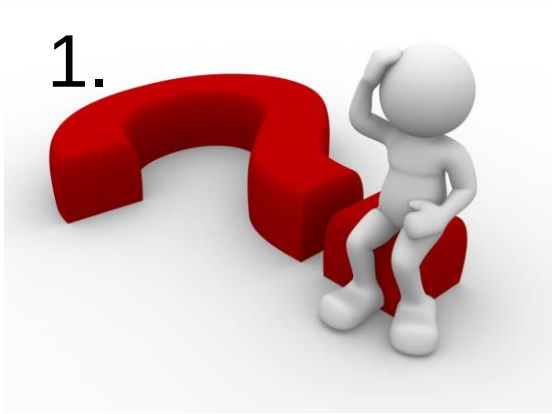
Tutorial 3: How to access SR facilities; choice of beamlines and do's and don'ts in beamtime application

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At the beginning …

1.



What is the research problem?

2.



Having an idea using SR technique(s)?

3.



There are many SR techniques, which one(s)?

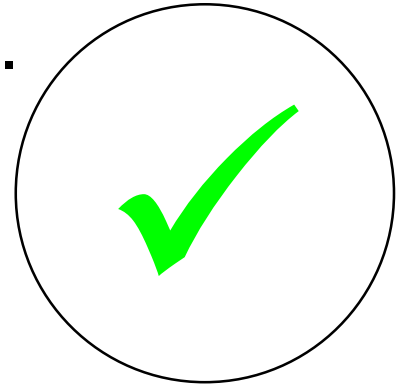
New user or 1st Time Applicant

Spend time to research which technique(s) are applicable, visit SR and beamline websites, e.g. nano-science requires nano-probe; spectroscopic work uses XAS, XAF and EXAFS beamline; structural study uses diffraction instruments ….



Which synchrotron and beamlines?

4.



Decision made to use technique x and y at SR-z

Caution: limit to one or two technique(s) or beamline with combined technique(s) suitable for your work.

5.



Contacting beamline scientist to check the proposed work is **technically feasible**.

Explain clearly what you want to do. For non-ambient or in situ work, state your requirements: T-P range and sample environment(s), etc. By sending a draft proposal including a summary of requirements would help.

6.

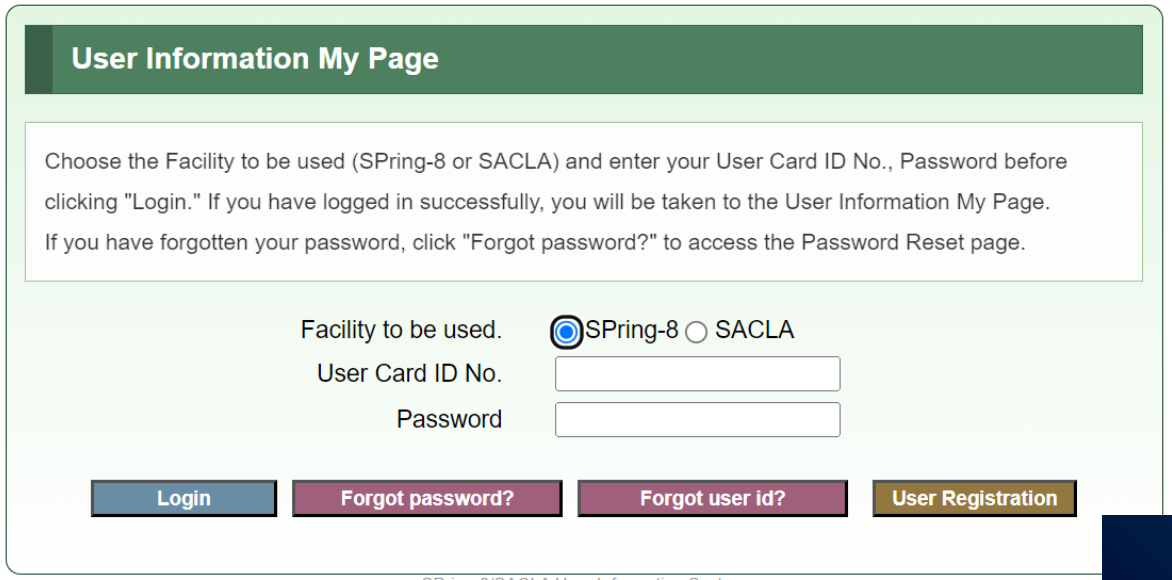


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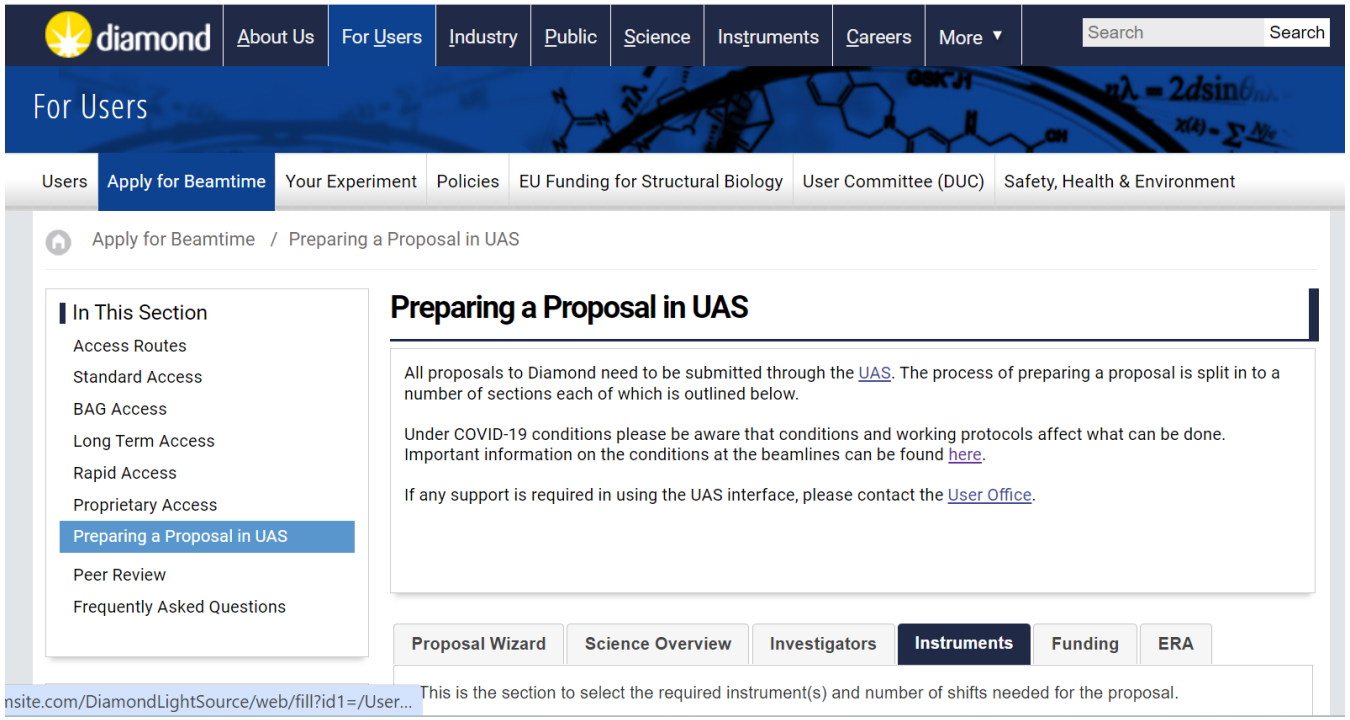


To become a user of SR-z, you must register online.

Visit the User Office website of prospective SR facility, you should find the link for online registration and beamtime application.
A few examples given here:



Spring-8 (Japan)



Diamond Light Source (UK)



Taiwan Photon Source

Science case

Samples, safety information, control and declaration

Other details: team members, dietary requirements accommodation, etc.

8.



Write and submit beamtime application using online system

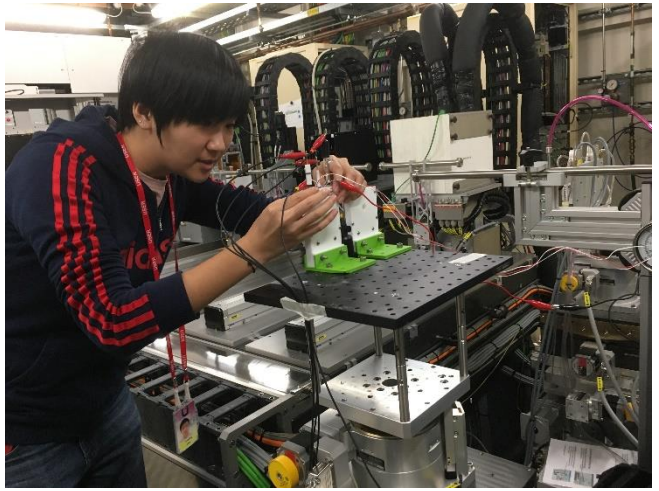
9.



Approval

Waiting for the beamtime to be scheduled by the BL scientist.

10.



Beamtime

Preparation before beamtime and then carry out experiment on beamline

Present the science case is most critical part and your application will be reviewed:

1. Technically by the beamline scientist (Important to do Step 5)
2. Scientifically by a panel of peers or experts to rank or recommend (or not) beamtime

Dos and Don’ts

Dos and Don't for beamtime application

Dos	Don'ts	Comments
Visit user office website to check proposal submission deadline	Ignore it, it is often too late or too little time to write a good proposal.	Useful to know the deadline date as it allow you to schedule your work on the application
Check User Office website of prospective SR facility before applying for beamtime		There may be issues such as eligibility and shutdown. Some SR facilities do not allow PDRA or research student to be the principal applicant. Prospective SR facility is shutdown for major work.
Contact beamline scientist(s) well in advance to discuss your proposed work.	Leave it late to contact beamline scientist(s) to discuss your proposed work.	This is very important to make sure your work is technically feasible and also input the appropriate technical details for the proposed work, including estimated beamtime.
Use the template provided	Use your own template	As other applications will use the same template, it would be difficult for the reviewer to read.
Science case has to be strong, provided evident, details or reasons to support the work.	Weak science case without evident or details to support the work.	Reviewers should not have to look hard for information to be persuaded (strong proposals), but can easily see weak proposals
Clearly state your objective(s) and expected results,	Not stating your aim(s) or objective(s) is a sign of poor application.	No clear objectives is a weak proposal
Make sure others in your team have read, input and revised the science case.	No input and review by others often produced poor science case.	It is a team effort to produce a strong application.

Dos	Don’ts	Comments
Justify the use of SR technique(s)	If justification is required and not clearly given, the chances of rejection is high.	Some techniques are available using laboratory machines, e.g. powder and single crystal diffraction. It is important to state why the SR technique is needed such as high resolution and speed to time-resolved.
Justify the use of SR technique(s)	If justification is required and not clearly given, the chances of rejection is high.	Some techniques are available using laboratory machines, e.g. powder and single crystal diffraction. It is important to state why the SR technique is needed such as high resolution and speed to time-resolved.
Estimate/request the number of days or shifts of beamtime for your expt.	Arbitrary stating the amount of beamtime without estimation.	
Allow plenty of time to write and submit proposal	Rushing/leave things last minutes produces poor proposals.	

Preparation before beamtime

1. Samples

- Prepare/synthesize samples well before beamtime
- Check and screen samples
- If possible characterised samples using lab. Instruments, e.g. SEM, XRD, IR or UV.
- If possible load samples into recommended holders, this well save you beamtime.
- Prioritise samples as beamtime is limited; do the important or best quality specimens first.

2. Equipment

- Any equipment to be used on beamline are checked and make sure they are working before beamtime
- Have a check list of all the equipment and tools
- Contact BL scientist(s) if any large equipment to be brought in for the experiment well before beamtime
- Allow time for safety test or inspection for brough-in cells or user-built equipment before use on beamline.

3. Have a plan for the beamtime

- What are your objective(s)
- Which beamline’s non-ambient apparatus to be used
- Measurements: pressure, temperature, step size and ramp rate, etc.
- Estimate the time required for the measurements and prioritize your work,
- Go through the plan and finalised with your team before beamtime,
- Have a backup plan (B) if your initial plan (A) is not working.