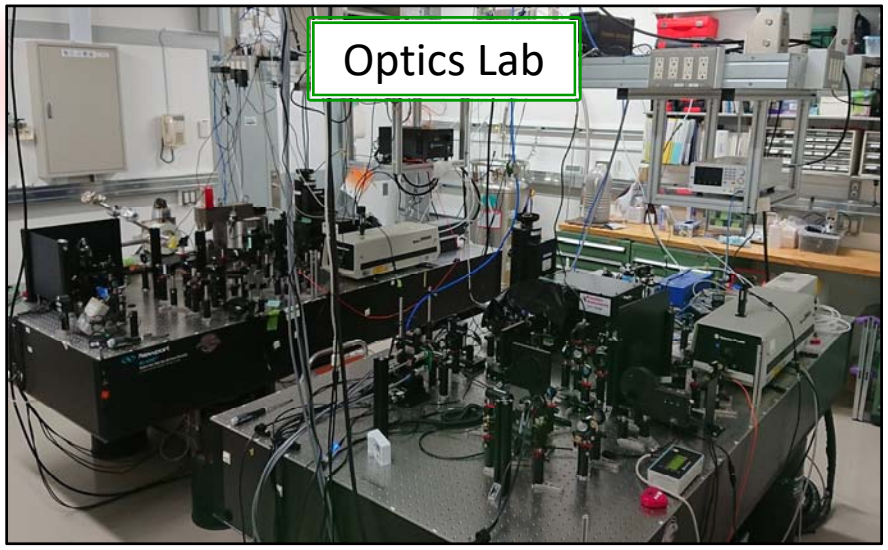
カーボンナノチューブ・オプトエレクトロニクス
Carbon nanotube optoelectronics





Electrical control of CNT emission properties

CNT LED



The Place for Lab Tour

Please gather at
Main Research Building (研究本館) Room 405

1st: 16:30 - 17:10

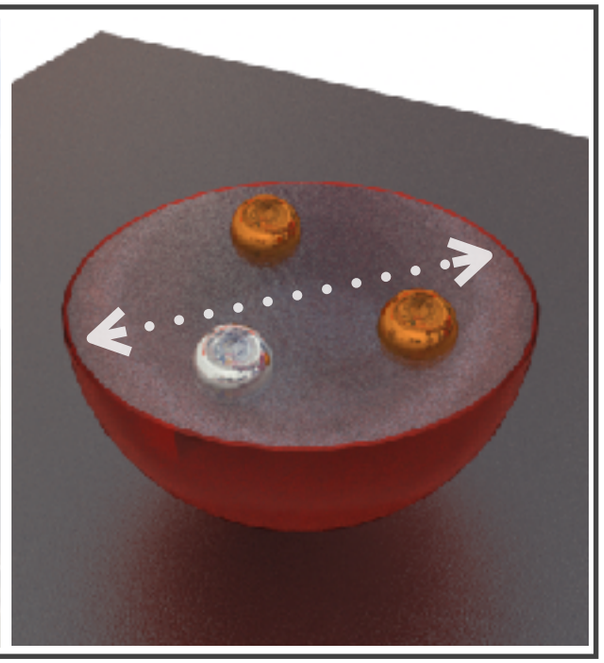
2nd: 17:20 – 18:00

Host
Yuichiro Kato
Shunsuke Tanaka
Keigo Otsuka

Meson Science Laboratory

Particle, Nuclear, and Condensed Matter Physics with Muon and Hadron Beam from Accelerators

muon

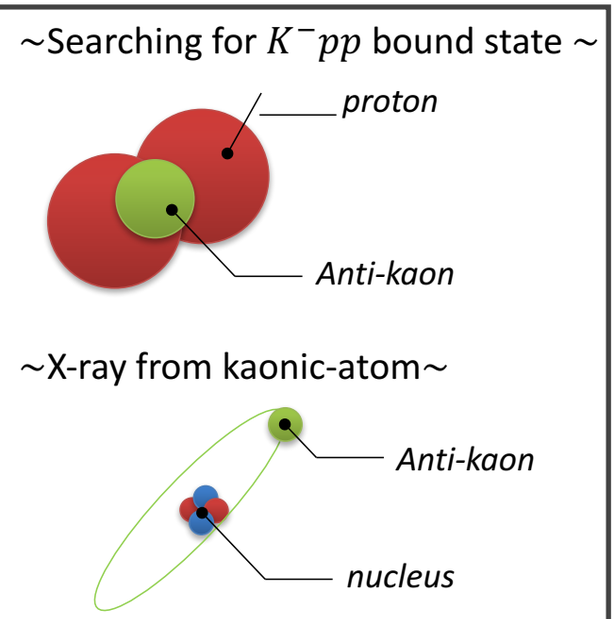


RIKEN-RAL (UK)　How large is proton?

Superconductivity, Magnetism
Size of proton
Search for new physics

hadron

J-PARC (Japan)　What is the nature of strong interaction?

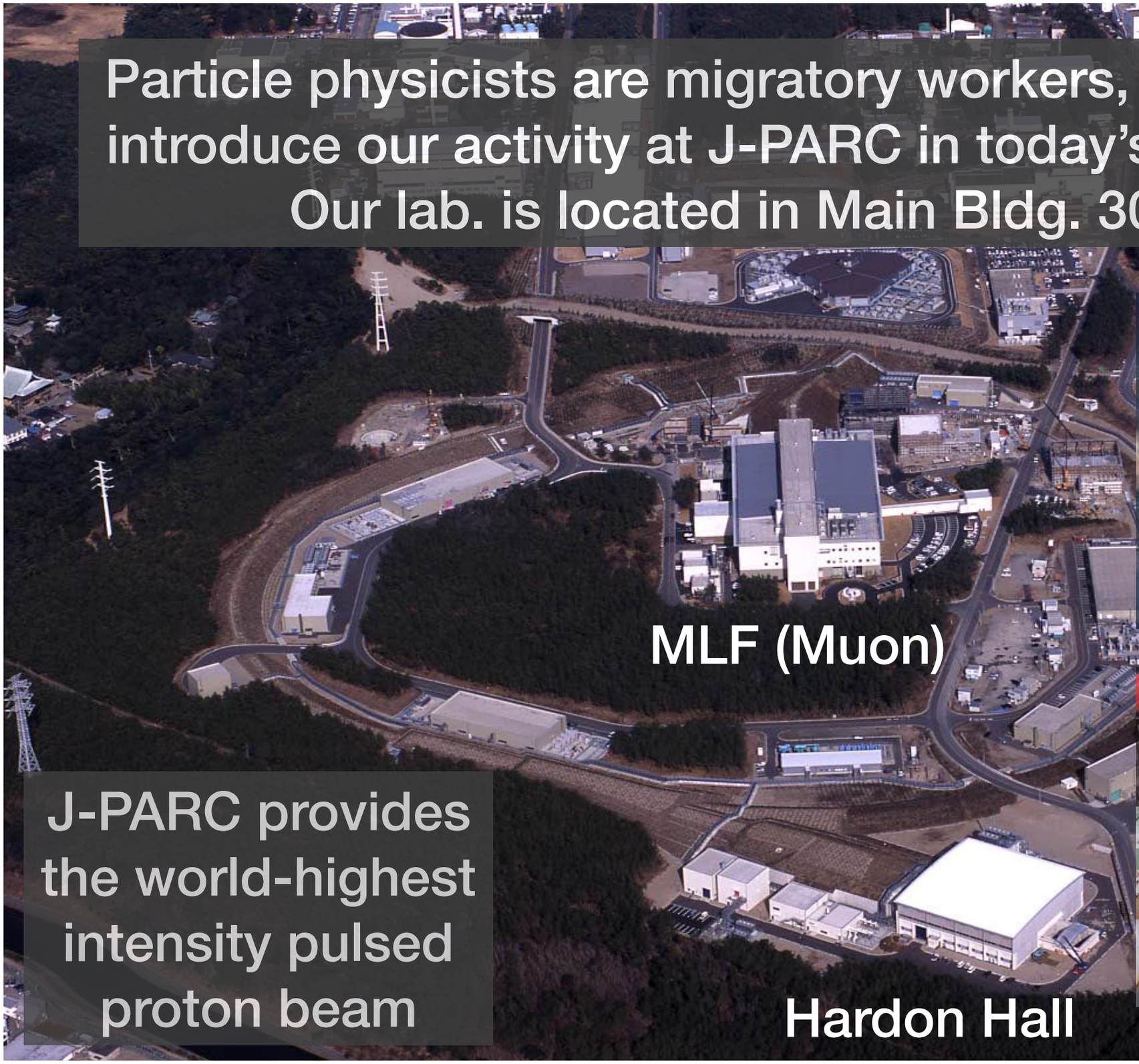


Hadron structure
Origin of mass
Strong interaction

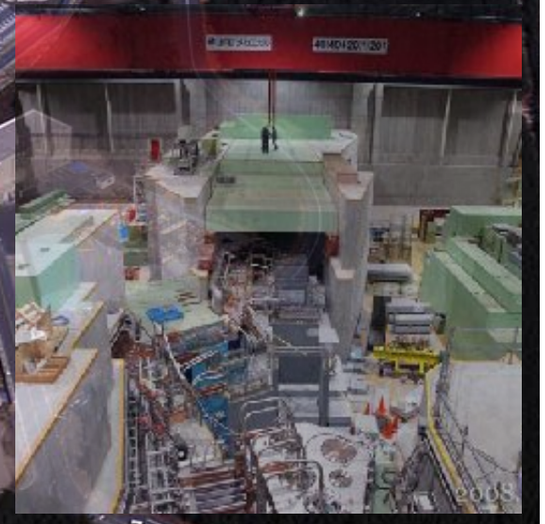
Further, we are running more experiments
at RIBF(RIKEN), GSI(Germany), and LEPS(SPring8).

Places for Laboratory Tour

Particle physicists are migratory workers, so we will introduce our activity at J-PARC in today's lab. tour. Our lab. is located in Main Bldg. 306.



MLF (Muon)



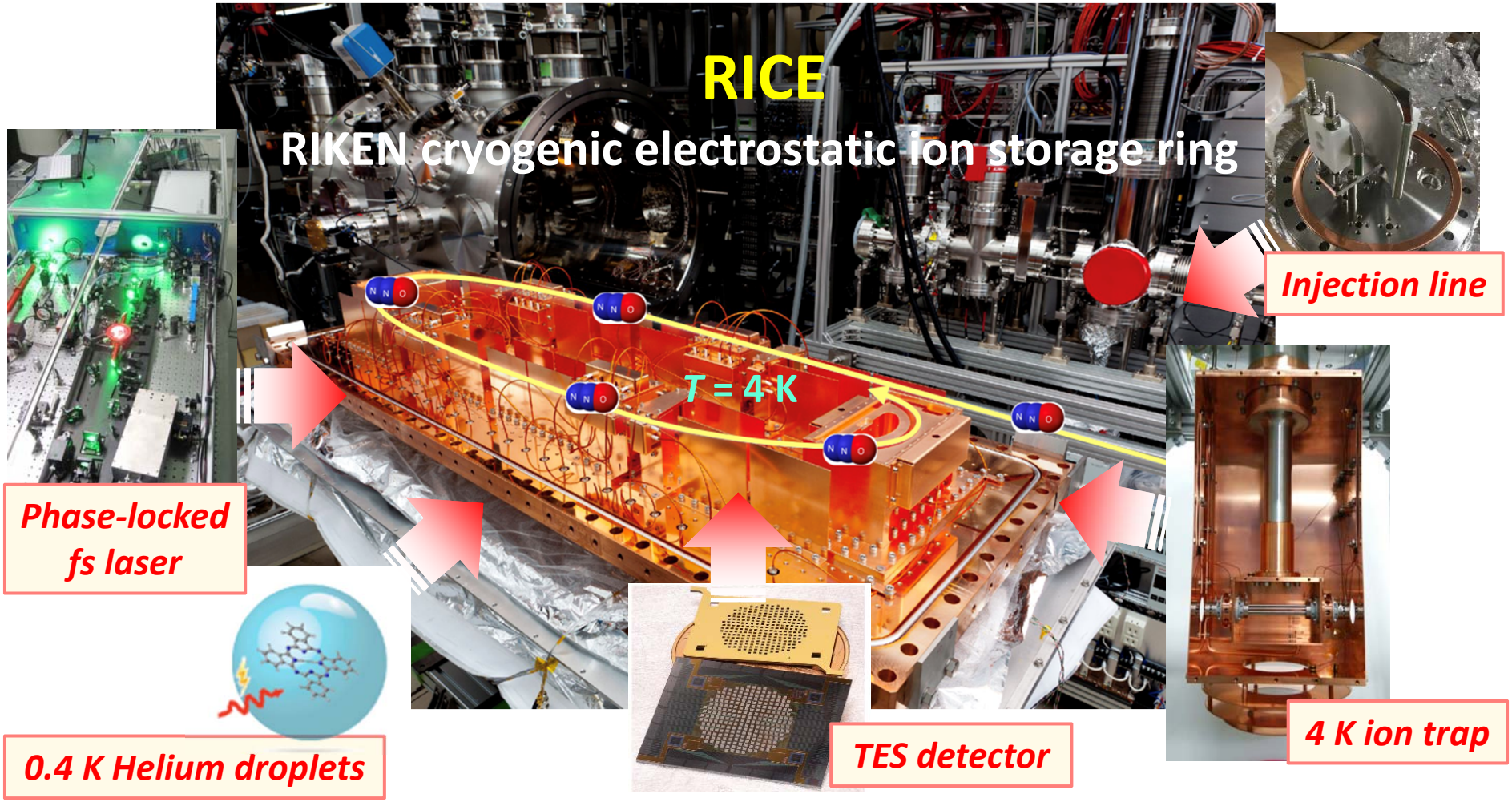
Hardon Hall

J-PARC provides the world-highest intensity pulsed proton beam

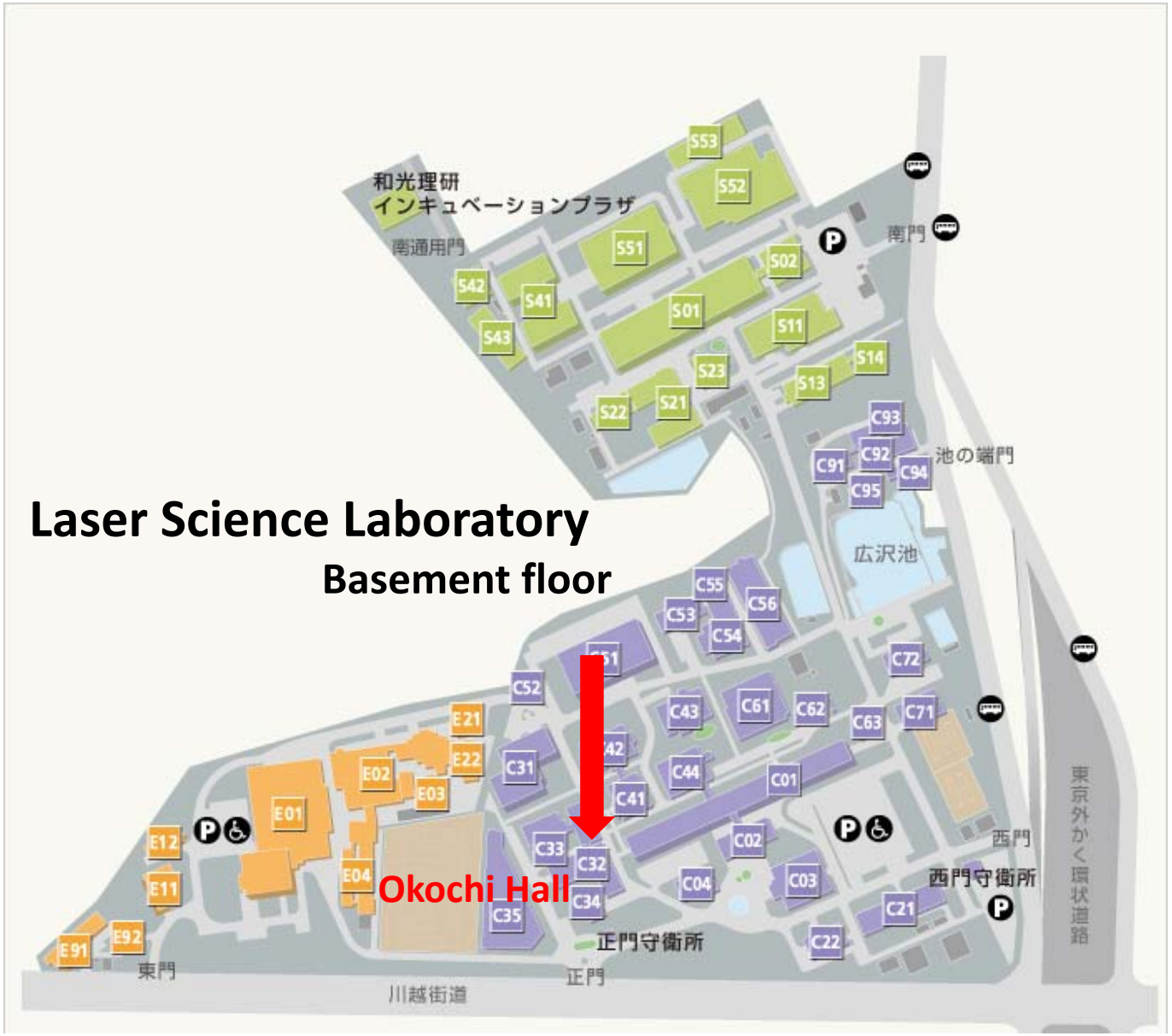
Atomic, Molecular and Optical Physics Lab.

Lab Overview

Exploring fundamental physical and chemical processes in the atomic and molecular scale using a variety of experimental techniques



The Place for Lab Tour



Gather at

Rm# B13/14

1st: 16:30 - 17:10

2nd: 17:20 - 18:00

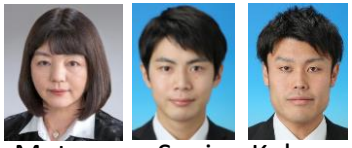
Host

Kiattichart Chartkunchand

Nuclear Spectroscopy Laboratory

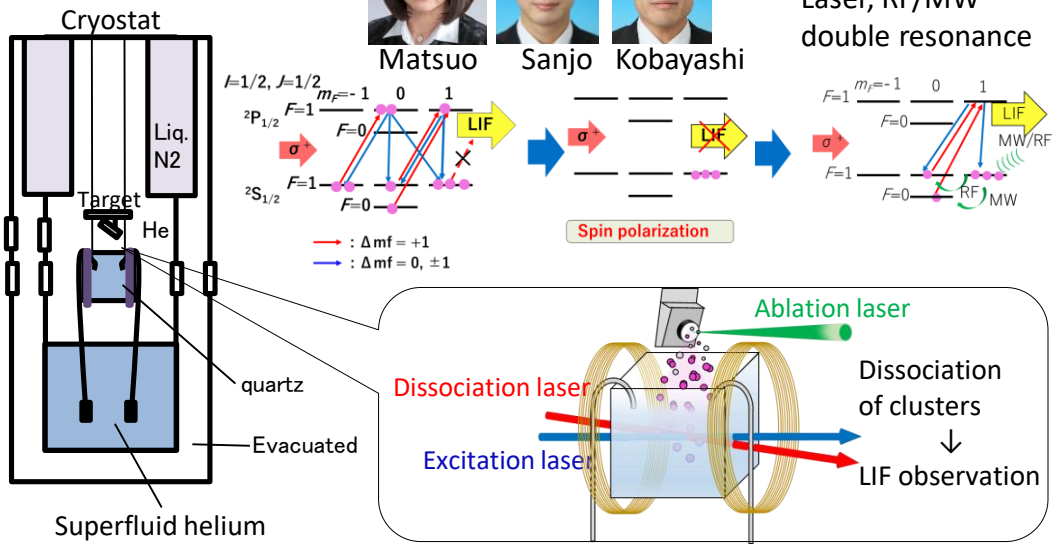
Keyword: Nuclear Spin, RI beams

- Atomic spectroscopy in superfluid helium


Matsuo

Sanjo

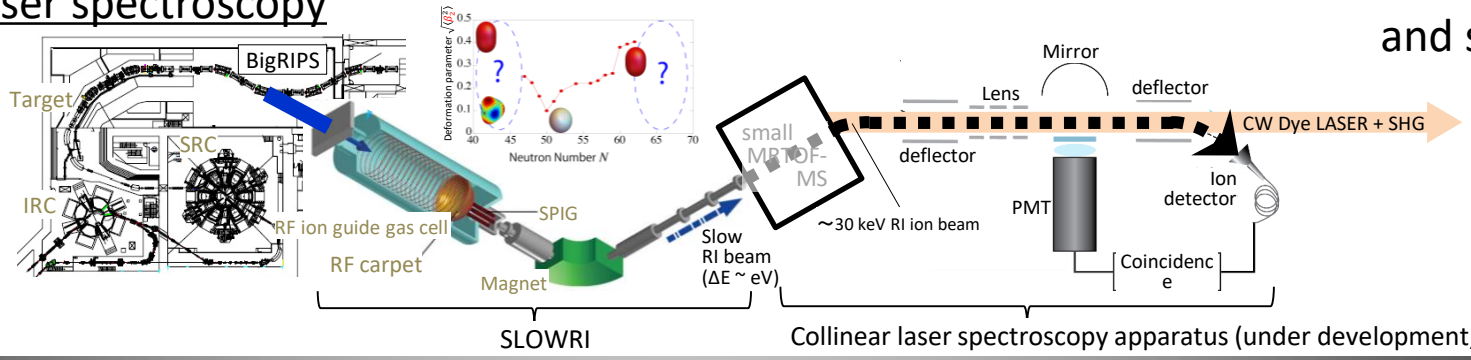
Kobayashi



- Collinear laser spectroscopy


Takamine

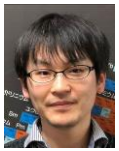

Tajima



- γ-Perturbed Angular Distribution


Ichikawa

- β-ray-detected NMR


Nishibata

- Isomer beam production


Kawata

- N-doped diamond

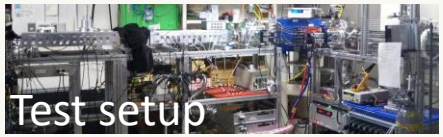

Yamazaki

- Electric dipole moment


Sato

and so on...

The Place for Lab Tour



1st Nishina RIBF Bldg.

2nd Laser Science Laboratory

1st: 16:30 - 17:10
RIBF facility (SRC, BigRIPS, SLOWRI), Collinear laser spectroscopy (test setup)
Gather at RIBF entrance

2nd: 17:20 - 18:00
Atomic spectroscopy in superfluid helium
Gather at Okochi Hall entrance

Laser system