

XRD-lab info

The XRD lab is now back up again and can be used as normal!

Summer holiday

- The XRD-lab will be kept open and running during the summer, with reduced support between 6th-26th July. Contact person between 6th-22nd July will be Viviann Hole, viviann.hole@ntnu.no.
- If instruments break down during this period, they will not be fixed until afterwards - a message will be posted here on the wiki and in the Booking system
- The DaVinci1 diffractometer will be loaded most days, with a few exceptions (list will be updated):
 - 23rd-24th July

The daily running of the XRD-lab in the Corona virus period

- From the 27th April: It will be possible to use the XRD-lab if I have received a confirmation from your Head of Department that you are allowed to continue your lab activity.
- Maximum 4 users at the same time, and keep a distance of minimum 1 metre.
- We have a booking form for the room in order to avoid too many people being in the room at the same time.
- The DaVinci1-diffractometer will be loaded most days.
- **Grazing-incidence set-up:** *Wednesdays as normal* (if you have GI-samples, please put them in the queue before lunchtime on Wednesdays)
- Support by email (or use email to set up a meeting).

Normal User support

- Lab assistant for loading/unloading samples for the Routine Powder Diffractometer (DaVinci1): Viviann Hole, viviann.hole@ntnu.no, office: K2-333. Please contact her if you have specific questions about sample loading times etc.
- Routine diffractometer (DaVinci1) will normally be loaded and measurements started every weekday at approximately 9-10 and 15:45 (if practically possible).
- **Normal support time for XRD** questions will be **Tuesdays-Thursdays: 10:30-11:30** (Priority for new grazing-incidence-XRD-users on Wednesdays). I will be in either **the office** or **the XRD-lab** (or please just phone me, sometimes I have to run around)
- Lab events / shut-downs / instrument statuses etc will be posted in the [Booking system](#) (click on the "Dashboard" tab, or check the X-Ray Diffraction booking calendar)

XRD training and courses

1. The **instrument training courses**. This training is required for new users of the lab/instruments, and they are arranged every second week, normally Thursdays at 9-10. It is recommended to wait until your samples are ready or nearly ready. Please fill in this form, and then we can adapt the training better for your requirements.

<https://forms.office.com/Pages/ResponsePage.aspx?id=cgahCS-CZ0SluluzdZZ8Ba32atCjLHVKIU5Id-GXOk5UNVNWUxaMDI4T0dZV0dZQVY3OVZHWVNGWS4u>

If you are external to NTNU, and the link above doesn't work, just send me an email: [Contact info](#)

2. **Introduction to XRD data analysis software**. (voluntary). 45 minutes, occasionally arranged when sufficient requests. If you are interested, please fill in this form: <https://forms.office.com/Pages/ResponsePage.aspx?id=cgahCS-CZ0SluluzdZZ8Ba32atCjLHVKIU5Id-GXOk5UNThIMThMRUJVL0UyRTA5WIRZM1FWQ1c4OS4u>
3. **Workshop in further data analysis using Topas**. (voluntary). 3 x 2 hours (3 consecutive weeks). Next Workshop will probably be in October 2020. If you are interested, please fill in this form: <https://forms.office.com/Pages/ResponsePage.aspx?id=cgahCS-CZ0SluluzdZZ8Ba32atCjLHVKIU5Id-GXOk5UME1TTUEzTEc1MIBTTFdWSIJATkxCUkhNSC4u>

The year in the XRD-lab

Autumn:

September - November: Many new users are coming during this period and we arrange instrument trainings for new users almost every week, or even more often if necessary.

Mid-October - November: **TOPAS Workshops** will be arranged. The TOPAS Workshop assumes some basic knowledge of diffraction, for example TMT4130/TMT4166 or the FACET crash course.

Winter:

December - January: Reduced service levels in the XRD-lab over the Christmas holiday period, thereafter possibly reduced service due to maintenance and upkeep.

Spring:

February-May: XRD-lab running as normal, instrument trainings are arranged approximately every fortnight

Late May - Early June: Instrument service period if necessary

Late May - Early June: Topas Workshop will be arranged if sufficient demand, fill in this [form](#) if you are interested (or send me an email if you can't get access).

Summer:

Mid June - mid-August: reduced service levels in the XRD-lab. This is because of holiday / needed time for maintenance and upkeep. That means that only people that are already trained and have access can use the lab (i.e. no new trainings).

Prices for using the XRD-lab, valid for 2019

		Regular Projects (bidragspriser)	Commissioned Projects (oppdragspriser) - please ask for a quote
Per hour	Price for using the diffractometers	251	
Per day	Price for using the diffractometers	2259	
Per hour	Technical Support	518	
Per day	Price for using the Non-ambient system	2259	
One-time Fee	Start-up training (in groups)	345	
Semester		9300	

Instruments in the K2-XRD-lab:

Name of equipment	Link to more information
Routine Powder Diffractometer (DaVinci1)	DaVinci1
9-position sample holder powder diffractometer (D8 Focus)	D8 Focus
Siemens D5005 with monochromator (A-unit)	A-unit
Multipurpose Powder X-ray diffractometer (DaVinci2)	DaVinci2
Non-ambient X-ray diffractometer (D8 Advance)	D8 Advance

Training procedures

For the [start-up](#) training, you will be put in small groups of around 3 participants (signing up ca. 4 days in advance) and you will be sent a powerpoint presentation with videos to watch before coming to the training. In quiet times of the year (December to August), this means that you might have to wait up to a few weeks for the group to fill up. In the period September-November, there will normally be at least one training per week. We recommend that you have your samples ready - or nearly ready - at the time of the the training. Then it is easier for us to tailor the training for your specific type of samples, in addition to you being better able to remember the training until you next need to use the instrument on your own. At the start-up training, you will be trained on either [DaVinci1](#) or [D8-Focus](#) (please let lab responsible know if you have any preferences on which one), and then you will be qualified to use that specific instrument.

If you have to cancel your training, then please notify the [lab responsible](#) at least one day in advance - otherwise your project will be charged for your training anyway.

Access to the lab will be given after the start-up training is completed.

Some of you might need to use other instruments than the one you had the start-up training on, and then you need to agree a time with [lab responsible](#) for specific instrument training. If you cannot wait for a few more participants and therefore are alone at the training, then you will need to pay the full price for technical support (see table above).

Booking and logging the use of the diffractometers

We are using the [Booked Scheduler system](#) for booking calendars and logging the measurement times: see information here: [Booking/logging XRD-use](#).

After the measurements - understanding the data

[Wiki page about data analysis and software](#)

Relevant links:

[XRD introduction from University of Cambridge](#)

[Wikipedia: Crystal structure](#)

[Generation of X-rays](#)