

Policy of CACS

- Comprehensive Analysis Center for Science (CACS) is the shared core for science education and research at Saitama University.
- Users of CACS must observe rules to prevent accidents and troubles.

Comprehensive Analysis Center for Science (CACS)

Guidance

- About CACS
- Liquid nitrogen
- Instrumental analysis

Abstracts of CACS Jobs

- **Operations of instrumental analysis**
 - Management and maintenance of analytical instruments.
 - On demand elemental analysis.
 - Technical support of chemical reagent management system
- **Management of the radioisotope research facility**
 - Training course for using radio isotope
 - Surveillance of radiation dose in this facility
- **Management of the animal breeding room**
- **Management of experimental effluent and waste**
 - Collection of experimental waste
 - Check the water quality of drainage in this university

About CACS

Emergency instructions

- **Check the followings beforehand for an emergency.**
Evacuation route, emergency contact information, fire extinguisher, fire alarm, evacuation equipment
- **Notify another person in emergency.**

Business hours

★ Contact your **supervisor**

CACS

- CACS office (ext. 5102)

Radioisotope research center

- RI center office (ext. 4430)
- CACS office (ext. 5102)
- Radiation protection supervisor (5671)

Animal breeding room

- CACS office (ext. 5102)

Outside of service hours

★ Contact your **supervisor**

- Guard station (ext. 3125)
or (048-858-3006)

- Contact the radiation protection supervisor (ext. 5671)

★ You may register your supervisor's phone number in your mobile phone.

Map

Liquid nitrogen supply point
(East side of CACS Office)



Radioisotope research facility



Liquid waste treatment facility



CACS Office
Laboratories (3, 4F)



Animal breeding room



How to enter the CACS building after 8PM



1 F Entrance



3 F Entrance near the stairs

- **Allow entrance**
Requirement of application by supervisor (night time users only)

● **Entrance**
Touch the **Student ID** to the reader and enter

● **Exit**
Rotate the thumb turn lock on the entrance door and exit (**Student ID** card is not necessary)

IC Card

Points to note

Business hours

- Mon~Fri 9:00 ~ 17:00
- Closed on Sat, Sun, national holidays, summer and new year's holidays
- User can use CACS instruments outside of service hours (Night time 20:00 ~) only when application is received by CACS office.

Usage in holidays

- Faculty members are available to use in holidays only when application of **"holiday permit"** is received.
- Students: **not available**

Other notices



Emergency 3rd fl.



Supply of the liquid nitrogen

CACS provides liquid nitrogen to researchers and labs

- **Place** : Liquid nitrogen supply point (East side of CACS building)
- **Hours** : **Mon~Fri 9:00 ~ 17:00**
- **Closed** : **Sat, Sun, Holidays, designated day**
- **Notices**
 - Users must use own Dewar.
 - New user (Faculty member only) must submit to CACS prior to receive this service.
 - Fee is charged according to quantity of the collection.
 - We recommend to use over 10 liters sized Dewar.

5 liters usage fee will be charged when collecting under 5 liters.

Registration and utilization fee

CACS charges the registration and utilization fee

Registration fee

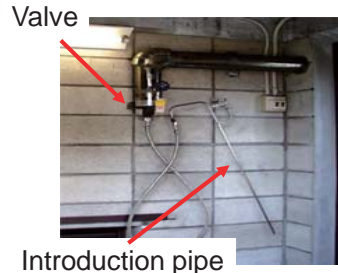
| | |
|--|------------|
| ● Instrumental analysis | |
| Professor, Associate professor, | |
| Lecturer, Researcher(Office Worker) | 15,000 Yen |
| Research associate, Researcher(Others) | 10,000 Yen |
| ● Radioisotope research facility | |
| Faculty members only | 20,000 Yen |
| ● Animal breeding room | |
| Faculty members only | 10,000 Yen |

Utilization fee

| | |
|-----------------------------|---|
| ● ICP | 20 Yen for every 5 min |
| ● NMR, MS, XPS, SEM, TEM | 10 Yen for every 5 min |
| ● Others | 5 Yen for every 5 min |
| ● Researcher(Office Worker) | 50 Yen for every 5 min (all analytical instruments) |

Instruction of collecting liquid nitrogen

1. Open with the card key at the entrance.
2. Keep the entrance door **open** while collecting liquid nitrogen not to be oxygen deprivation.
3. Wear the designated leather gloves to prevent **frostbite**.
4. Open the valve after **carefully** insert the stainless introduction pipe.
5. **Write down your collecting amount and informat on the note.**
6. Lock the door surely.



Card key



Card No.

Supply of the liquid nitrogen

To use radioactive materials

Users have to take a lecture, training and medical check.

Training, lecture and medical check

Please refer to the staff of CACS.

Points to note

- Do not collect small amount.
Fifty percent of the total collecting amount will be evaporated.
- Do not touch.
- **Keep ventilated to avoid oxygen deprivation.**
- Do not use elevator accompanying with liquid nitrogen.
- Do not seal the container.
- **Please collect in the morning if collecting large amount of liquid nitrogen (over 50 liters).**

To use the animal breeding room

Users have to take a lecture, training.

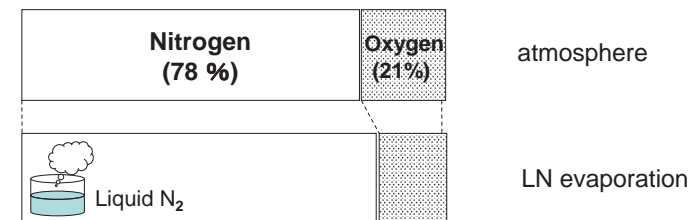
Training and lecture

Please refer to the staff of CACS.

Animal memorial ceremony

Ceremony will be held on Oct

Liquid nitrogen cause risk of oxygen deprivation!



| Level | Oxygen concentration (%) | Symptoms |
|-------|--------------------------|--------------------------------|
| 1 | 16 ~ 12 | Headache, ear noises, nausea |
| 2 | 14 ~ 9 | Intoxication, light-headedness |
| 3 | 10 ~ 6 | Loss of consciousness |
| 4 | below 5 | Coma, stun |

Requirements to use the analytical instruments of CACS

Users have to take a license to use the instrument.

There are categories of restriction of the use of certain instruments.

- Faculty members only
- Doctor's course student and above
- Master's course student and above
- 4th grade of undergraduate student and above

Please refer to the staff of CACS.

Guidance of experimental waste treatment & chemical reagent management system

Faculty member, students and researcher of science field in this university have to understand how to discharge of experimental waste and how to use chemical reagent management system.

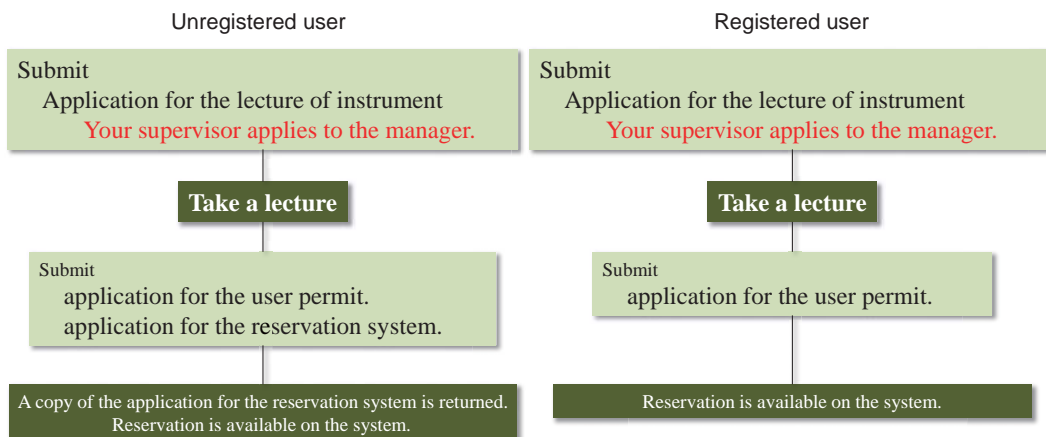
April 17 14:40 – 16:10

April 22 14:40 – 16:10

At Theater room

How to get licence

Please take a lecture from the manager.



Using the analytical instruments of CACS

Download site of the document (Japanese only)



License can be upgraded depending on the number of use of devices by himself/herself.

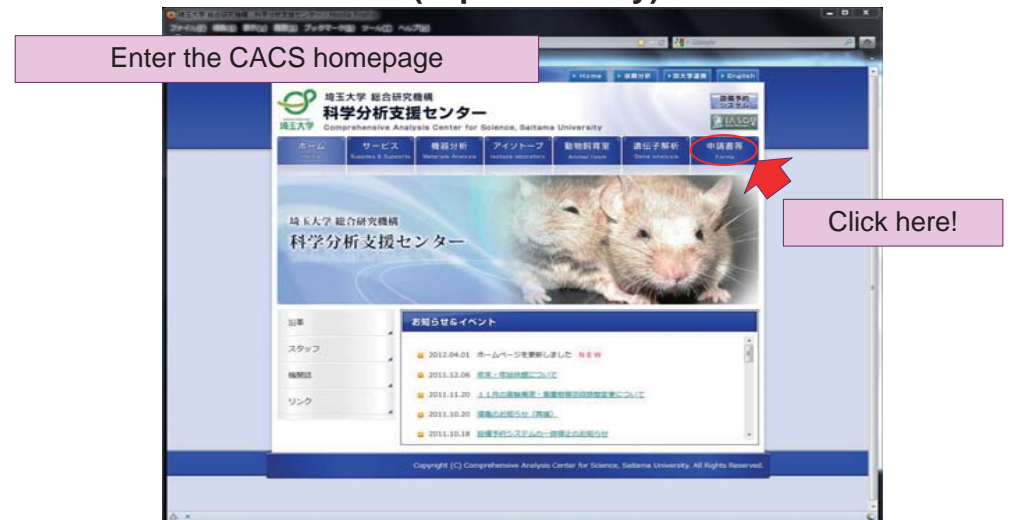
《 Example; License for the use of Scanning electron microscope (SEM)》

| | Original license | Upgrade 1 Five-time use of SU1510 by himself/herself is required. | Upgrade 2 Five-time use of S-3400N by himself/herself is required. |
|---------------------------------|------------------|--|---|
| Master Course Students or above | SU1510 | SU1510 + EDX | S-3400N + EDX (SU1510+EDX Licensees only) |
| Faculty only | | S-3400N | S-4100 |
| | | S-4800 | |

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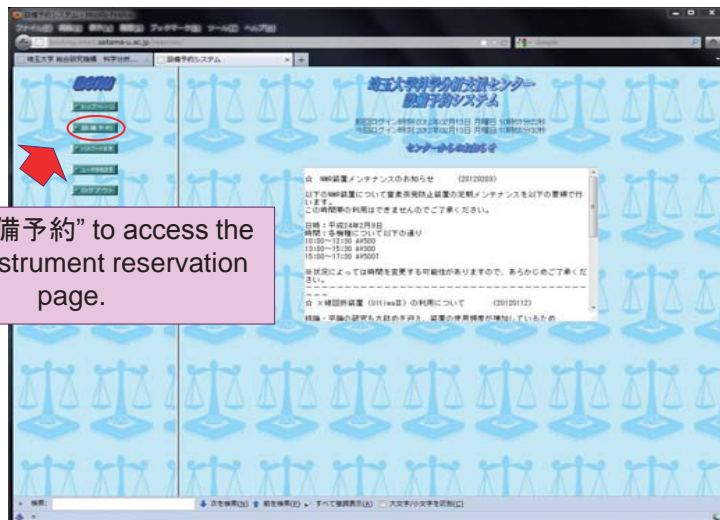
Instructions for use of the instrument reservation system



enter your ID and password, then click “ログイン” to access the instrument reservation system.

Instructions for use of the instrument reservation system

Instructions for use of the instrument reservation system



Click “設備予約” to access the actual instrument reservation page.

Instructions for use of the instrument reservation system

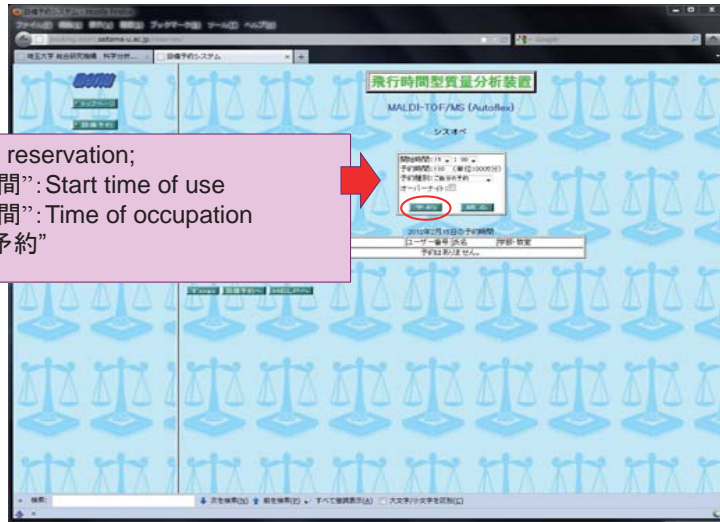
Enter the CACS homepage



Click here!

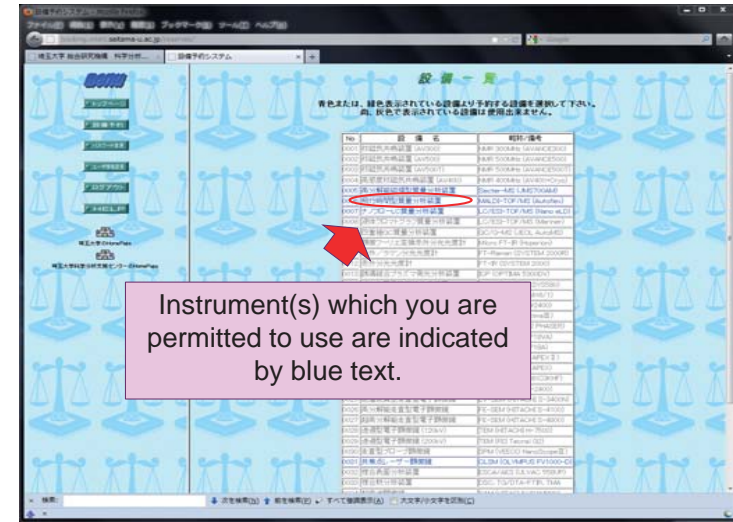
Instructions for use of the instrument reservation system

Input data of reservation;
 “開始時間”: Start time of use
 “予約時間”: Time of occupation
 Then click “予約”



Instructions for use of the instrument reservation system

Instrument(s) which you are permitted to use are indicated by blue text.



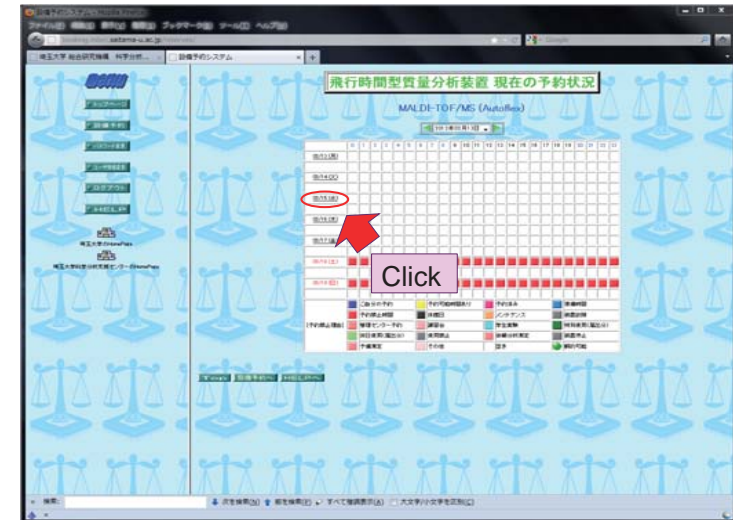
Instructions for use of the instrument reservation system

Please make sure whether your reservation is correct.
 Correct: click “OK”
 Incorrect or discard reservation: click “キャンセル”

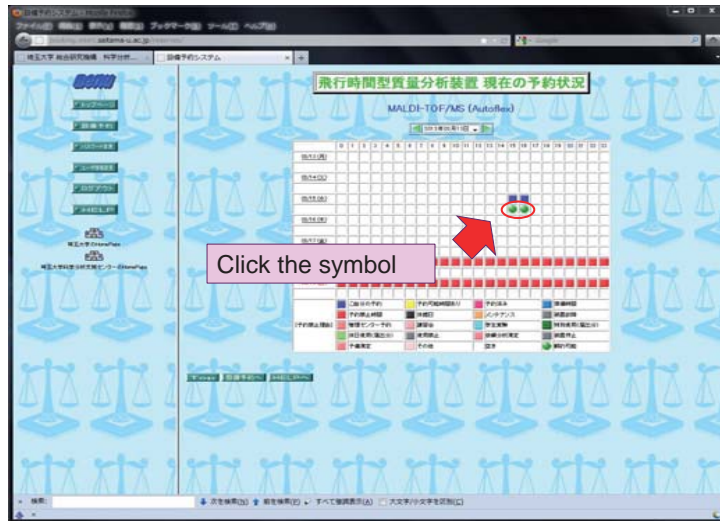


Instructions for use of the instrument reservation system

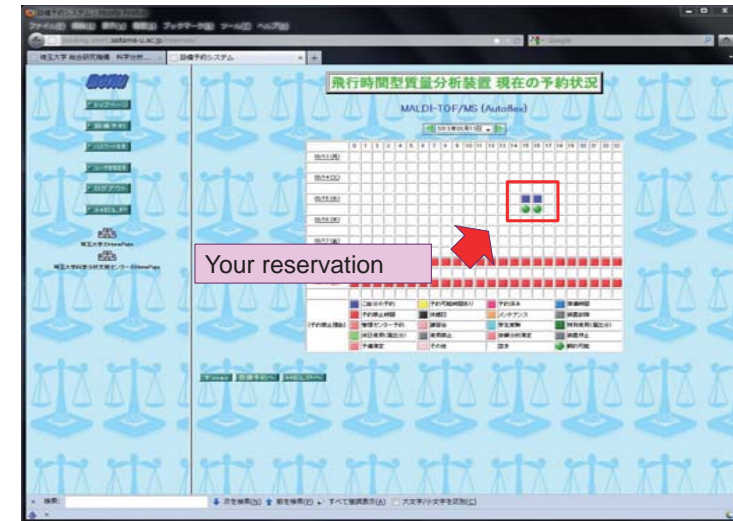
Click



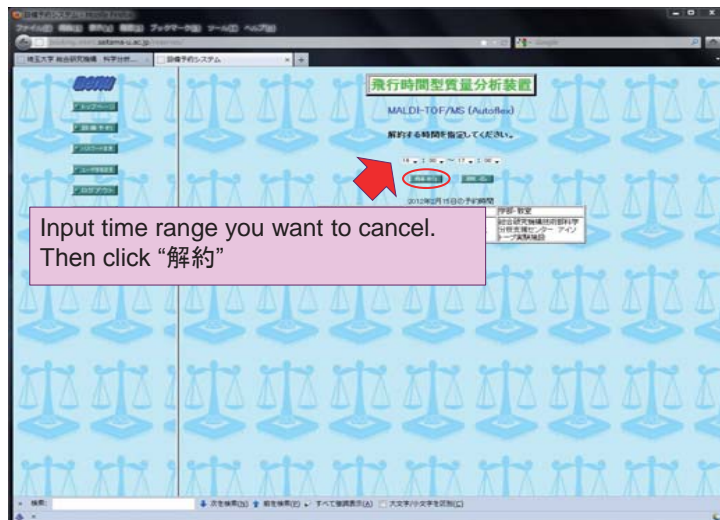
Cancellation of the reservation



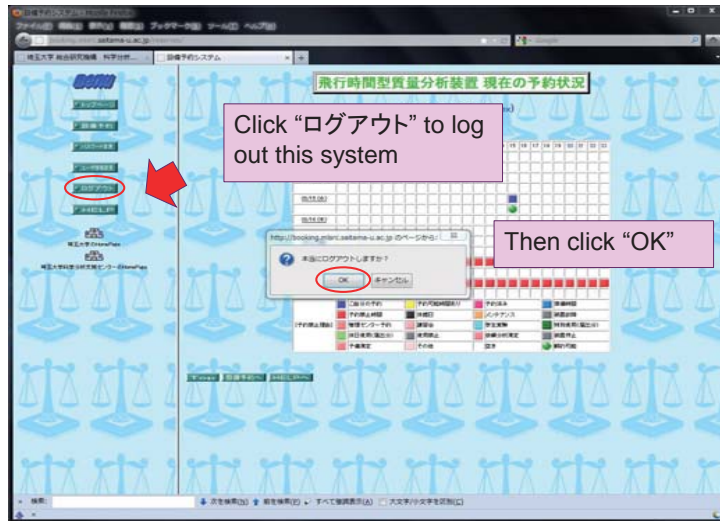
Instructions for use of the instrument reservation system



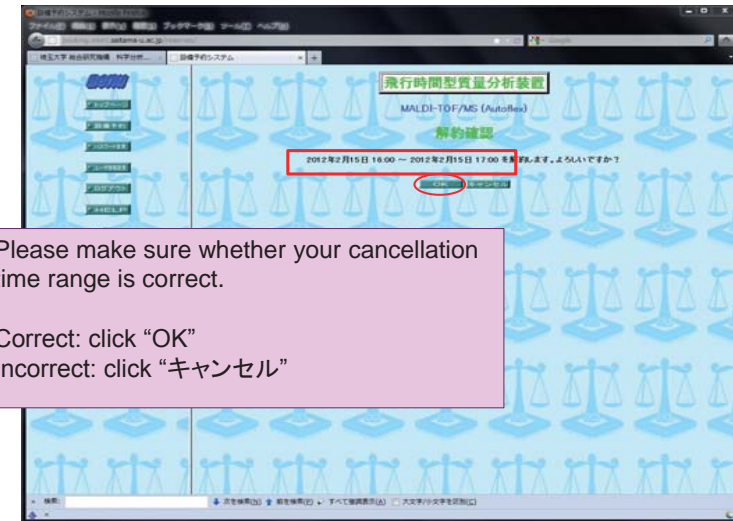
Cancellation of the reservation



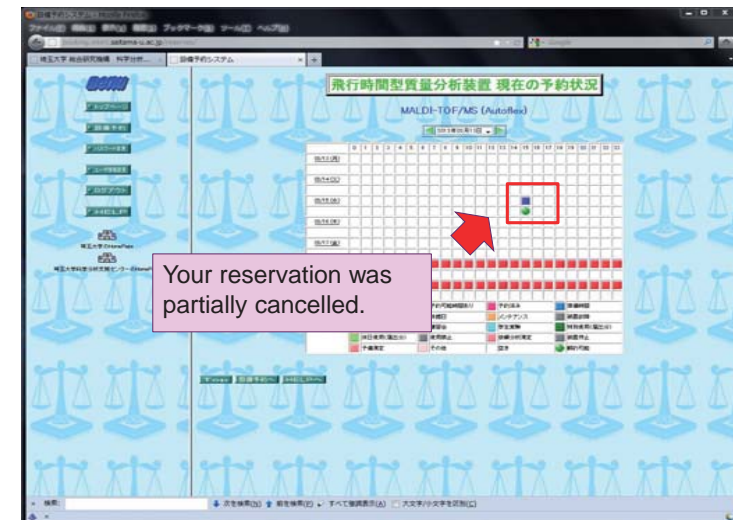
Cancellation of the reservation

Logout (**Don't forget to logout**)

Cancellation of the reservation



Other notifications



Instructions for use of the instrument reservation system

Cautions on deal with high pressure gas

- Nitrogen, helium, oxygen, argon gas → distribution through plumbing from the first floor cylinder storage.
- Submit application for a **special measurement permission** to the CACS office when bring a gas cylinder to the center.
- Use anti-tip for a high pressure gas cylinder.
- Please double-check the valve closed when changing cylinders
- Keep fixed when the empty cylinders put on the floor.
- Pay attention to the fire, explosion, oxygen deficiency.

Note to use Poisonous and Deleterious substances

- Please submit application for a **special measurement permission** when using following materials.
 - Flammable substances
 - Explosive substances
 - Poisonous and Deleterious substances
 - Volatile bad smell substances
 - Stimulating substances
- Notify other people who is in the same room know about the using substances. And prepare for the emergency such as,
 - How to use fire distinguisher for flammable substances.
 - How to clean Poisonous and Deleterious substances
 - How to clean volatile bad smell substances.

Cautions around the NMR (Nuclear Magnetic Resonance)

- Do not bring magnetic body or substance (e.g., clips, credit card etc)
- Pacemaker users should not enter the NMR room
- Use non-magnetic fire distinguisher when fire occurs
- Superconducting magnet can be quenched or fall down when earthquake occurs.
- Please evacuate immediately when emergency happened.

General attention

- Do analysis under your supervisor's responsibility.
- Make a reservation by **instrumental reservation system** before use. Do not reserve too much.
- Follow the manual when using the machine.
- Fill out a record note after the analysis.
- Keep clean around the instrument to prevent any accident.
- Contact CACS staff immediately when accident happened. Follow the instructions.
- Lending user ID and reservation time ,between users forbids.
- Users have to prepare their own sample and consumable materials by themselves.
- Bring back all the consumable materials.
- Keep away from instruments and apparatus such as generator of X-ray or magnetic field.
- Use the machine by over two persons when making dangerous measurement.
- Please leave a memo on the instrument when operating continuous measurement without person.
- Other notices



When NMR emergency happened...

White smoke coming out from the NMR
Alert starts



Leave the door open



Notify others for the emergency



Escape immediately!



Thank you for your attention!