

Comprehensive Analysis Center for Science (CACS)

Guidance

- About CACS
- Liquid nitrogen
- Instrumental analysis

About CACS

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.

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

Map

Radioisotope research facility



Liquid waste treatment facility



Liquid nitrogen supply point
(East side of CACS Office)



Animal breeding room



CACS Office
Laboratories (3, 4F)



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.

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.

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

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)

Supply of the liquid nitrogen

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.

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.

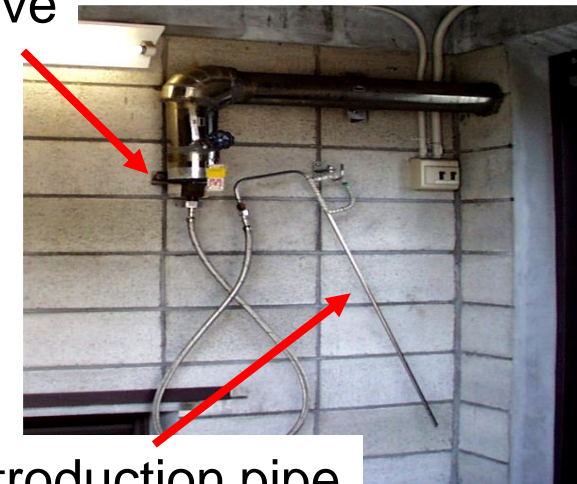


Card key



Card No.

Valve

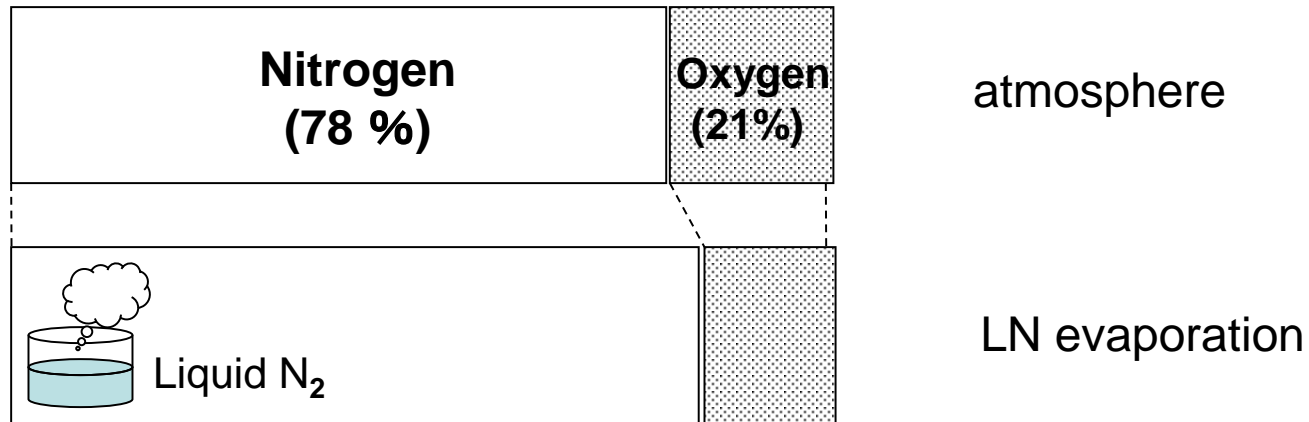


Introduction pipe

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).**

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

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.

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

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

Using the analytical instruments of CACS

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.

How to get licence

Please take a lecture from the manager.

Unregistered user

Submit
Application for the lecture of instrument
Your supervisor applies to the manager.

Take a lecture

Submit
application for the user permit.
application for the reservation system.

A copy of the application for the reservation system is returned.
Reservation is available on the system.

Registered user

Submit
Application for the lecture of instrument
Your supervisor applies to the manager.

Take a lecture

Submit
application for the user permit.

Reservation is available on the system.

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

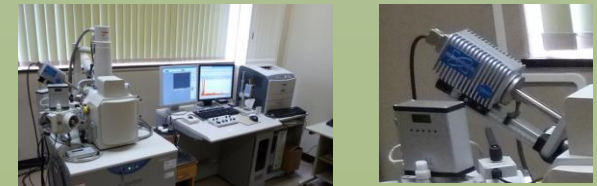
Five-time use of **S-3400N** by himself/herself is required.



SU1510



SU1510 + EDX



S-3400N + EDX
(SU1510+EDX Licensees only)



S-3400N



S-4100



S-4800

Master Course Students
or above

Faculty
only

Download site of the document (Japanese only)

Enter the CACS homepage

The screenshot shows the homepage of the Comprehensive Analysis Center for Science, Saitama University. The browser window title is "埼玉大学 総合研究機構 科学分析支援センター - Mozilla Firefox". The page features a navigation menu with the following items: ホーム (Home), サービス (Supplies & Supports), 機器分析 (Materials Analysis), アイソトープ (Isotope laboratory), 動物飼育室 (Animal room), 遺伝子解析 (Gene analysis), and 申請書等 (Forms). The "Forms" link is circled in red, and a red arrow points to it from a pink box containing the text "Click here!". Below the navigation menu is a banner image of two mice. To the left of the banner is a sidebar with links for 沿革 (History), スタッフ (Staff), 機関誌 (Journal), and リンク (Links). To the right of the banner is a section titled "お知らせ&イベント" (Notice & Event) with a list of recent updates:

- 2012.04.01 ホームページを更新しました NEW
- 2011.12.06 年末・年始休館について
- 2011.11.20 11月の実験廃液・廃棄物等回収時間変更について
- 2011.10.20 停電のお知らせ(再掲)
- 2011.10.18 設備予約システムの一時停止のお知らせ

At the bottom of the page, the copyright notice reads: "Copyright (C) Comprehensive Analysis Center for Science, Saitama University. All Rights Reserved."

Click here!

Download site of the document (Japanese only)



申請書 | 埼玉大学 総合研究機構 科学分析支援センター - Mozilla Firefox
www.misrc.saitama-u.ac.jp/new/forms.html

Home 依頼分析 四大学連携 English

埼玉大学 総合研究機構
科学分析支援センター
Comprehensive Analysis Center for Science, Saitama University

設備予約システム
IASOR

ホーム Home サービス Supplies & Supports 機器分析 Materials Analysis アイソトープ Isotope laboratory 動物飼育室 Animal room 遺伝子解析 Gene analysis 申請書等 Forms

申請書等 Forms

サービス

機器分析

アイソトープ

動物飼育室

規則等

サービス

申請書名	フォーマット	用途
廃液処理システムガイダンス資料	PDF	
薬品管理システムガイダンス資料	PDF	
分析機器及び料金表 (別表1)	PDF	依頼分析 (学外向け)
分析依頼申込書 (別紙様式1)	PDF	依頼分析 (学外向け)
支払い・結果等 (別紙様式2-4)	PDF	依頼分析 (学外向け)
総合研究機構 科学分析支援センター分析取扱細則	PDF	依頼分析 (学外向け)
お試し依頼分析申込書	PDF	お試し依頼分析 (学内向け)

機器分析

由請求文 フォーマット 用途

Download site of the document (Japanese only)

The screenshot shows a web browser window displaying a page from the Comprehensive Analysis Center for Science. The page is titled "機器分析" (Instrument Analysis) and contains a table of application forms. The table has three columns: "申請書名" (Application Form Name), "フォーマット" (Format), and "用途" (Usage). Several rows are highlighted with red lines, and their corresponding download icons (PDF and DOC) are circled in red.

申請書名	フォーマット	用途
利用ガイダンス資料	PDF	
予約システム利用申請書	PDF, DOC	予約システムの利用時、及び更新時に提出する申請書
入退室管理システム・カード申請書	XLS	科学分析支援センターに平日夜間、土日（教職員のみ）に入室を希望する場合 アイソトープ実験施設を利用する場合 動物飼育室を利用する場合
装置講習申込書	PDF	利用したい装置の講習を希望する際に提出する申請書
測定者認定申請書 (教職員用)	PDF, DOC	講習を受けた機器を使用する際に提出する申請書
測定者認定申請書 (学部・大学院生用)	PDF, DOC	講習を受けた機器を使用する際に提出する申請書
特別測定許可申請書	PDF, DOC	特別な測定を実施する際に必要な申請書
休日・特別使用申請書	PDF, DOC	休日及び特にセンター機器、部屋を利用する際に提出する書類
時間外使用届	PDF, DOC	平日の規定時間外にセンター設備等を利用する際に提出する書類
NMR使用規則	PDF	
ケンブリッジ結晶構造データベース 利用登録申請書	PDF, DOC	ケンブリッジ結晶構造データベースを利用する際に提出する書類
MALDI/TOF-MS (AutoflexIII) 測定依頼書	PDF, DOC	MALDI/TOF-MSの測定を依頼する際に提出する書類
装置共同利用申込書	XLS	四大学機器相互利用で、分析機器の利用を申し込む際に提出する書類

Instructions for use of the instrument reservation system

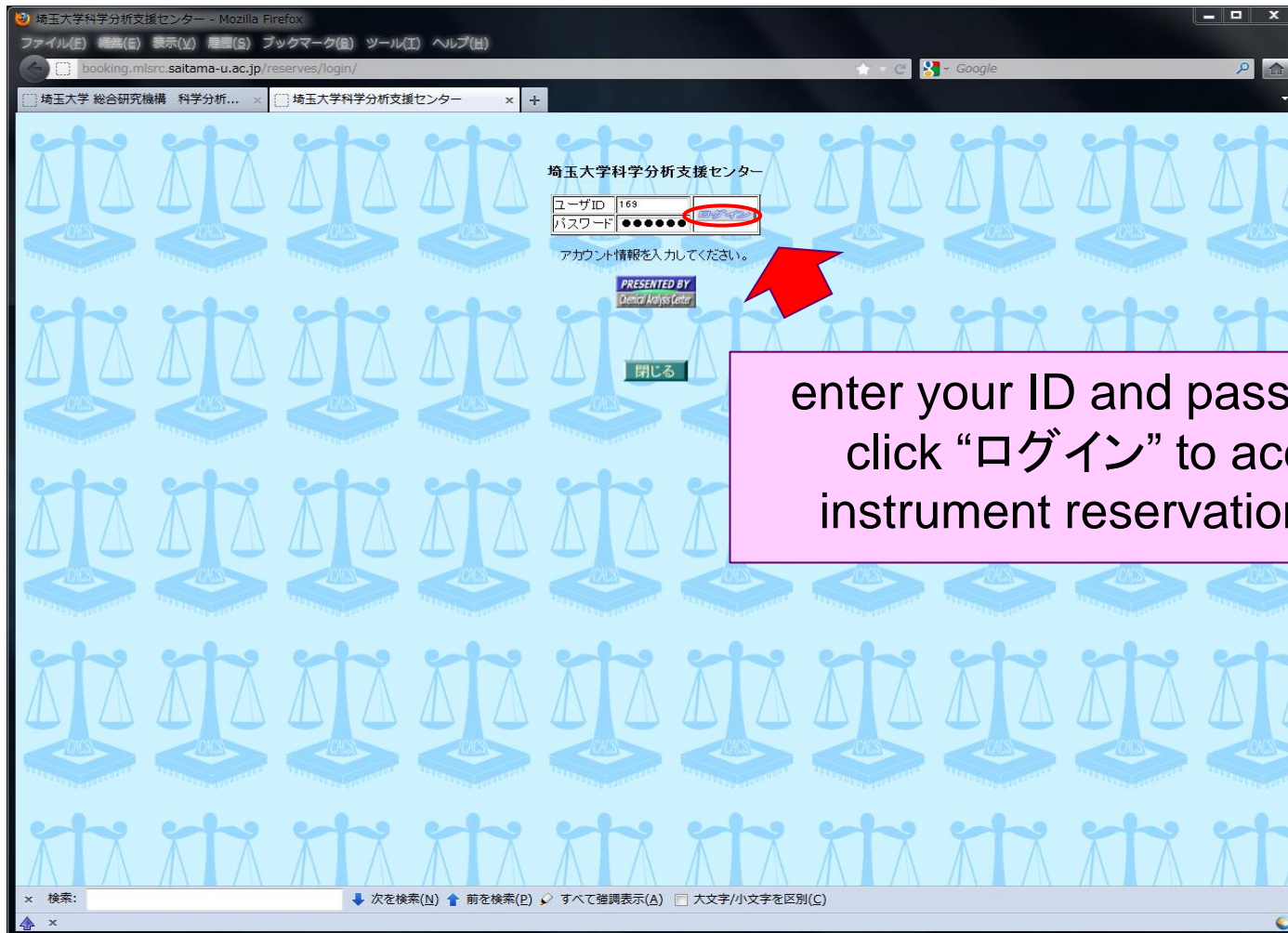
Instructions for use of the instrument reservation system

Enter the CACS homepage

The screenshot shows the homepage of the Comprehensive Analysis Center for Science, Saitama University. The browser address bar displays www.misrc.saitama-u.ac.jp/new/index.html. The page features a navigation menu with links for Home, 依頼分析 (Request Analysis), 四大学連携 (Four University Cooperation), and English. A red circle highlights the link for the reservation system (設備予約システム), which is also pointed to by a red arrow. Below the navigation menu, there are buttons for Home, サービス (Services), 機器分析 (Materials Analysis), アイソトープ (Isotope Laboratory), 動物飼育室 (Animal Room), 遺伝子解析 (Gene Analysis), and 申請書等 (Forms). The main content area includes a banner image of two mice and a section titled お知らせ&イベント (Notice & Event) with a list of recent updates.

Click here!

Instructions for use of the instrument reservation system



埼玉大学科学分析支援センター

ユーザID 169

パスワード ●●●●●●

アカウント情報を入力してください。

PRESENTED BY
Chemical Analysis Center

閉じる

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

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

Instructions for use of the instrument reservation system

青色または、緑色表示されている設備より予約する設備を選択して下さい。
尚、灰色で表示されている設備は使用出来ません。

No.	設備名	略称/備考
0001	核磁気共鳴装置 (AV300)	NMR 300MHz (AVANCE300)
0002	核磁気共鳴装置 (AV500)	NMR 500MHz (AVANCE500)
0003	核磁気共鳴装置 (AV500T)	NMR 500MHz (AVANCE500T)
0004	高感度核磁気共鳴装置 (AV400)	NMR 400MHz (AV400+Cryo)
0005	高分解能磁場型質量分析装置	Sector-MS (JMS700AM)
0006	飛行時間型質量分析装置	MALDI-TOF/MS (Autoflex)
0007	ナノフローLC質量分析装置	LC/ESI-TOF/MS (Nano eLD)
0008	液体クロマトグラフ質量分析装置	LC/ESI-TOF/MS (Mariner)
0009	四重極GC質量分析装置	GC/G-MS (JEOL AutoMS)
0010	顕微フーリエ変換赤外分光光度計	Micro FT-IR (Hyperion)
0011	赤外ラマン分光光度計	FT-Raman (SYSTEM 2000R)
0012	赤外分光光度計	FT-IR (SYSTEM 2000)
0013	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0014	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0015	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0016	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0017	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0018	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0019	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0020	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0021	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0022	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0023	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0024	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0025	誘導結合プラズマ発光分析装置	ICP (OPTIMA 5300DV)
0026	高分解能走査型電子顕微鏡	FE-SEM (HITACHI S-4100)
0027	超高分解能走査型電子顕微鏡	FE-SEM (HITACHI S-4800)
0028	透過型電子顕微鏡 (120kV)	TEM (HITACHI H-7500)
0029	透過型電子顕微鏡 (200kV)	TEM (FEI Tecnai G2)
0030	走査型プローブ顕微鏡	SPM (VEECO NanoScope III)
0031	共焦点レーザー顕微鏡	CLSM (OLYMPUS FV1000-D)
0032	複合表面分析装置	ESCA/AES (ULVAC 558UP)
0033	複合熱分析装置	DSC, TG/DTA-FTIR, TMA
0034	複合熱分析装置	DSC, TG/DTA-FTIR, TMA

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

Instructions for use of the instrument reservation system

飛行時間型質量分析装置 現在の予約状況

MALDI-TOF/MS (Autoflex)

2012年02月13日

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
02/13 (月)																								
02/14 (火)																								
02/15 (水)																								
02/16 (木)																								
02/17 (金)																								
02/18 (土)																								
02/19 (日)																								

Click

自分の予約	予約可能時間あり	予約済み	準備時間
予約禁止時間	休館日	メンテナンス	装置故障
管理センター予約	講習会	学生実験	特別使用(届出分)
休日使用(届出分)	使用禁止	依頼分析測定	装置停止
予備測定	その他	空き	解約可能

Top 設備予約へ HELPへ

検索: [検索ボタン] 次を検索(N) 前を検索(P) すべて強調表示(A) 大文字/小文字を区別(C)

Instructions for use of the instrument reservation system

設備予約システム - Mozilla Firefox
booking.misrc.saitama-u.ac.jp/reserves/

メニュー
・ トップページ
・ 設備予約

飛行時間型質量分析装置
MALDI-TOF/MS (Autoflex)

システム

開始時間: 15 : 00
予約時間: 120 (単位: 0005分)
予約種別: ご自分の予約
オーバーナイト:

予約 戻る

2012年2月15日の予約時間
ユーザー番号 | 氏名 | 学部・教室
予約はありません。

検索: [検索ボタン] 次を検索(N) 前を検索(P) すべて強調表示(A) 大文字/小文字を区別(C)

Top | 設備予約へ | HELPへ

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

設備予約システム - Mozilla Firefox
booking.misrc.saitama-u.ac.jp/reserves/

飛行時間型質量分析装置
MALDI-TOF/MS (Autoflex)

予約確認

2012年2月15日 15:00 ~ 2012年2月15日 17:00(ご自分の予約) で予約します。よろしいですか？

OK キャンセル

Please make sure whether your reservation is correct.

Correct: click “OK”

Incorrect or discard reservation: click “キャンセル”

Cancellation of the reservation

Cancellation of the reservation

設備予約システム - Mozilla Firefox
 booking.misrc.saitama-u.ac.jp/reserves/

埼玉大学 総合研究機構 科学分析... x 設備予約システム x +

飛行時間型質量分析装置 現在の予約状況
 MALDI-TOF/MS (Autoflex)
 2012年02月13日

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
02/13 (月)																									
02/14 (火)																									
02/15 (水)																									
02/16 (木)																									
02/17 (金)																									

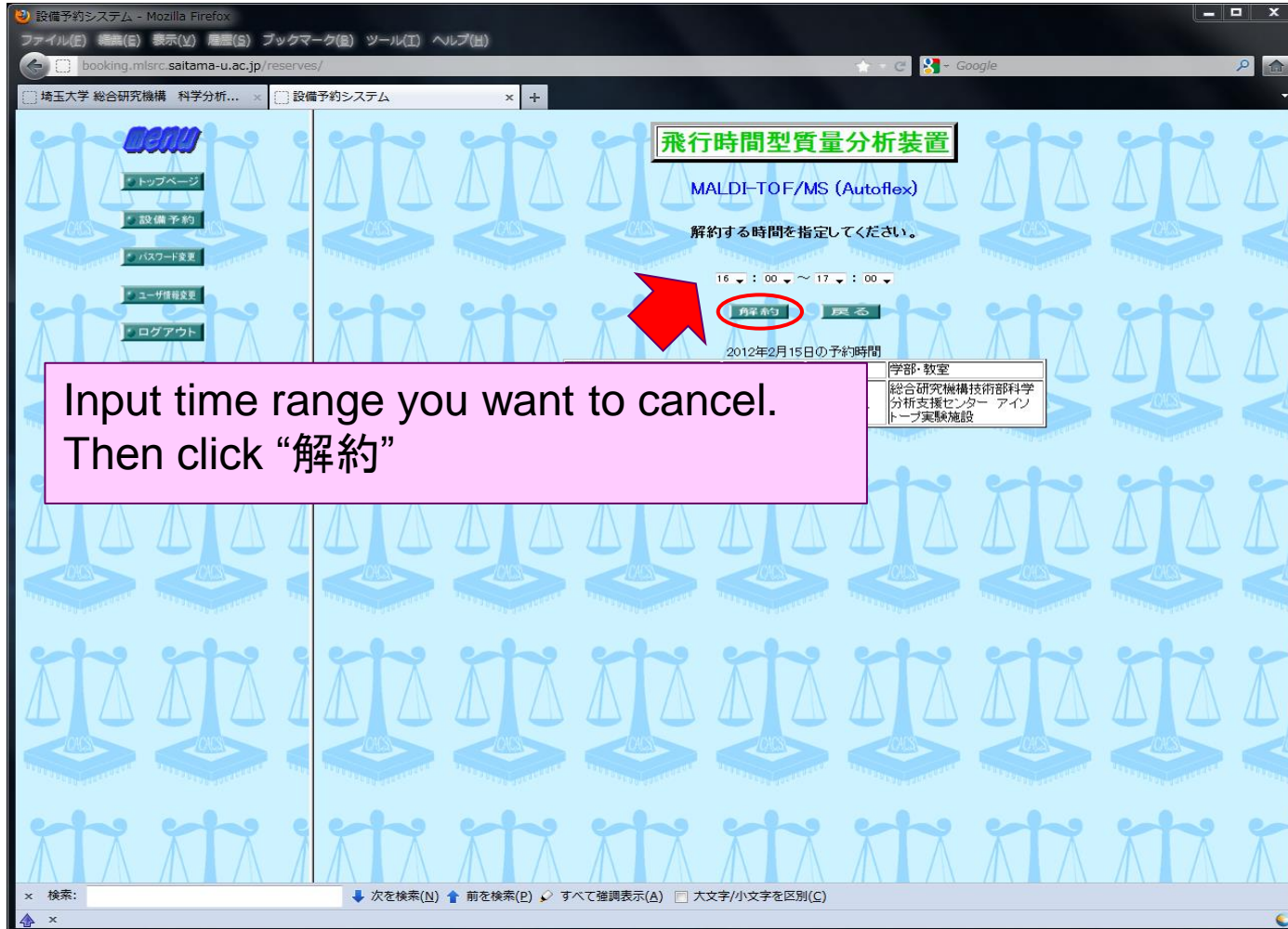
Click the symbol

自分の予約	予約可能時間あり	予約済み	準備時間
予約禁止時間	休曜日	メンテナンス	装置故障
管理センター予約	講習会	学生実験	特別使用(届出分)
休日使用(届出分)	使用禁止	依頼分析測定	装置停止
予約測定	その他	空き	解約可能

Top 設備予約へ HELPへ

検索: [検索欄] [次を検索(N)] [前を検索(P)] [すべて強調表示(A)] [大文字/小文字を区別(C)]

Cancellation of the reservation



The screenshot shows a web browser window titled "設備予約システム - Mozilla Firefox" with the URL "booking.misrc.saitama-u.ac.jp/reserves/". The page content includes a navigation menu on the left, a main heading "飛行時間型質量分析装置" (Flight Time Mass Spectrometer), and the instrument name "MALDI-TOF/MS (Autoflex)". Below this, there is a prompt "解約する時間を指定してください。" (Please specify the time to cancel). A time range selector is set to "16 : 00 ~ 17 : 00". A red arrow points to the "解約" (Cancel) button, which is circled in red. A pink text box overlaid on the image contains the instruction: "Input time range you want to cancel. Then click '解約'".

Input time range you want to cancel.
Then click “解約”

Instructions for use of the instrument reservation system

The screenshot shows a web browser window displaying the reservation system for MALDI-TOF/MS (Autoflex). The interface includes a navigation menu on the left, a calendar for February 2012, and a legend for reservation statuses. A red arrow points to a reservation on February 15th, which is partially cancelled. A pink box contains the text: "Your reservation was partially cancelled."

飛行時間型質量分析装置 現在の予約状況
MALDI-TOF/MS (Autoflex)
2012年02月13日

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
02/13 (月)																								
02/14 (火)																								
02/15 (水)																								
02/16 (木)																								
02/17 (金)																								

Legend:

予約可能時間あり	予約済み	準備時間
休曜日	メンテナンス	装置故障
講習会	学生実験	特別使用(届出分)
休日使用(届出分)	使用禁止	依頼分析測定
予備測定	その他	装置停止
		空き
		解約可能

検索: [検索] [次を検索(N)] [前を検索(P)] [すべて強調表示(A)] [大文字/小文字を区別(C)]

Logout (Don't forget to logout)

The screenshot shows a Mozilla Firefox browser window displaying the reservation system interface. The address bar shows the URL `booking.mlsrc.saitama-u.ac.jp/reserves/`. The page title is "設備予約システム". The interface includes a navigation menu on the left with buttons for "トップページ", "設備予約", "パスワード変更", "ユーザ情報変更", "ログアウト", and "HELP". The "ログアウト" button is circled in red, and a red arrow points to it. A pink callout box says "Click 'ログアウト' to log out this system".

In the center of the page, there is a confirmation dialog box with the text "本当にログアウトしますか?" (Are you sure you want to log out?). The "OK" button is circled in red, and a pink callout box says "Then click 'OK'".

The background of the page features a repeating pattern of scales of justice. At the top right, there is a header for "飛行時間型質量分析装置 現在の予約状況" (Flight Time Mass Spectrometer Current Reservation Status). Below this is a calendar grid showing dates from 15 to 23. A legend at the bottom of the page lists various reservation statuses and reasons, such as "ご自分の予約" (My reservation), "予約禁止時間" (Reservation prohibited time), "予約可能時間あり" (Reservation possible time available), "予約済み" (Reserved), "準備時間" (Preparation time), "装置故障" (Device failure), "装置停止" (Device stop), "装置可能" (Device possible), etc.

Other notifications

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 extinguisher when fire occurs
- Superconducting magnet can be quenched or fall down when earthquake occurs.
- Please evacuate immediately when emergency happened.

When NMR emergency happened...

White smoke coming out from the NMR
Alert starts



Leave the door open



Notify others for the emergency



Escape immediately!



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 extinguisher for flammable substances.
 - How to clean Poisonous and Deleterious substances
 - How to clean volatile bad smell substances.

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



Thank you for your attention!