25-I期募集用 Friday, January 17, 2025

To: Spokesperson (and Liaison) of Approved Proposals of project

From: HIMAC Machine-Time Committee (Chair, Yoshiyuki Iwata)

Call for HIMAC Machine-Time Request

We are calling Machine-Time request for Term I (Apr. to Aug.) in FY2025.

Please submit relevant forms via email to the liaison at QST using the following method.

The co-researcher at QST (liaison, hereafter) should check the contents and email them to the Machine-Time Committee Secretariat. If you do not have a liaison, please send them to the Machine-Time Committee Secretariat.

1. Machine-Time Period

From Monday, April 7, 2025, to Monday, August 4, 2025. (See 2.(1) below, for details.)

2. Basic conditions and instructions for application Form

- Machine-Time Schedule for Term I in FY2025
 (The spaces in white or green colors are available for projects experiment)
- (2) Terms and Conditions of HIMAC Usage
- (3) MEBT—Current Status of Medium–Energy Irradiation Room (including Schematic Diagram of Medium–Energy Irradiation Room)
- (4) BIOC—Note on Machine–Time application for physics in Bio-irradiation room (including LET and Schematic Diagram of Bio-Irradiation Room)
- (5) HIMAC Machine-Time Usage Application Form
- (6) Bio-Irradiation Room Usage Proposal Machine-Time Desired Date Entry Form (including example)
- (7) Radiation Generator Usage Plan(HIMAC) (including example)
 - *The above files can be downloaded from https://www.qst.go.jp/site/iqms-kyoyo/1884.html
- **3. Application Forms** (Please fill in the relevant forms (5) to (7) above and send it to us. Please note that we may not be able to allocate your items if there are any errors in the information.)
 - (1) HIMAC Machine-Time Usage Application Form

(All Projects)

(2) Bio-Irradiation Room Usage Proposal Machine-Time Desired Date Entry Form

(Bio-irradiation room usage applicant)

(3) Radiation Generator Usage Plan(HIMAC)

(All Projects)

4. Deadline

Please submit the application forms to the Machine-Time Committee Secretariat (via the liaison where applicable) by Noon, Thursday, February 6, 2025. Please be sure to adhere to the deadline.

5. Others

- (1) There are days when only Middle-Energy Irradiation Room is available.(Ion species is limited)
- (2) Physics projects of BIOC usage: Don't forget to submit the "Bio-Irradiation Room Usage Proposal Machine-Time Desired Date Entry Form"
- (3) Since the machine time Recruitment is made in parallel with the adoption of the project, the machine time is arranged on the assumption that the project is approved. If the project is not approved, the machine time request will be invalid.
- (4) If you have any questions, please contact Machine-Time Committee Secretariat.

HIMAC Machine-Time Committee Secretariat e-mail: himac_mtc@qst.go.jp

2025年度第 I 期マシンタイム予定表 Machine-Time Schedule for Term I in FY2025

Apr.,7,2025~Aug.,4,2025

D	T	昼Day	夜Night	D	T	昼Day	夜Night
2025/3/31	Mon			2025/5/12	Mon		
4/1	Tue			5/13	Tue		
4/2	Wed			5/14	Wed		
4/3	Thu			5/15	Thu		
4/4	Fri			5/16	Fri		
4/5	Sat			5/17	Sat		
4/6	Sun			5/18	Sun		
4/7	Mon			5/19	Mon		
4/8	Tue			5/20	Tue		
4/9	Wed			5/21	Wed		
4/10	Thu			5/22	Thu		
4/11	Fri			5/23	Fri		
4/12	Sat			5/24	Sat		
4/13	Sun			5/25	Sun		
4/14	Mon			5/26	Mon		
4/15	Tue			5/27	Tue		
4/16	Wed			5/28	Wed		
4/17	Thu			5/29	Thu		
4/18	Fri			5/30	Fri		
4/19	Sat			5/31	Sat		
4/20	Sun			6/1	Sun		
4/21	Mon			6/2	Mon		
4/22	Tue			6/3	Tue		
4/23	Wed			6/4	Wed		
4/24	Thu			6/5	Thu		
4/25				6/6	Fri		
4/26				6/7	Sat		
4/27				6/8			
4/28				6/9			
4/29				6/10			
4/30				6/11	Wed		
5/1	Thu			6/12			
5/2				6/13			
5/3				6/14			
5/4				6/15			
5/5				6/16			
5/6				6/17			
5/7	Wed			6/18			
5/8				6/19			
5/9				6/20	Fri		
5/10				6/21	Sat		
5/11	Sun			6/22	Sun		

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2025年度第 I 期マシンタイム予定表 Machine-Time Schedule for Term I in FY2025

Apr.,7,2025~Aug.,4,2025

2025/6/23 Mon 2025/7/21 Mon 6/24 Tue 7/22 Tue 6/25 Wed 7/23 Wed 6/26 Thu 7/24 Thu 6/27 Fri 7/25 Fri 6/28 Sat 7/26 Sat 6/29 Sun 7/27 Sun 6/30 Mon 7/28 Mon 7/1 Tue 7/29 Tue 7/2 Wed 7/30 Wed 7/3 Thu 7/31 Thu 7/4 Fri 8/1 Fri 7/5 Sat 8/2 Sat 7/6 Sun 8/3 Sun 7/7 Mon 8/4 Mon 7/8 Tue 8/5 Tue 7/9 Wed 8/6 Wed 7/10 Thu 8/7 Thu 7/11 Fri 8/8 Fri 7/12 Sat	
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7/17 Thu 8/14 Thu	
7/18 Fri 8/15 Fri	
7/19 Sat 8/16 Sat	
7/20 Sun 8/17 Sun	

: 生物照射室 / 中エネルギー照射室 利用可能 Bio-irradiation room and Middle-Energy Irradiation Room available.
: 中エネルギー照射室のみ 利用可能(核種制限あり※) Medium-Energy Irradiation Room available.(Ion species is limited※) ※詳しくは世話人にお問合せください※Contact the sponsor for more information.
: 利用不可 Not available

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HIMAC 利用条件

Terms and Conditions of HIMAC Usage

I. 実験利用の時間帯

Time zone of experimental use is typically 22:00-30:30 (= 10p.m. to 6:30 a.m. next morning) HIMAC の利用に当たっては、重粒子線がん治療の患者照射を最優先とします。また、月曜の 17:00 までの間は、原則としてメンテナンス及び調整運転に使用します。

In using HIMAC, the highest priority goes tol irradiating patients for heavy ion cancer therapy. In principle, HIMAC will be used for maintenance and adjustment operations until 5:00 p.m. on Mondays.

Ⅱ. 使用可能な照射室及びコース

Available irradiation rooms and courses

照射室名	照射コース名		世話人	
Irradiation room	Irradiation course		Manager	
中エネルギー・ビーム照射室	MEXP	濱野 毅、	高田 栄一	
Medium-Energy Irradiation room		Tsuyoshi Hamano、	Eiichi Takada	
生物照射室	BIOC	下川 卓志	濱野 毅、	日裏 剛基
Bio-irradiation room		Takashi Shimokawa.	Tsuyoshi Hamano、	Koki Hiura

照射コースの詳しい整備状況については、世話人にお問合せ下さい。

Please contact the manager for more information on the detailed maintenance status of the irradiation course.

世話人連絡先 物理関係(Physics):himac_phy@qst.go.jp TEL 043-206-3205 (ext. 80-6871)

Manager Contact

生物関係(Biology):himac_bio@qst.go.jp TEL 043-206-4048 (ext. 80-2721)

治療照射室は、原則として治療以外の使用はできません。

As a rule, the treatment irradiation room may not be used for any purpose other than treatment.

Ⅲ. 各照射室で使用可能な(=比較的実績のある)ビーム

Readily available beams in each irradiation room

[下記の最大強度は遮蔽条件で決まる最大粒子数です。実際に利用できる強度は、一般にこの値より小さくなります。]

[The maximum intensity shown below is the maximum number of particles determined by shielding conditions.

The actual available intensity will be smaller than this value.]

a) MEXP (週 168 時間, 168h/week)

エネルギー(Energy) 6 MeV/u

最大強度(Max Intensity) 2.0×10¹²pps(particles per second)

(供給可能なイオン種全て、ただし²H のみ 8.0×10¹¹ 個/秒)

(All available ion species can be supplied; however, for 2 H, the supply rate is limited to 8.0×10^{11} pps.)

b) BIOC (週 35 時間+微弱(1%以下)ビーム 100 時間, 35h/week+100h(Beam intensity less than 1%))

イオン種	最大強度	ー様照射野形成用パラメータのあるエネルギー(MeV/u)					
Particles	Max Intensity	Energy with parameters for uniform irradiation field formation						
He	1.2×10^{10}	150	150*					
С	2.0 × 10 ⁹	135, 290, 350, 400	290*					
Ne	8.5×10^{8}	230、400	400*					
Si	4.4×10^{8}	490						
Ar	2.7×10^{8}	500*						
Fe	2.5×10^{8}	500*						

照射野は 100mm ϕ を基本とします。右端欄のものは SOBP(60mm)。 これらのビームの線質及び、これ以外のイオン種、エネルギーについては 世話人にお問合せ下さい。 *印のものは BF 厚指定での使用とします。

C290MeV/u 2.0×10⁹pps、100mmφの照射野のビームは、monoが 13keV/μmで~5Gy/min、SOBP

中央部では~3Gy/min に相当します。

The basic irradiation field is $100\text{mm}\,\phi$. Those in the far right column are SOBP (60mm). Please contact the manager about the beam quality of these beams and other ion species and energies. Please note that the beam energy values are those of extracted from the synchrotron. Therefore, energy at the isocenter of BIOC is degraded by the media such as the monitors and the filters. The difference in energy is non-negligible especially in case of values with * as the binary filters are used to adjust the energy and the range. C290MeV/u 2.0×10^9 pps, mono beam with $100\text{mm}\,\phi$ irradiation field corresponds to $\sim 5\text{Gy/min}$ at $13\text{keV}/\mu$ m and $\sim 3\text{Gy/min}$ at the center of SOBP.

中エネルギービーム照射室の整備状況

Current Status of Medium-Energy Irradiation Room

1. 中エネルギービーム利用室

Medium-Energy Irradiation Room

中エネルギービーム利用室のビームコースは1本だけ(MEXP)です。照射のための既存設備等は何もありませんので、三連四極電磁石から下流の設備については全てユーザーの側で準備してください(添付の平面図を参照してください)。図面から分かるように狭い部屋ですので、照射装置等は移動可能にして、実験終了後は原則としてこの部屋から搬出してください。

同じフロア(地下2階、管理区域内)に物理・汎用計測室があり、中エネルギービーム利用室との間に約40本のBNCケーブルが敷設されています。

使用できるビームのエネルギーは 6MeV/u で固定、デューティは最大 0.3%です。ビーム輸送系の振り分け電磁石がパルス駆動ですので、シンクロトロンにビームを供給しているときも、1Hz 程度の繰り返しでビームの利用が可能です。(典型的には、0.7ms 巾のビームが 1 秒に 1 回来る)ビームスポットは最小で 3mm ϕ 程度です。強度はビームの種類に大きく依存しますので、詳しくは物理関係世話人までお尋ねください。

There is only one beam course (MEXP) in Medium-Energy Irradiation Room. There is no existing equipment for irradiation, so all equipment downstream from the triple quadrupole magnets should be prepared by the user (see the attached plan). As you can see from the drawing, this is a small room, so irradiation equipment, etc. should be movable, and in principle, should be removed from this room after the experiment.

On the same floor (B2F, in the controlled area), there is a physics/general-purpose measurement room, and about 40 BNC cables are laid between the room and Medium-Energy Irradiation Room.

The available beam energy is fixed at 6 MeV/u, with a maximum duty of 0.3%. The beam transport system's sorting magnets are pulse-driven, so the beam can be used with a repetition rate of about 1Hz even when the beam is being supplied to the synchrotron. (Typically, a 0.7ms wide beam comes once per second.) The minimum beam spot is about $3 \text{mm} \, \phi$. The intensity is highly dependent on the type of beam, so please ask the physics manager for details.

2. 付帯設備

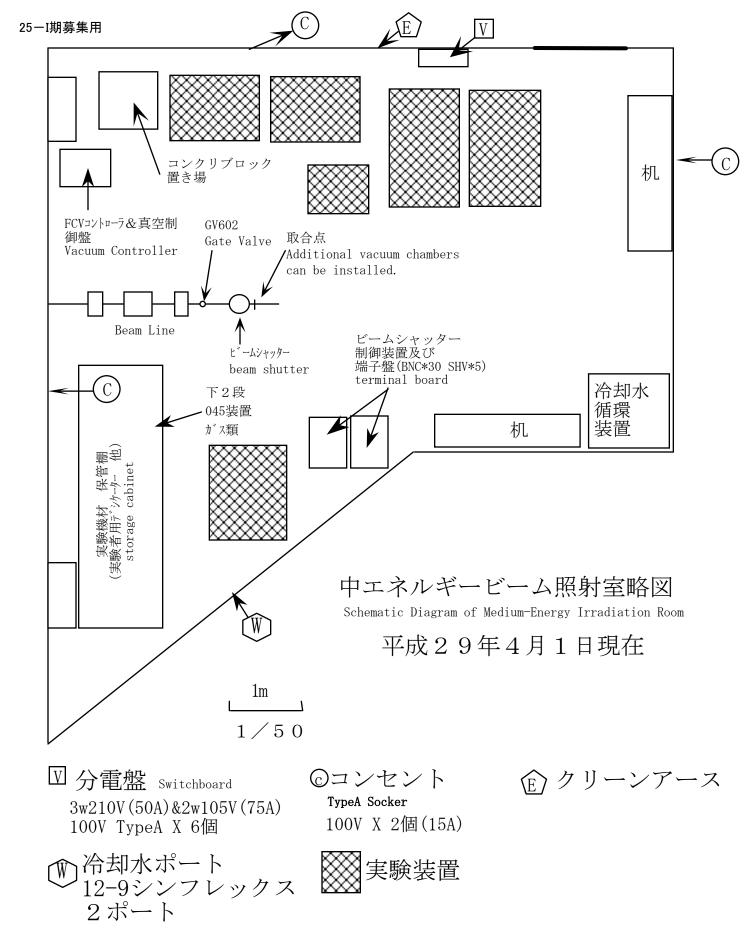
Attached equipment

エレクトロニクスモジュール、パソコンに搭載した MCA と、CAMAC をベースとしたデータ収集系が共用の設備として利用可能です。

照射室と計測室にはLANが設置されており、サーバーとプリンターがつながっております。利用を希望される方は事前にご相談下さい。

Electronics modules, MCA on a PC, and a data acquisition system based on CAMAC are available as shared facilities.

LAN is installed in the irradiation room and the measurement room, and a server and printer are connected. If you wish to use these facilities, please consult with the manager in advance.



生物照射室利用物理課題(PIB)マシンタイム応募についての注意 Note on Machine-Time application for physics in Bio-irradiation room (PIB)

I. コース占有時間について Beam course occupation time (for preparation, clearance)

ビーム開始前:生物照射室内への実験機器搬入開始からビーム照射開始までの時間です。

ビーム終了後:ビーム利用終了から生物照射室内の実験装置搬出終了し、次の実験準備が可能になるまでの時間です。

Before Beam Start: This is the time from the start of delivery of experimental equipment into the Bioirradiation room to the start of beam irradiation.

After Beam Stop: The time from the end of beam use to the end of unloading the experimental equipment in the Bio-irradiation room and the time when the next experiment is ready.

- ※これらの時間は、できるだけ現実的な時間としてください。
- ※照射室前室作業スペース(写真①)を占有する場合は、その時間も含めてください。
- ※制御卓エリア(写真②)で長時間の準備等が必要な場合は、利用申込票下段「その他、マシンタイム配分調整に対する優先希望事項など」にご記入ください。
- *These times should be as realistic as possible.
- *If the work space in front of the irradiation room (Photo①) is to be occupied, please include that time as well.
- *If you need to spend a long time in the control table area (Photo②) for preparation, etc., please fill in the "4.Any other priority requests for machine time allocation adjustments, etc." at the bottom of HIMAC Machine-Time usage application form.

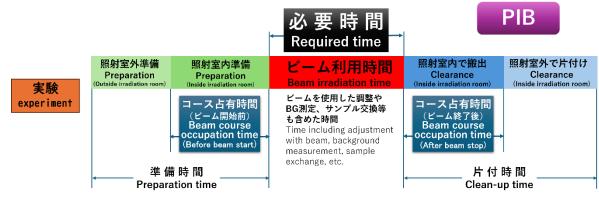


① 生物照射室前室作業スペース Workspace in front of Bio-irradiation room



②制御卓エリア Beam control console area

II. 生物照射室利用物理課題における時間イメージ Time Image in PIB



次の実験 NEXT



HIMAC生物照射室で線量測定後に提供される標準ビームの 照射深に対する線量率・LET特性(計算結果のみ)

<u>炭素線</u> 290MeV/u, 135MeV/u

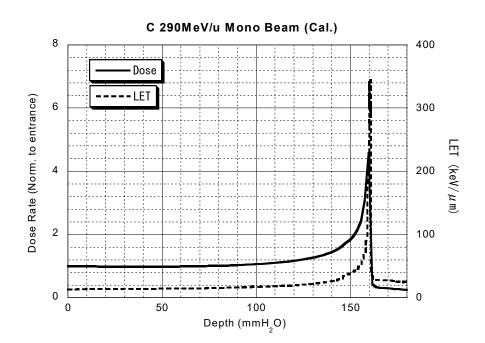
このグラフは、様々の仮定を用いて計算した結果であり、照射条件を決めるときの目安として使用してください。

ビームに関する情報は、生物世話人にお問合せ下さい。

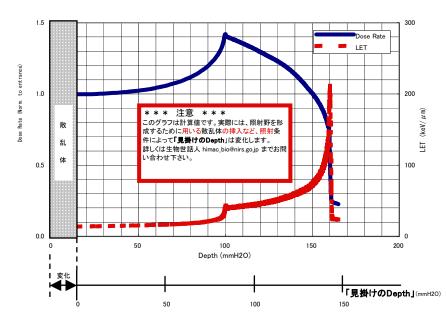
Dose rate and LET characteristics for standard beams provided after dose measurement in the HIMAC biological irradiation room (calculated results only) Carbon beam 290MeV/u, 135MeV/u

This graph is the result of calculations using various assumptions and should be used as a guide when deciding on irradiation conditions.

For information on beams, please contact the biological manager.



G290MeV/u 6cm-SOBP (Cal.)



Depth (mmH_QO)

10

40

50

C 135MeV/u Mono Beam (Cal.)

HIMAC生物照射室で線量測定後に提供される標準ビームの 照射深に対する線量率・LET特性(計算結果のみ) ネオン線 400MeV/u、ヘリウム線 150MeV/u

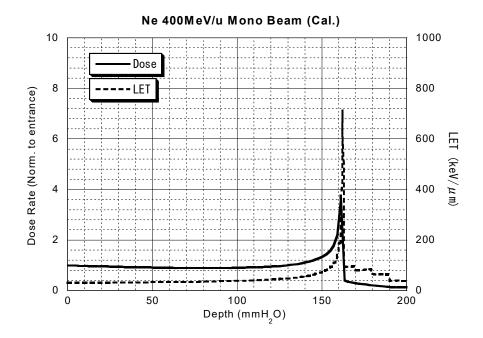
このグラフは、様々の仮定を用いて計算した結果であり、照射条件を決めるときの目安として使用してください。

ビームに関する情報は、生物世話人にお問合せ下さい。

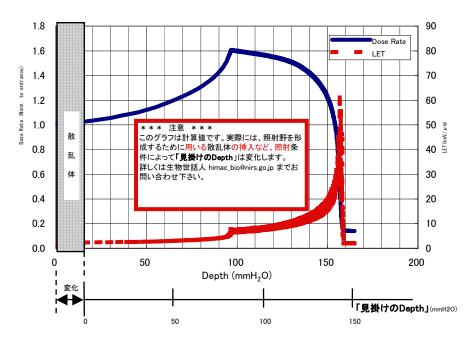
Dose rate and LET characteristics for standard beams provided after dose measurement in the HIMAC biological irradiation room (calculated results only) Neon beam: 400 MeV/u, Helium beam: 150 MeV/u

This graph is the result of calculations using various assumptions and should be used as a guide when deciding on irradiation conditions.

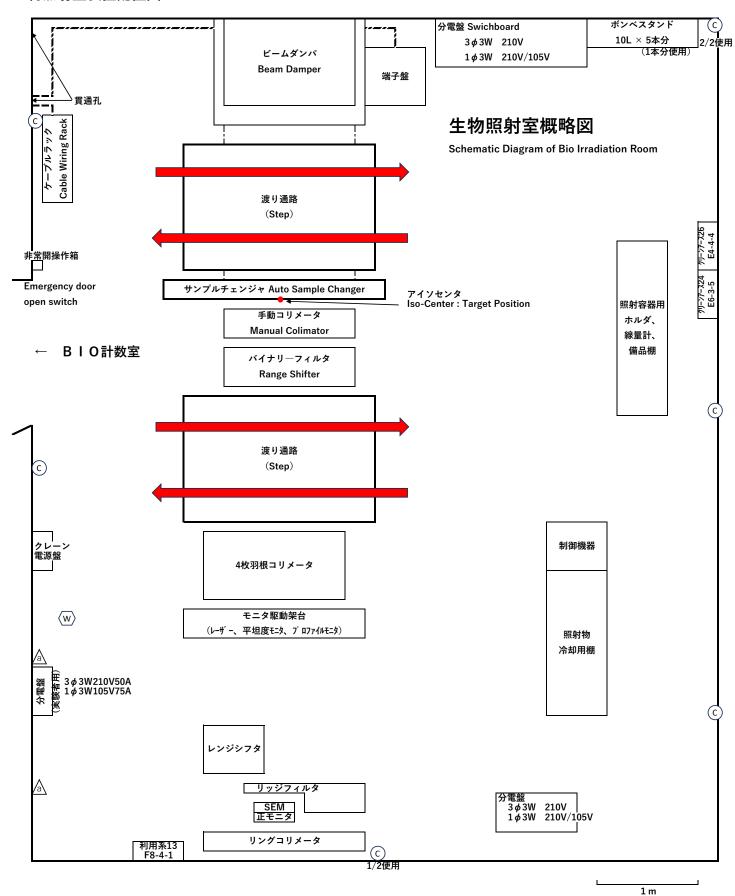
For information on beams, please contact the biological manager.



He150MeV/u 6cm-SOBP (Cal.)



生物照射室装置配置図



C コンセント: 100V×2個 Type A Socket

⚠ 圧空

〈W〉冷却水実験用取り合い点

HIMAC Machine-Time Usage Application Form

	sion date: <u>_202</u>	5/m/d	Spokesperson:		Co-researe	cher at QST:	
			(E-ma	aill :)			
Bea	am conditions						
1.	Ion Species:	Energy	:MeV/u Beam	Intensity: × 10) pps (particles \angle s) or [μ	A@MEXP, biology assignment	not required].
П.	Course:	□MEXP					
	I	□BIO →F	ield Conditions(Size:	cm ϕ , Lon	gitudinal 🗆 mono	□SOBP()cm]	
٨.	Special requ	irements for b	eam shape, etc				
	Is there the	same conditio	n in a past beam?	□No □Yes <u>([</u>	Date(y/ m/ d)	<u>)</u>	
Exp	eriment Outlin	е					
1.	Experimenta	I Form: □N	Measurements by SC	□Sample ir	radiation (inanimate)	□cell irradiation	
		□Animal irrad	iation(□Mouse □Ra	t □Other())		
	l	□Bio−Special	ty(□Genetically modit	fied organisms, etc.	(viral inoculation? ☐)	Yes □No) □Pathog	ens)
		□Other than					
Π.	Experimenta		•beam course occupa				
	E	Beforeh	our/day/week、	Afterho	ur/day/week		
	(Items used	and space required in	counting and labora	tory (may be entered	separately)	
	[Devices you w	ill bring in				
	-						
		Devices you w					
rea	Other specia agents or LN ₂ ر		sure to include any ite	ems that require pr	or agreement or coo	ordination, such as larg	ge quantit
	2gorico or 2112 c	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
Des	sired beam per	iod, etc.					
Des	sired beam per Date	iod, etc. Required	Candidate dates	No-good dates	Other	Work manager#	#
		1	Candidate dates (good date for you)	No-good dates and its reason	Other conditions**	Work manager≠ (email)	#
(Mont	Date	Required		_		_	#
Mont A	Date	Required		_		_	<i>‡</i>
Mont	Date	Required time (*) hr		_		(email))
Mont A	Date	Required time (*)		_		_)
Mont A	Date	Required time (*)		_		(email))
Mont A B	Date	Required time (*) hr		_		(email))
Mont A B	Date	Required time (*) hr hr		_		(email))
Mont A B	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email))
Mont A 3	Date	Required time (*) hr hr hr		and its reason	conditions**	(email))))
Mont A B	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email))
Mont A 3	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email))
Mont A 3	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email)	;)))
Mont A B	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email))
Mont A B	Date	Required time (*) hr hr hr	(good date for you)	and its reason	conditions**	(email))
Mont A B	Date h: upper/mid/late)	Required time (*) hr hr hr * Basis for ca	(good date for you) alculation of the above	and its reason required beam time	conditions** Can be completed by modified organisms,	(email) ((((ed separately))))
B C	Date h: upper/mid/late) e allocation fo	Required time (*) hr hr hr * Basis for cannot be supported by the support by	(good date for you) alculation of the above ation, use of samples cont from those describe	and its reason required beam time ontaining genetical I	conditions** y modified organisms, tensity, etc. Energy/i	(email) ((((ed separately) etc., time fixing desirintensity, etc.))))) red, precau
B C D	Date h: upper/mid/late) e allocation fo usting the bea erson in charg	Required time (*) hr hr hr * Basis for cannot be seen to the work	ation, use of samples cont from those describe must be someone who co	and its reason required beam time ontaining genetical I id in 1), energy/int ian come to the work	conditions** y modified organisms, tensity, etc. Energy/i	(email) ((((ed separately)))))) red, precau
B C D	Date h: upper/mid/late) e allocation fo usting the bea erson in charg	Required time (*) hr hr hr * Basis for cannot be seen to the work	(good date for you) alculation of the above ation, use of samples cont from those describe	and its reason required beam time ontaining genetical I id in 1), energy/int ian come to the work	conditions** y modified organisms, tensity, etc. Energy/i	(email) ((((ed separately) etc., time fixing desirintensity, etc.))))) red, precau
C D Timm adj	Date h: upper/mid/late) e allocation fo usting the bea erson in charg	Required time (*) hr hr hr * Basis for cannot be seen to the work	ation, use of samples cont from those describe must be someone who co	and its reason required beam time ontaining genetical I id in 1), energy/int ian come to the work	conditions** y modified organisms, tensity, etc. Energy/i	(email) ((((ed separately) etc., time fixing desirintensity, etc.))))) red, precau
Mont A B C D	Date h: upper/mid/late) e allocation fo usting the bea erson in charg	Required time (*) hr hr hr * Basis for cannot be seen to the work	ation, use of samples cont from those describe must be someone who co	and its reason required beam time ontaining genetical I id in 1), energy/int ian come to the work	conditions** y modified organisms, tensity, etc. Energy/i	(email) ((((ed separately) etc., time fixing desirintensity, etc.))))) red, precal

Bio-Irradiation Room Usage Proposal Machine-Time Desired Date Entry Form

1)Enter a (O:Desired dates) or (×:No-good dates)

2) Machine time may not be allocated even if you write "O"

3 May be allocated to a blank space

<u>AEnter animal, cell, microorganism, recombinant, BSL, etc. in the "Note" column.</u>
<u>SIf necessary, enter the preparation tine on site (in Bio-irradiation room)</u>

in the "Remarks" column

Project No.

Spokesperson #Work manager

April	Cano e d		Note	May	Can e d	didat ate	Note	June		didat ate	Note	July	Can	didat ate	Note	August	Cano e d	didat ate	Note
	d	n			d	n			d	n			d	n			d	n	
Tue,1st				Thu,1st				Sun,1st				Tue,1st				Fri,1st			
Wed,2nd				Fri,2nd				Mon,2nd				Wed,2nd				Sat,2nd			
Thu,3rd				Sat,3rd				Tue,3rd				Thu,3rd				Sun,3rd			
Fri,4th				Sun,4th				Wed,4th				Fri,4th				Mon,4th			
Sat,5th				Mon,5th				Thu,5th				Sat,5th				Tue,5th			
Sun,6th				Tue,6th				Fri,6th				Sun,6th				Wed,6th			
Mon,7th				Wed,7th				Sat,7th				Mon,7th				Thu,7th			
Tue,8th				Thu,8th				Sun,8th				Tue,8th				Fri,8th			
Wed,9th				Fri,9th				Mon,9th				Wed,9th				Sat,9th			
Thu,10th				Sat,10th				Tue,10th				Thu,10th				Sun,10th			
Fri,11th				Sun,11th				Wed,11th				Fri,11th				Mon,11th			
Sat,12th				Mon,12th				Thu,12th				Sat,12th				Tue,12th			
Sun,13th				Tue,13th				Fri,13th				Sun,13th				Wed,13th			
Mon,14th				Wed,14th				Sat,14th				Mon,14th				Thu,14th			
Tue,15th				Thu,15th				Sun,15th				Tue,15th				Fri,15th			
Wed,16th				Fri,16th				Mon,16th				Wed,16th				Sat,16th			
Thu,17th				Sat,17th				Tue,17th				Thu,17th				Sun,17th			
Fri,18th				Sun,18th				Wed,18th				Fri,18th				Mon,18th			
Sat,19th				Mon,19th				Thu,19th				Sat,19th				Tue,19th			
Sun,20th				Tue,20th				Fri,20th				Sun,20th				Wed,20th			
Mon,21st				Wed,21st				Sat,21st				Mon,21st				Thu,21st			
Tue,22nd				Thu,22nd				Sun,22nd				Tue,22nd				Fri,22nd			
Wed,23rd				Fri,23rd				Mon,23rd				Wed,23rd				Sat,23rd			
Thu,24th				Sat,24th				Tue,24th				Thu,24th				Sun,24th			
Fri,25th				Sun,25th				Wed,25th				Fri,25th				Mon,25th			
Sat,26th				Mon,26th				Thu,26th				Sat,26th				Tue,26th			
Sun,27th				Tue,27th				Fri,27th				Sun,27th				Wed,27th			
Mon,28th				Wed,28th				Sat,28th				Mon,28th				Thu,28th			
Tue,29th				Thu,29th				Sun,29th				Tue,29th				Fri,29th			
Wed,30th				Fri,30th				Mon,30th				Wed,30th				Sat,30th			
				Sat,31st								Thu,31st				Sun,31st			

* To clarify the desired beam time, enter the required hours x number of times per month and total required hours x number of times per period in the "Hours x Number of Times" box below.

April (hours x number of times)	h×	times	May (hours x number of times)	h×	times	June (hours x number of times)	h×	times	July (hours x number of times)	h×	times	August (hours x number of times)	h×	times
												Total	h×	times
												period (hours x number	h×	times
												of times)	h×	times

Remarks

Notes on Entry

have at least 2 hours per session; etc.).

- 1) Please indicate "O"(Desired dates) or "x"(No-good dates) in the "Candidate date" column of the schedule above.
- 2) Please be sure to mark an "X" on the days when you cannot conduct the experiment, as we may have to allocate machine time on days other than those requested due to adjustments in the allocation of machine time.
- 3) Beams may not be supplied to the bio-irradiation room on certain days or may not be the desired Ion Species. Machine time may not be allocated even if you enter "O".
- 4) If you know your schedule (desired date) for cell experiments, animal experiments, microorganism experiments, genetic modification experiments (P1, P2, P1A, P2A), biosafety experiments (BSL2), etc., please indicate them in the "Remarks" column. If you do not indicate your desired date, the allocation will be based on the maximum risk at the time of proposal submission.
- 5) If you have any requests for machine time allocation, please write them in the remarks column. We will use this as a reference when considering the allocation of machine time. (e.g.: I would like to have 30 minutes per session; I have applied for 2 hours x 4 sessions, but it is OK to have less than 4 hours per session; I would like to have at least 2 hours per session because I cannot work with less than 2 hours machine time; I would like to
- 6) For physics proposals, please indicate the desired nuclide (in the case of requests for multiple Ion Species energies) and the preparation period in the irradiation room in the remarks column, if necessary. Although we will take into account the preparation period as much as possible, we will consider the schedule with the highest priority given to the effective use of machine time.

<u>Bio-Irradiation Room Usage Proposal</u> <u>Machine-Time Desired Date Entry Form</u>

Example

(1)Enter a (O: Desired dates) or (×: No-good dates)

②Machine time may not be allocated even if you write "O"

3 May be allocated to a blank space

<u>Enter animal, cell, microorganism, recombinant, BSL, etc. in the "Note" column.</u>

5)If necessary, enter the preparation tine on site (in Bio-irradiation room)

in the "Remarks" column.

Project No. 25HJ999 Spokesperson Taro Inage

#Work manager Taro Inage(physics) Jiro Anagawa(Biology) Candidat Candidat Candidat Candidat Note June April Note May Note July August e date e date e date e date d d d n n n Tue 1st Thu 1st Sun 1st Tue 1st Fri.1st Wed.2nd Fri.2nd Mon.2nd Wed.2nd Sat.2nd Sun,3rd Thu 3rd Sat 3rd Tue 3rd Thu 3rd Fri,4th Sun,4th Wed,4th Fri,4th Mon,4th Sat.5th Mon.5th Thu.5th Sat.5th Tue,5th ↑ Preparatio Sun,6th Tue,6th ↑ Preparation Fri,6th Sun,6th Wed,6th Mon.7th Wed.7th Sat.7th Mon.7th Thu.7th Preparation Tue,8th × Thu,8th O sal Measure Sun,8th Tue,8th Fri,8th Wed,9th Fri,9th Wed,9th (3 days for prepa Mon.9th Sat.9th Thu,10th Sat,10th Tue,10th \circ Thu,10th Sun,10th Fri,11th Sun,11th Wed,11th 0 cell Fri,11th Mon,11th Sat.12th Mon,12th Thu,12th Sat.12th Tue,12th Sun,13th Tue,13th Fri,13th Sun,13th Wed,13th Mon.14th Wed.14th Thu,14th Sat.14th Mon.14th Tue,15th Thu,15th Sun,15th Fri,15th Tue,15th Fri.16th Mon.16th Wed.16th Wed.16th Sat.16th Thu,17th × Sat,17th Thu,17th Tue,17th Sun,17th Mon,18th Fri.18th Sun,18th Wed.18th \circ Fri.18th cell Sat,19th Mon, 19th \circ Tue,19th Thu,19th cell Sat,19th Tue,20th Fri,20th Sun.20th Sun.20th Wed.20th Mon,21st Wed,21st Sat,21st Mon,21st Thu,21st Tue,22nd × Sun,22nd Tue,22nd Fri,22nd Thu,22nd Wed,23rd × Fri,23rd Mon,23rd Wed,23rd 0 Sat,23rd animal Thu,24th Sat,24th Tue,24th Thu,24th O animal Sun,24th Fri,25th Sun,25th Wed,25th Fri,25th Mon,25th Sat,26th Mon,26th Thu,26th Sat,26th Tue,26th Sun,27th Sun,27th Tue 27th Fri 27th Wed.27th Mon,28th Wed.28th Sat.28th Mon.28th Thu.28th Fri,29th Tue 29th Thu 29th Sun 29th Tue 29th Wed,30th Fri,30th Mon,30th Wed,30th Sat.30th

* To clarify the desired beam time, enter the required hours x number of times per month and total required hours x number of times per period in the "Hours x Number of Times" box below.

Thu,31st

Sun.31st

April (hours x number of times)	h×	times	May (hours x number of times)	8 h×	: 1	times	June (hours x number of times)	2	h× :	2 times	July (hours x number of times)	3	h×	1	times	August (hours x number of times)		h×	tin	nes
																Total period (hours x number	8 H 2 H	h× 1 h× 2		mes mes
																of times)	3 H	h× 1	tir	mes

Remarks

Not possible in April due to work commitments. Physics experiments require 3 days of advance preparation.

Sat,31st

The cell experiment was set up as two 2-hour sessions, but we would like it to be allocated twice, even if only the 30 minutes needed for verification.

Notes on Entry

- 1) Please indicate "O"(Desired dates) or " \times "(No-good dates) in the "Desired date" column of the schedule above.
- 2) Please be sure to mark an "X" on the days when you cannot conduct the experiment, as we may have to allocate machine time on days other than those requested due to adjustments in the allocation of machine time.
- 3) Beams may not be supplied to the bio-irradiation room on certain days or may not be the desired Ion Species. Machine time may not be allocated even if you enter "O".
- 4) If you know your schedule (desired date) for cell experiments, animal experiments, microorganism experiments, genetic modification experiments (P1, P2, P1A, P2A), biosafety experiments (BSL2), etc., please indicate them in the "Remarks" column. If you do not indicate your desired date, the allocation will be based on the maximum risk at the time of proposal submission.
- 5) If you have any requests for machine time allocation, please write them in the remarks column. We will use this as a reference when considering the allocation of machine time.

 (e.g.: I would like to have 30 minutes per session; I have applied for 2 hours x 4 sessions, but it is OK to have less than 4 hours per session; I would like to have at least 2 hours per session because I cannot work with less than 2 hours machine time; I would like to have at least 2 hours per session; etc.).
- 6) For physics proposals, please indicate the desired nuclide (in the case of requests for multiple Ion Species energies) and the preparation period in the irradiation room in the remarks column, if necessary.
 Although we will take into account the preparation period as much as possible, we will consider the schedule with the highest priority given to the effective use of machine time.

Radiation	Generator	Usage	Plan (HIMAC)	25-1

Nautatio	ii delierator os	age i iai		, 1
		Submis	sion Date ()
Dear radiation sa	afety section chief in QST Chiba			,
I would like	e to use the radiation generator	r in HIMAC as fo	llows, please approve.	
	Affiliation of the pro	ject representat	ive	
	Name of the pro	_		
Affiliation of	the project staff in QST		·	
			QST	
1. Purpose of using the	radiation generator in HIMAC			
Title of the project				
□Continuation Project /	□New Project			
Objective of the project				
Experimental procedures				
Name of the room used for	Information on irradiated object	Nuc1	ides produced by activation	
the experiment*	(or irradiated animal)		d expected radioactivity	
Medium energy beam	·,	Nuclide1:		Bq
irradiation room			•	•
Physical and		Nuclide2:	Radioactivity :	Bq
general-purpose			•	•
irradiation room		N. 1110	D 1:	
Biological		Nuclide3:	Radioactivity :	Bq
irradiation room				
Secondary beam		Nuclide4:	Radioactivity :	Bq
irradiation room				
* Place a check mark in	the room where you will be using the	room.		
Please describe the are	ea enclosed in the bold frame.			
Date of rece		Number	of receipt No.	
Date of rece	τhr / /	nulliber	of receipt No.	

2. Information on the irradiated object (or irradiated animal)				
Whether there is a		In case	e of Yes	
carry-in or not		III Casc	, 01 162	
	Name of the storage room and :	storage period	Name of the disposal room	
□Yes / □No				
			<u>l</u>	
Whether or not		In case	e of Yes	
irradiated objects are				
taken out of the	Name of irradiated object	Where to tr	ransport the	How to transport the irradiated
radiation-controlled	(or irradiate animal)	irradiate	ed objects	objects
area in HIMAC				
□Yes / □No				
3. Information on radio	oactive waste			
Whether radioactive	In case of	f Yes, check the	disactive was	+- Ja+a:1a
waste is generated or not	III Case or	Yes, check the	radioactive was	te details
□Yes / □No	□burnable /□ Flame retardan □others (t /□unburnable	e /□animal)	

4. Irradiation beam conditions

[Irradiating ions and energy] (Place a check mark in irradiating ions and energy.)

	Irradiating ion energy (MeV/u)				
Irradiating ion	Medium energy beam irradiation room	Physical and general-purpose irradiation room	Biological irradiation room	Secondary beam irradiation room	
□Не	□6	□100 / □180 / □230	□150	□100 / □180 / □230	
□С	□6	□100 / □180 / □230 / □290 □350 / □400 / □430	□135 / □290 □350 / □400	□100 / □180 / □230 / □290 □350 / □400 / □430	
□N	□6	□100 / □180 / □230 / □290 □350 / □400 / □430		□100 / □180 / □230 / □290 □350 / □400 / □430	
□0	□6	□100 / □180 / □230 / □290 □350 / □400 / □430		□100 / □180 / □230 / □290 □350 / □400 / □430	
□Ne	□6	□100 / □180 / □230 / □290 □350 / □400 / □430 / □600	□230 / □400	□100 / □180 / □230 / □290 □350 / □400 / □430 / □600	
□Si	□6	□100 / □180 / □230 / □290 □350 / □400 / □430 □600 □800	□490	□100 / □180 / □230 / □290 □350 / □400 / □430 / □600 □800	
□Ar	□6	□290 / □490 / □650	□500	□290 / □400 / □650	
□Fe	□6	13500	□500	□500	

[Number of irradiating ionic particles] (Place a check mark in number of irradiating ionic particles.)

	Numl	ber of irradiating ionic p	articles (pps)*	
Irradiating ion	Medium energy beam	Physical and general purpose irradiation room	Biological irradiation room	Secondary beam irradiation room
□Не	$\Box 2.0 \times 10^{12}$	□1.2×10 ¹⁰	$\Box 1.2 \times 10^{10}$	□4. 0× 10 ⁷
□С	$\Box 1.0 \times 10^{11}$	□1.8×10 ⁹	$\Box 2.\ 0 \times 10^9$	□6. 0 ×10 ⁶
□N	$\Box 1.0 \times 10^{11}$	□1.5×10 ⁹	$\Box 1.7 \times 10^9$	□5. 0 ×10 ⁶
□0	$\Box 1.0 \times 10^{11}$	□1. 1×10 ⁹	$\Box 1.2 \times 10^{9}$	□3.7×10 ⁶
□Ne	$\Box 1.0 \times 10^{11}$	□7.8×10 ⁸	$\square 8.5 \times 10^8$	□2.6×10 ⁶
□Si	$\Box 1.0 \times 10^{11}$	□4. 0× 10 ⁸	$\Box 4.4 \times 10^8$	□1. 3 ×10 ⁶
□Ar	$\Box 1.0 \times 10^{11}$	□2. 4×10 ⁸	$\square 2.7 \times 10^8$	□8. 0 ×10 ⁵
□Fe	$\Box 1.0 \times 10^{11}$	□2.5×10 ⁸	$\square 2.5 \times 10^8$	□8. 9×10 ⁵

*Number of irradiating ionic particles (pps) in the table is the maximum number of particles approved for use; the actual number of irradiating ionic particles available is less.

Information on experimental participants

(*1)	(*2, 3)	Name	E-Mail address (*4)	Affiliation	Status within QST. (*5)

- (*1) Among those who will actually participate in the project, please decide who will be responsible for representing the work group and place a check mark. This person may be different from the person who will be responsible for the project representative. If there will be a different person responsible for each machine time, please check all responsible persons.
- (*2) Please circle those who have completed registration as a "Radiation Worker" in QST Chiba office.
- (*3) Please Δ if you plan to register as a "Radiation Worker" in QST Chiba office.
- (*4) Please fill in your e-mail address if you have one.
- (*5) In QST Chiba office, please select the applicable category from the following and fill in the appropriate alphabet.

 Please check with the project staff in QST to determine which category applies to you.

A: Retirees and fixed term	F: Visiting Collaborative	K:others ()	
employees in QST	Researcher			
B: Collaborative Researcher	G: Postdoctoral Fellow			
C: Visiting Researcher	H: Invited Researcher			
D: Cooperative Program	I: JSPS Research Fellow			
Graduate Student				
E: Trainee	J: Junior Researcher Associate			

*If you are not registered as a "Radiation Worker" in QST Chiba office by the day of the experiment, you will not be able to participate in the experiment even if your name is on the list of participants for this experiment.

Example of filling out the form

(Form-1.5c) Project No. (2 25HH999)

I	Radiation Generator Usage Plan(HIMAC) 25-1						
ı			Ü	·			
l	Dear radiation sa	fety section chief in QST Chiba		bmission Date (<mark>3</mark>)	2025.2.3		
ı	I would like	to use the radiation generator	in HIMAC a	s follows, please	approve.		
	Affiliation of the project representative						
ı		radiation generator in HIMAC					
	Title of the project 5 R						
7	Objective of the project	area iloject					
8	Experimental procedures						
ı	Name of the room used for	Information on irradiated object		Nuclides produced by	activation		
ı	the experiment*	(or irradiated animal)		and expected radioactivity			
9	Medium energy beam irradiation room		Nuclide1:	Radioactivi	ity : Bq		
	Physical and general—purpose irradiation room		Nuclide2:	Radioactivi	ity : Bq		
ı	Biological irradiation room		Nuclide3:	Radioactivi	ity : Bq		
ı	Secondary beam irradiation room		Nuclide4:	Radioactivi	ity : Bq		
	* Place a check mark in the room where you will be using the room. Please describe the area enclosed in the bold frame.						
-							
	Date of recei	pt / /	Nui	mber of receipt	No. —		

No.	item	How to fill out the form			
1	Project No.	Please fill in the project number.			
2	Submission Date	Please fill in the submission date of the form.			
3	Information on the	Please fill in the affiliation and name of the project			
	project representative	representative.			
4	Information on the	Please fill in the affiliation and name of the project staff in			
4	project staff in QST	QST.			
5	Title of the project	Please fill in the title of the project.			
(6)	Continuation Project /	Please put a "✓" in the appropriate section for continuation			
	New Project	project or new project.			
7	Objective of the project	Please provide a brief description of the project objectives.			
8	Experimental	Please describe the experimental procedure.			
	Procedures	r lease describe the experimental procedure.			
9	Name of the room used	Please put a "✓" in the name of the room to be used for the			
9	for the experiment	experiment.			
		In the case of irradiated object, describe the material and size			
(10)	Irradiated object	of the sample in as much detail as possible.			
10	(irradiated animal)	In the case of irradiated animals, describe the name and			
		number of animals.			
	Nuclides produced by	Please describe the nuclides produced by activation and			
11)	activation and expected	expected radioactivity of the irradiated material (or irradiated			
	radioactivity	animal).			

2. Information on the irradiated object (or irradiated animal)				
Whether there is a		In case	of Yes	
carry-in or not		III case	01 105	
	Name of the storage room and s	storage period	Name of the disposal room	
12 ✓ Yes / □No	<u>(1)</u>		12	
Whether or not		In case	of Yes	
irradiated objects are				
taken out of the	Name of irradiated object	Where to tr	ansport the	How to transport the irradiated
radiation-controlled	(or irradiate animal)		d objects	objects
area in HIMAC	(of illustrate difficult)	11144144	a objects	02,0000
	13	<u>(14)</u>		15
① ✓ Yes / □No				
2 Tufamatian an andi-				
3. Information on radio Whether radioactive	Dactive waste			1
	17 In case of	Yes, check the	radioactive was	te details
waste is generated or not				
<mark>16</mark> ✓ Yes / □No	☑burnable /□ Flame retardan □others (t /□unburnable	e /□animal)	

12	The presence or absence of irradiated object	Please put a "\(\sigma "\)" in the appropriate section regarding whether or not irradiated materials (or irradiated animals) are brought into the radiation controlled area in HIMAC. If yes, please fill in the storage room and storage period.
13	Whether or not irradiated objects are taken out of the radiation controlled area in HIMAC	Please put a "\(\mathcal{I}"\) in the appropriate section regarding whether or not irradiated objects (or irradiated animals) have been removed from the radiation controlled area in HIMAC, and if so, please provide specific details regarding their destination and method of transportation.
14)	Where to transport the irradiated objects	Please indicate the location of the irradiated material (or irradiated animals) to be transported
15	How to transport the irradiated objects	Please describe the method of transporting the irradiated material (or irradiated animals). If you are outsourcing it to a contractor, please provide the name of the contractor.
16	Whether radioactive waste is generated or not	Please put a "\(\sigma\)" in the appropriate section regarding the presence or absence of radioactive waste.
17)	Radioactive waste details	Please put a "\(\mslage \)" in the appropriate section of the radioactive waste category and provide specific details.

4. Irradiation beam conditions [Irradiating ions and energy] (Place a check mark in irradiating ions and energy.) Irradiating ion energy(MeV/u) Medium Biological Irradiating energy beam Physical and Secondary beam general-purpose irradiation room irradiation room irradiation irradiation room ion □100 / □180 / □230 □Не $\Box 6$ $\square 100 / \square 180 / \square 230$ □150 □100 / □180 / □230 / □290 □135 / □290 □100 / □180 / □230 / □290 **∠**IC **⊿**|6 □350 / □400 / □430 □350 / □400 □350 / □400 / □430 □100 / □180 / □230 / □290 □100 / □180 / □230 / □290 $\square N$ $\Box 6$ □350 / □400 / □430 □350 / □400 / □430 □100 / □180 / □230 / □290 □100 / □180 / □230 / □290 $\Box 0$ $\Box 6$ □350 / □400 / □430 □350 / □400 / □430 □100 / □180 / □230 / □290 $\Box 100 / \Box 180 / \Box 230 / \Box 290$ □230 / □400 □Ne $\Box 6$ □350 / □400 / □430 / □600 □350 / □400 / □430 / □600 □100 / □180 / □230 / □290 $\Box 100 / \Box 180 / \Box 230 / \Box 290$ □350 / □400 / □430 / □600 □350 / □400 / □430 □600 □490 □Si $\Box 6$ □800 □800 $\square Ar$ $\Box 6$ $\Box 290 / \Box 400 / \Box 650$ □500 $\Box 290 / \Box 400 / \Box 650$ □Fe $\Box 6$ 500 □500 500 [Number of irradiating ionic particles] (Place a check mark in number of irradiating ionic particles.) Number of irradiating ionic particles (pps)* Physical and Irradiating Medium energy beam Biological irradiation Secondary beam general-purpose irradiation room ion irradiation room room irradiation room $\Box 2.0 \times 10^{12}$ $\Box 1.2 \times 10^{10}$ $\Box 1.2 \times 10^{10}$ $\Box 4.0 \times 10^{7}$ □Не **⊿**]C **∠**1. 0×10¹¹ $\Box 1.8 \times 10^{9}$ $\Box 2.0 \times 10^{9}$ $\Box 6.0 \times 10^{6}$ $\square N$ $\Box 1.0 \times 10^{11}$ $\Box 1.5 \times 10^{9}$ $\Box 1.7 \times 10^{9}$ $\Box 5.0 \times 10^{6}$ $\Box 0$ $\Box 1.0 \times 10^{11}$ $\Box 1.2 \times 10^{9}$ $\Box 3.7 \times 10^{6}$ $\Box 1.1 \times 10^9$ □Ne $\Box 1.0 \times 10^{11}$ $\Box 7.8 \times 10^{8}$ $\square 8.5 \times 10^{8}$ $\Box 2.6 \times 10^{6}$ □Si $\Box 1.0 \times 10^{11}$ $\Box 4.0 \times 10^{8}$ $\Box 4.4 \times 10^{8}$ $\square 1.3 \times 10^6$ $\Box 1.0 \times 10^{11}$ $\square Ar$ $\square 2.4 \times 10^8$ $\Box 2.7 \times 10^{8}$ $\square 8.0 \times 10^5$ □Fe $\Box 1.0 \times 10^{11}$ $\Box 2.5 \times 10^{8}$ $\Box 2.5 \times 10^{8}$ □8.3×10⁵ *Number of irradiating ionic particles (pps) in the table is the maximum number of particles approved for use;

the actual number of irradiating ionic particles available is less.

No.	item	How to fill out the form	
18	Irradiating ions and energy	Please put a "\(\msi\)" in the irradiating ions used and the applicable maximum energy in the project.	
19	Number of irradiating ionic particles	Please put a "\(\sigma "\) in the number of irradiating ionic particles in the project.	

Information on experimental participants

I	(*1)	(*2, 3)	Name	E-Mail address (*4)	Affiliation	Status within QST. (*5)
0	✓	0	John Smith	xxx@xxx.co.jp	QST Univ.	C
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- (*1) Among those who will actually participate in the project, please decide who will be responsible for representing the work group and place a check mark. This person may be different from the person who will be responsible for the project representative. If there will be a different person responsible for each machine time, please check all responsible persons.
- (*2) Please circle those who have completed registration as a "Radiation Worker" in QST Chiba office.
- (*3) Please Δ if you plan to register as a "Radiation Worker" in QST Chiba office.
- (*4) Please fill in your e-mail address if you have one.
- (*5) In QST Chiba office, please select the applicable category from the following and fill in the appropriate alphabet. Please check with the project staff in QST to determine which category applies to you.

Trease electrical and project starr in got to determine which educately apprice to your					
A: Retirees and fixed term	F: Visiting Collaborative	K: others ()			
employees in QST	Researcher				
B: Collaborative Researcher	G: Postdoctoral Fellow				
C: Visiting Researcher	H: Invited Researcher				
D: Cooperative Program	I: JSPS Research Fellow				
Graduate Student					
E: Trainee	J: Junior Researcher Associate				

※If you are not registered as a "Radiation Worker" in QST Chiba office by the day of the experiment, you will not be able to participate in the experiment even if your name is on the list of participants for this experiment.

No.	item	How to fill out the form
20)	Information on experimental participants	Please include the experiment participant's name, email address, institutional affiliation, and status within QST.