

HERCULES

European School

Neutrons and synchrotron radiation for science

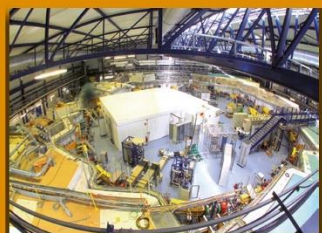
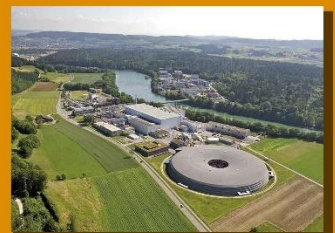
Online

2021

February 22nd
to March 26th

<http://hercules-school.eu/>

From
Grenoble
FRANCE



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ORGANISATION

ORGANISED BY:

Université Grenoble Alpes (UGA)
Grenoble INP

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SUPPORTED BY:

- European Commission project CALIPSOplus
- DECTRIS
- European Synchrotron Radiation Facility (ESRF)
- Institut Laue Langevin (ILL)
- Institut de Biologie Structurale (IBS)
- Deutsches Elektronen-Synchrotron (DESY)
- European XFEL
- Elettra Sincrotrone Trieste: Elettra & FERMI
- Centre National de la Recherche Scientifique (CNRS):
Institut National de Physique & Laboratoires du Polygone Louis Néel, Grenoble
- Commissariat à l'énergie atomique (CEA):
Direction de la Recherche Fondamentale (DRF)
- Synchrotron SOLEIL
- Swiss Light Source (SLS) - Paul Scherrer Institute (PSI)
- Karlsruhe Institute of Technology (KIT)
- ALBA Synchrotron
- Fostering science programm - Grenoble Innovation for Advanced New Technologies (GIANT) - CEA Grenoble

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GENERAL INFORMATION

HERCULES is a 5 weeks course designed for training students and scientists from European universities and laboratories in the field of neutron and synchrotron radiation.

It includes a common part during a week and a half, followed thereafter by two parallel sessions:

SESSION A: Physics and chemistry of condensed matter (55 full-time and 9 part-time* participants).	SESSION B: Biomolecular structure and dynamics (24 full-time and 2 part-time* participants).
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* part-time participants do not participate in week 4, neither to the complete practicals / labs / tutorials programme.

It is mainly organised from Grenoble, from the European Schools Office at the “Maison des Magistères” on the Polygone Scientifique Louis Néel, where the Institut Laue Langevin (ILL) and the European Synchrotron Radiation Facility (ESRF) are also located.

Due to the sanitary context, this 2021 session is totally organised ONLINE.

The HERCULES course includes online lectures and tutorials, remote labs and practicals, together with virtual visits of large scale facilities.

It also includes **one week of practicals and lectures from different locations outside Grenoble from 15th to 19th March** (week 4 of the school):

ALBA, Elettra/FERMI, SLS/SINQ (PSI), and KIT (+ European XFEL for ALBA and KIT).

The language of the course is **English**.

The time zone is **Central European time UTC+1**

TIMES OF LECTURES, PRACTICALS, LABS AND TUTORIALS

LECTURES organised from Grenoble

When (see timetables enclosed in the brochure):

- ▶ in the morning from 8:40 to 12:30 with a 30' coffee break at 10:20 (except on the first day when it starts at 8:30).
- ▶ in the afternoon from 14:00 to 17:50 with a 30' break at 15:40.

PRACTICALS AND TUTORIALS organised from Grenoble

All practicals, labs, and tutorials start at 9:00 in the morning and 14:00 in the afternoon, and last about 3.5 hours. Practical / labs correspond to remote hands-on experiments at large scale facilities ILL and ESRF / in CNRS or IBS laboratories, while tutorials consist mostly in data treatment, without the experimental part.

SCHEDULES

The general schedule (lectures, visits, poster session, ...), followed by the list of all practicals / labs / tutorials, is given in this brochure first for the programme organised by Grenoble, then for the programme organised by 1/ ALBA + European XFEL, 2/ Elettra/FERMI, 3/ SLS/SINQ, and 4/ KIT + European XFEL. The individual schedule of practicals / labs / tutorials, organised both by Grenoble and by one of our four above-mentioned partner facilities, is given in a separate PDF document for all the participants.

PRACTICAL INFORMATION

GENERAL INFORMATION ABOUT CONNECTIONS / LINKS

▶ **ZOOM and GATHER TOWN will be used during the session.**

- Please, register on these platforms with your Surname NAME, so that we can recognize you when you will be logged.
- Keep your microphone OFF during the lectures and open it only when you have a question.
- In order to keep interactivity with the lecturer, please let your camera ON during the lectures (except, of course, if you have internet flow problem).

PLEASE, INSTALL THE 5.5.0 VERSION OF ZOOM OR MORE RECENT.

▶ **GATHER TOWN** permit us to create virtual spaces to bring people together and connect authentically. Gather combines video calling with fun features in a custom 2-D world, making it more spontaneous and enjoyable to get together for work or discuss.

Our Gather Town space will be open during all the session, permitting you to interact also during the lunch breaks or after lectures.

To join the Gather Town HERCULES space, follow this link and register with your Surname NAME:

<https://gather.town/app/xF9cOjPABhw3scvt/HERCULES2021>

The "Welcome cocktail", poster session, and Wine & Cheese party will be held on Gather Town.

▶ During the session, you are asked to fill in an **EVALUATION FORM** for each lecture, on the Hercules web site (<http://hercules-school.eu/>), so please **connect regularly on your participant profile to do it.**

▶ **THE RECORDED VIDEOS AND PDF PRESENTATIONS** of the lectures will be available in the "LECTURES week1...", 2, 3, and 5 folders on the **HERCULES cloud** at the following link:

<https://nextcloud.grenoble.cnrs.fr/xxxxxxxxxxxxxxxx>

PLEASE, RESPECT THE CONFIDENTIALITY OF THESE DOCUMENTS, KEEP THEM ONLY FOR YOUR PERSONAL USE.

▶ You will also find all the **UPDATED PLANNINGS** (for the lectures and the practicals / labs / tutorials) together with **last minute information** in the GENERAL INFORMATION folder of the HERCULES Cloud: <https://nextcloud.grenoble.cnrs.fr/xxxxxxxxxxxxxxxx>

ZOOM IDS, LINKS, AND PASSWORD, FOR THE LECTURES AND PRACTICALS / LABS / TUTORIALS ORGANISED BY THE GRENOBLE COMMITTEE (WEEKS 1, 2, 3, AND 5).

LECTURES OF GRENOBLE PROGRAMME

All of them will have the same **PASSWORD: xxxxxxxx**

Most of the lecturers will be using the Zoom meetings created by the organising committee:

- **Common and Session A lectures** (in orange & blue on schedules pp 15 – 18 and 25 – 28):
<https://grenoble-inp.zoom.us/xxxxxxxxxxxxxx>
meeting ID: xxx xxxx xxxx

- **Session B lectures** (in green on schedule pp 26 – 28):
<https://univ-grenoble-alpes-fr.zoom.us/xxxxxxxxxxxxxx>
Meeting ID: xxx xxxx xxxx

The other lecturers will create themselves a meeting and thus **use another ID** (but same password). They will be available by clicking directly on their lecture in the schedule deposited on the HERCULES cloud at: <https://nextcloud.grenoble.cnrs.fr/xxxxxxxxxxxxxx>

PRACTICALS / LABS / TUTORIALS OF GRENOBLE PROGRAMME

During weeks 1, 2, 3 and 5, a single Zoom meeting will be used for all practicals, labs and tutorials of each session (A and B), still with the **PASSWORD: xxxxxxxx**
 The same link will also be used for the evaluation meeting of each session in week 5.

You will then be dispatched in different virtual rooms, corresponding to each practical / lab / tutorial, with your instructor. **Please, log in 5 minutes before the start (8:55 or 13:55) and add the acronym of the practical / lab / tutorial** (as written in the separate individual schedule of practicals / labs / tutorials) **you are to follow before your Surname NAME in your Zoom ID**, i.e. "ACRONYM Surname NAME" (example: "FLUO James SMITH"):

- **Practicals / Labs / Tutorials for the A session** (in yellow on schedule pp 16 – 18):
<https://ill.zoom.us/xxxxxxxxxxxxxx>
Meeting ID: xxx xxxx xxxx

- **Practicals / Labs / Tutorials for the B session** (in yellow on schedule pp 26 – 28):
<https://esrf.zoom.us/xxxxxxxxxxxxxx>
Meeting ID: xxx xxxx xxxx

**INFORMATION ABOUT ZOOM IDS, LINKS, AND PASSWORDS,
FOR THE LECTURES AND PRACTICALS / TUTORIALS ORGANISED BY
THE PARTNERS COMMITTEES (WEEK 4).**

PARTNERS SITES

▶ ALBA + European XFEL



II ALBA contacts

Martin Kreuzer ▶ mkreuzer@cells.es
 Debora Pierucci ▶ dpierucci@cells.es
 Eduardo Solano ▶ esolano@cells.es

II EuXFEL contacts

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 Sakura Pascarelli ▶ sakura.pascarelli@xfel.eu
 Thomas Tschentscher ▶ thomas.tschentscher@xfel.eu

ALBA and EuXFEL will use ZOOM for everything. They will send you directly the list of links and passwords for the different events prior to the school.

MONDAY 15 MARCH MORNING: XFEL ZOOM LINK

10:30 - 11:30 "Introduction to the European XFEL" - Christian BRESSLER

<https://xfel.zoom.us/j/93329840537?pwd=eHlvZmFWd3d4QkZuT3F5OUxHUDhVdz09>

Meeting ID: 933 2984 0537

Password: 515099

▶ Elettra / FERMI

HERCULES 2021



II Elettra contacts

Email contact ▶ hercules2021@elettra.eu
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 Nicola Demitri ▶ nicola.demitri@elettra.eu
 Laura Foglia ▶ laura.foglia@elettra.eu
 Lara Gigli ▶ lara.gigli@elettra.eu

Elettra will use ZOOM for everything. There will be a password protected page in their Hercules web page where they will provide you with the instructions. They will communicate with you directly. URL with all the necessary information for HERCULES week 4 organised by Elettra/FERMI:

<https://www.elettra.eu/Conferences/2021/HERCULES/>

▶ SLS / SINQ



II PSI contacts

Patrick Hemberger	▶ patrick.hemberger@psi.ch
Jan Gui-Hyon Dreiser	▶ jan.dreiser@psi.ch
Frithjof Nolting	▶ frithjof.nolting@psi.ch
Martina Füglister	▶ martina.fueglister@psi.ch

All the necessary information (zoom links, scripts for practicals and tutorials, schedule, etc.) will be posted at the following link: <https://indico.psi.ch/e/Hercules2021>

Password = PSIH21

▶ KIT + European XFEL



II KIT

contacts

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Practicals organized by KIT and Tutorials organized by European XFEL: a different Zoom link will be used for each of them. You will find all the necessary detailed information (time, zoom links, ...) at the following url: <https://indico.scc.kit.edu/event/2314/>

Log in: **Hercules-KIT21**

For the welcome and lectures organised on Monday 15 March morning, the following Zoom links and passwords will be used:

MONDAY 15 MARCH MORNING: PLANNING & ZOOM LINKS

9:00 - 10:15 "Welcome" and "Accelerators at KIT"

<https://kit-lecture.zoom.us/j/69011926465?pwd=YUhtZzd1YTYzd0s0aHc1SWc0THY2UT09>

Meeting ID: 690 1192 6465

Password: 096925

10:30 - 11:30 "Introduction to the European XFEL" - Christian BRESSLER

<https://xfel.zoom.us/j/93329840537?pwd=eHlvZmFWd3d4QkZuT3F5OUxHUDhVdz09>

Meeting ID: 933 2984 0537

Password: 515099

11:45 - 12:30 "Beamlines at KIT"

<https://kit-lecture.zoom.us/j/69011926465?pwd=YUhtZzd1YTYzd0s0aHc1SWc0THY2UT09>

(same link as for the KIT welcome and lecture at 9:00)

LIST OF PARTICIPANTS: SITES AND GROUPS FOR WEEK 4 WITH PARTNER FACILITIES. SESSION A

NAME	Surname	Site	Group	Sub group	#
ALSHEMI	Ahmed	SLS/SINQ	A3	W2	S01
ALVARADO GALINDO	Fernanda	ALBA+EuXFEL	A1		S02
ANTUNES CORREA	Cinthia	ALBA+EuXFEL	A2		S03
BARTHÈS	Antoine	SLS/SINQ	A4	W1	S04
BENTER	Sandra	Elettra/FERMI	A3		S05
BRENNHAGEN	Anders	KIT+EuXFEL	A3		S06
CAKIR	Cafer Tufan	Elettra/FERMI	A1		S07
CARRARA	Pietro	ALBA+EuXFEL	A2		S08
CHABOT	Florian	Elettra/FERMI	A2		S09
CHANDRA	Debanjan	KIT+EuXFEL	A1		S10
CHANG	Aldrin	Elettra/FERMI	A3		S11
CORLEY	Cedric	KIT+EuXFEL	A2		S12
CROSS	Hannah	KIT+EuXFEL	A1		S13
DAS	Srashtasrita	Elettra/FERMI	A1		S14
DE VITA	Alessandro	ALBA+EuXFEL	A1		S15

DIERKS	Hanna	KIT+EuXFEL	A3		S16
E SILVA DE ALMEIDA	Gabrielli Maria	SLS/SINQ	A4	W1	S17
FLURY	Simon	Elettra/FERMI	A3		S18
FORERO-SABOYA	Juan David	Elettra/FERMI	A1		S19
GRAHAM	Jennifer	SLS/SINQ	A1	W1	S20
HANSEN	Mads Fonager	SLS/SINQ	A1	W2	S21
HERLIHY	Anna	SLS/SINQ	A1	W1	S22
HIMANSHU	Himanshu	ALBA+EuXFEL	A2		S23
JAKATA	Kudakwashe	KIT+EuXFEL	A1		S24
KARMAKAR	Arindam	SLS/SINQ	A3	W2	S25
KARPETS	Maksym	SLS/SINQ	A2	W3	S26
LAUER	Andrew	Elettra/FERMI	A2		S27
LÉVEILLÉ	Cyril	ALBA+EuXFEL	A2		S28
LOZINSEK	Matic	Elettra/FERMI	A2		S29
LUKIC	Bratislav	Elettra/FERMI	A2		S30
MAGNARD	Nicolas	KIT+EuXFEL	A2		S31

NAME	Surname	Site	Group	Sub	#
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NORTHAM DE LA FUENTE	Tomas Stephen	SLS/SINQ	A2	W2	S38
ØSTERGAARD	Maja	KIT+EuXFEL	A3		S39
PAPADOPOULOS	Konstantinos	Elettra/FERMI	A3		S40
PERL	David	Elettra/FERMI	A2		S41
PITCAIRN	Jem	SLS/SINQ	A2	W2	S42
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SEMERIKOVA	Anna	KIT+EuXFEL	A2		S45
SUTHERLAND	Jennifer	SLS/SINQ	A4	W1	S46
SZCZERBA	Daniel	SLS/SINQ	A1	W1	S47
TAJOLI	Francesca	ALBA+EuXFEL	A1		S48
TANG	Ran	SLS/SINQ	A3	W2	S49

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YU	Le	Elettra/FERMI	A3		S55
AOUANE	Mohamed				S56
DE MORAES	Isabelle				S57
DI PIETRO MARTINEZ	Marisel				S58
DRAGOMIR	Mirela				S59
GREGOIRE	David				S60
HAMEED	Fareeha				S61
MARTINELLI	Alberto Mario				S62
MIQUEU	Christelle				S63
ZIASHAHABI	Azin				S64

PT: Part-time participants (participate to 4 practicals / tutorials in total)

LIST OF PARTICIPANTS: SITES AND GROUPS FOR WEEK 4 WITH PARTNER FACILITIES.

SESSION B

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CANON	Louise	ALBA+EuXFEL	B1		S67
COLIN	Louise	KIT+EuXFEL	B		S68
COLOCHO HURTARTE	Luis Carlos	Elettra/FERMI	B		S69
CORREA MARCANO	Yubexi Yakari	SLS/SINQ	B	W3	S70
CROZET	vincent	ALBA+EuXFEL	B1		S71
D'ANGELO	Arianna	SLS/SINQ	B	W3	S72
ERIKSON	Sofia Kristina Andromeda	SLS/SINQ	B	W3	S73
GANDARIAS	Lucía	ALBA+EuXFEL	B1		S74
GASCON FERNANDEZ GUBIEDA	Alicia	KIT+EuXFEL	B		S75
GILABERT	Omar Tomas	ALBA+EuXFEL	B1		S76

GIROIS	Loïc	ALBA+EuXFEL	B2		S77
GRACHEVA	Maria	Elettra/FERMI	B		S78
KEHLENBECK	Dominique- Maurice	ALBA+EuXFEL	B2		S79
KULANDAISA MY	Rajkumar	ALBA+EuXFEL	B2		S80
LARSSON	Per	Elettra/FERMI	B		S81
PENA MURILLO	Gisel Esperanza	ALBA+EuXFEL	B2		S82
PICCININI	Alice	KIT+EuXFEL	B		S83
SINGH	Prashant Kumar	ALBA+EuXFEL	B2		S84
VILJANEN	Mira	SLS/SINQ	B	W3	S85
WEDER	Julia	KIT+EuXFEL	B		S86
WINNALL	Samuel	Elettra/FERMI	B		S87
ZHOU	Boyang	Elettra/FERMI	B		S88
ASHWANI	Kumar				S89
GLATT	Lisa				S90

PT: Part-time participants (do not participate to any practical)

PROGRAMME of GRENOBLE

SCHEDULE FOR SESSION A

Last update 17/02/2021

Week 1: 22nd to 26th February


	Monday 22	Tuesday 23	Wednesday 24	Thursday 25	Friday 26
8:30 – 8:40	Welcome				
8:40 – 9:25 10' break 9:35 – 10:20	Introduction to the science at large scale facilities: neutron, synchrotron and XFEL sources Marc de Boissieu	Introduction to interactions of X-rays and neutrons with matter (2/2) Andrew Harrison	Neutrons: scattering and instrumentation (2/2) Andrew Wildes	Introduction to imaging techniques Federica Marone	From a diffraction experiment to the crystal structure Marc de Boissieu Training on Crystallography Claire Colin & Béatrice Grenier
10:50 – 11:35 10' break 11:45 – 12:30	Introduction to interactions of X-rays and neutrons with matter (1/2) Andrew Harrison	Crystallography (1/2) Béatrice Grenier	Crystallography (2/2) Béatrice Grenier	Hard X-ray optics for SR beamlines Ray Barrett	Questions on lectures (A and B together, with lecturers of the week)
14:00 – 14:45 10' break 14:55 – 15:40	ILL & ESRF presentations (45' each) UGA presentation (15')	Neutrons: scattering and instrumentation (1/2) Andrew Wildes	X-ray detectors Heinz Graafsma	Introduction to small angle scattering Martin Müller	13:45 – 14:00 Fostering Science Thibaut DAVID 14:00 – 14:40 NFFA.eu Ennio CAPRIA DECTRIS presentation Dubravka Sisak Jung
16:10 – 16:55 10' break 17:05 – 17:50	Introduction to synchrotron radiation David Attwood	Soft X-rays and VUV: specific optics and applications David Attwood	Virtual ESRF visit Laurent Hardy Yannick Lacaze Gaël Le Bec	Virtual ILL visit Andrew Wildes	15:00 – 18:00 POSTER SESSION on Gather Town
	18:10 Welcome cocktail on Gather Town				

Common lectures 
Others 

SCHEDULE FOR SESSION A

Week 2: 1st to 5th March


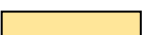
	Monday 1	Tuesday 2	Wednesday 3	Thursday 4	Friday 5
8:40 – 9:25 10' break 9:35 – 10:20	Introduction to neutron and X-ray inelastic scattering Christiane Alba-Simionesco	Introduction to magnetism Luigi Paolasini	Polarized X-rays Urs Staub	Inelastic X-ray scattering Michael Krisch	FELs & ultrafast applications Sakura Pascarelli
10:50 – 11:35 10' break 11:45 – 12:30	Fundamentals of X-ray Absorption Fine Structure (1/2) Sakura Pascarelli	Magnetic neutron scattering Béatrice Grenier	Polarized neutrons: theoretical and experimental techniques Sean Langridge	Neutron and X-ray reflectometry Oliver Seeck	Science at neutron spallation sources Sean Langridge
14:00 – 14:45 10' break 14:55 – 15:40	Fundamentals of X-ray Absorption Fine Structure (2/2) Sakura Pascarelli	Neutron triple axis spectroscopy Bella Lake	TUTORIALS / LABS (in small groups)	Full-field coherent Imaging Peter Cloetens	“How to write a good proposal” (A and B separated)
16:10 – 16:55 10' break 17:05 – 17:50		X-ray photon correlation spectroscopy Gerhard Grübel		Serial (femtosecond) crystallography Thomas Barends	Questions on lectures (A and B separated)

Common lectures	
Session A lectures	
Others	

SCHEDULE FOR SESSION A

Week 3: 8th to 12th March

	Monday 8	Tuesday 9	Wednesday 10	Thursday 11	Friday 12
8:40 – 9:25 10' break 9:35 – 10:20	Coherent diffraction imaging and ptychography Manuel Guizar-Sicairos	Resonant diffraction (MAD, DAFS) Vincent Favre-Nicolin	9:00 TUTORIALS or	9:00 TUTORIALS or	Dynamical diffraction theory Tilo Baumbach
10:50 – 11:35 10' break 11:45 – 12:30	Neutron time of flight spectroscopy Toby Perring	Neutron backscattering and spin-echo spectroscopies Orsolya Czakkel	ESRF PRACTICALS (in small groups)	ESRF PRACTICALS (in small groups)	Solving surface problems using SR techniques Gilles Renaud
14:00 – 14:45 10' break 14:55 – 15:40	Powder diffraction Radovan Cerny	Liquid and amorphous materials Adrian Barnes	TUTORIALS or	TUTORIALS / LABS or	Soft condensed matter Adrian Rennie
16:10 – 16:55 10' break 17:05 – 17:50	16:10 – 17:10 Ancient materials research with synchrotron and neutron techniques Sebastian Schoeder	Disorder and its effects on neutron and X-ray diffraction Marc de Boissieu	ESRF PRACTICALS (in small groups)	ESRF PRACTICALS (in small groups)	Questions on lectures (A and B separated)

Common lectures	
Session A lectures	
Others	

SCHEDULE FOR SESSION A

Week 4: 15th to 19th March: 'Outside' GrenobleWeek 5: 22nd – 26th March

	Monday 22	Tuesday 23	Wednesday 24	Thursday 25	Friday 26
8:40 – 9:25 10' break 9:35 – 10:20	Magnetic X-ray and neutron reflectivity Björgvin Hjörvarsson	9:00 ILL PRACTICALS (in small groups)	Photoelectron spectroscopy from UV to soft X-rays Hugo Dil	8:40 – 9:40 Materials for energy Sandrine Lyonnard 10:10 – 11:10 THz spectroscopy applied to multiferroic materials Sophie de Brion	9:20 – 11:00 (10' break included) Nanostructures in the light of synchrotron radiation Gilles Renaud
10:50 – 11:35 10' break 11:45 – 12:30	Single crystal structure analysis Enrique Espinosa		X-ray photoemission electron microscopy Claus M. Schneider	11:30 – 12:30 Earth and planetary science Diego Gatta	11:30 – 12:30 Hercules Mythology Chris Buckley
14:00 – 14:45 10' break 14:55 – 15:40	X-ray absorption spectroscopy: theoretical basis Amélie Juhin	ILL PRACTICALS (in small groups)	TUTORIALS (in small groups)	TUTORIALS (in small groups)	12:30 – 14:30 Farewell wine and cheese lunch on Gather Town
16:10 – 16:55 10' break 17:05 – 17:50	Coherent and transient states studied with X-rays FELS Carlo Callegari				
18:00 – 19:00				EVALUATION MEETING (A and B separated)	

Common lectures



Session A lectures



Others



PRACTICALS / LABS / TUTORIALS FOR SESSION A

Coordinators: Guillaume BEUTIER, Alejandro FERNANDEZ-MARTINEZ, Béatrice GRENIER,
Lucile MANGIN-THRO, Fabrice WILHELM

Contact: Béatrice GRENIER

During the weeks 2, 3, and 5, organised by Grenoble, all participants (including part-time ones) will carry out remote practicals at Institut Laue Langevin (ILL) and at European Synchrotron Radiation Facility (ESRF), delivered mostly by instrument responsables and beamline scientists. In addition, they will participate in remote tutorials (mostly data treatment) and in an X-ray lab (for a few people), taught by staff / users, not only from ILL and ESRF, but also from other large scale facilities. The full-time participants will follow nine practicals / labs / tutorials in total, while the part-time participants will follow four of them. Note that part-time participants usually do not take part in them, but we decided, exceptionally this year, to offer them this possibility, since we found for the A session many colleagues volunteering to teach.

All full-time participants will follow additional practicals / tutorials during week 4, fully organised by our partners. Four different groups will be constituted, each following the programme organised by one of the following partner facilities:

- the Spanish synchrotron source **ALBA** near Barcelona and the **European XFEL** in Hamburg (**ALBA + EuXFEL group**),
- the Italian synchrotron light source **Elettra** and Free Electron laser Radiation for Multidisciplinary Investigations (**FERMI**) in Trieste (**Elettra/FERMI group**),
- the Swiss synchrotron radiation facility Swiss Light Source (**SLS**) and the Swiss spallation neutron source **SINQ** at the Paul Scherrer Institute (PSI) in Villigen (**SLS/SINQ group**),
- the Karlsruhe Institute of Technology (**KIT**) Light Source in Karlsruhe and the **European XFEL** in Hamburg (**KIT + EuXFEL group**).

Note that part-time participants will not participate at all in week 4.

Among these 4 groups, the full-time participants have been distributed in groups of 4 to 5 people at the various partner facilities (A1, A2, ... at each site, and also larger groups W1, W2, and W3 for the tutorials at SINQ). As concerns practicals / tutorials in the programme of Grenoble, no fixed groups were made, but rather an individual and personalised schedule. Therefore, we assigned a number to each participant, for a better readability in the tables that will follow (S01 to S55 for the full-time participants, S56 to S64 for the part-time ones). All the information regarding the groups A1, A2, ... and the numbering S01, S02, ... can be found in the PRACTICAL INFORMATION section of this booklet.

The complete practicals / tutorials schedule was done in the best possible way (regarding the many constraints) with respect to their main research interests and wishes expressed. Each group will perform selected practicals and tutorials, as indicated in the following.

The list of all practicals / tutorials (titles and instructors) is given in the following pages, together with the groups (A1, A2, ..., W1, W2, ...) and participants (S01, S02, ...) assignment, and the complete individual schedule for all participants is available on a separate 2 pages PDF document.

All participants are required to attend the entire practical / tutorial / lab program assigned to them.

► Remote practicals at ILL, Grenoble

23rd MARCH, 9:00 – 12:30 and 14:00 – 17:30



PRACTICAL	INSTRUCTOR(S)	TITLE	9:00	14:00
CYCLOPS	Laura CANADILLAS DELGADO Oscar FABELO ROSA	Laue thermo-diffraction on an aperiodic coordination polymer: a fast method to determine incommensurate wave-vectors using single crystals	S21 S41 S43 S54 S61	
D1B	Claire COLIN, Vivian NASSIF Inés PUENTE ORENCH	Microstructure of nanoparticles	S07 S13 S35 S64	S06 S32 S43 S50
D4	Gabriel CUELLO	Total scattering experiments on nanocompounds and liquid electrolytes	S06 S29 S34 S39 S42 S47	S04 S16 S22 S41 S45 S51
D17	Thomas SAERBECK	Exploring thin-film structure and magnetism with neutron reflectometry	S08 S11 S12 S14 S23 S28	S15 S24 S40 S57 S58
D20	Thomas HANSEN	Parametric neutron powder diffraction: thermal evolution of nuclear structures	S48 S51 S53 S60	S05 S14 S37 S54
D23	Ketty BEAUVOIS Béatrice GRENIER	Single-crystal neutron diffraction: field-induced magnetic structure in Cs ₃ Cr ₂ Br ₉	CANCELLED	S12 S18 S20 S25 S38 S42
D33	Robert CUBITT Nina-Juliane STEINKE	Small angle diffraction from magnetic lattices using polarised and unpolarised SANS	S04 S05 S26 S27 S33 S40 S44	S13 S19 S36 S39 S52 S55
IN3	Ursula BENGAARD HANSEN	Measuring phonons in Silicon using a neutron triple axis spectrometer		S11 S23 S29 S31 S33 S56
IN6	Quentin BERROD Sylvain PETIT	Analysis of time of flight inelastic neutron scattering data	S03 S15 S22 S25 S38 S59	S01 S08 S26 S44 S47 S49
IN16B	Markus APPEL	Quantum Tunneling observed with cold neutron backscattering spectroscopy	S10 S17 S19 S31 S36 S37	
PANTHER	Stéphane ROLS	Inelastic Neutron Scattering on powders using the PANTHER Time Of Flight spectrometer	S02 S09 S32 S45 S46 S63	S10 S17 S27 S30 S35 S48
SALSA	Sandra CABEZA Thilo PIRLING	Neutron diffraction based stress characterization for engineering applications	S16 S24 S30 S50 S52	S07 S34 S46 S53
WASP	Peter FOUQUET	Neutron Spin-Echo Spectroscopy of liquids and magnetic spins	S01 S18 S20 S49 S55 S62	S02 S03 S09 S21 S28

This schedule was updated on 18 March, following the cancellation of one practical (D23 in the morning). The participants in orange (S11 and S33) have been re-assigned another practical instead, those in red follow the same ones as planned before, but in the reverse order.

► Remote practicals at ESRF, Grenoble

10th and 11th MARCH, 9:00 – 12:30 and 14:00 – 17:30



PRACTICAL	INSTRUCTOR(S)	TITLE	10 th March		11 th March	
			9:00	14:00	9:00	14:00
BM05	Thu Nhi TRAN CALISTE	X-ray diffraction Imaging (topography)	S14 S16 S24 S34 S37 S50	S02 S06 S12 S30 S55		
BM08 LISA	Francesco D'ACAPITO, Alessandro PURI	Practical introduction to the EXAFS technique	S11 S13 S23 S27 S38 S47	S01 S07 S25 S32 S37 S48	S18 S22 S44 S45 S53	S02 S04 S08 S17 S19 S35
D2AM	Guillaume BEUTIER, Nils BLANC	Resonant X-ray Diffraction	S32 S44 S49 S55	S23 S28 S38 S56 S62	S01 S15 S21 S29 S40 S42	S03 S05 S07 S18 S33
ID01 (1)	Maxime DUPRAZ, Steven LEAKE	Wavefront Reconstruction and Bragg Coherent Diffraction Imaging			S05 S08 S33 S35 S46 S55	S34 S51 S57 S58
ID01 (2)	Ewen BELLEC, Edoardo ZATTERIN	Scanning X-ray Diffraction Microscopy	S05 S06 S08 S18 S28 S40	S09 S13 S16 S34 S43 S50		
ID11	Carlotta GIACOBBE	Nano diffraction: from single crystal to a multi grain case			S09 S14 S23 S24 S48 S51	S13 S28 S30 S39 S52 S53
ID13	Manfred BURGHAMMER	Scanning micro-diffraction			S07 S12 S19 S36 S37 S39	S09 S10 S27 S47 S54 S61
ID15B	Michael HANFLAND	X-ray diffraction experiments with diamond anvil cells	S10 S17 S48 S52 S59	S04 S05 S18 S20 S41 S47		
ID22	Giorgia CONFALONIERI, Catherine DEJOIE, Andrew FITCH, Ola GRENDALE	High resolution powder diffraction	S25 S26 S39 S42 S46	S03 S27 S45 S49 S54 S63		
ID24/ BM23	Olivier MATHON, Angelika ROSA, João Elias RODRIGUES	X-ray absorption spectroscopy	S09 S20 S36 S43 S54 S60	S10 S14 S15 S39 S42 S46		
ID26	Pieter GLATZEL	X-ray emission spectroscopy	S19 S29 S33 S35 S45 S63	S17 S22 S26 S31 S40 S64	S06 S11 S16 S25 S43 S49	
ID28	Alexei BOSAK	Collection of diffraction and diffuse scattering patterns with following treatment			S03 S20 S26 S28 S38 S52	S12 S31 S32 S41 S42 S50
ID31	Jakub DRNEC, Marta MIROLO	High energy X-ray diffraction	S02 S04 S12 S15 S21 S31	S11 S24 S36 S51 S53		
Pressure lab	Gaston GARBARINO	Preparing a successful high pressure experiment	S01 S22 S30 S41	S21 S29 S44 S52		

► Remote tutorials and X-ray Lab



3rd, 10th, 11th, 24th, and 25th MARCH, 9:00 – 12:30 and/or 14:00 – 17:30

TUTORIAL	INSTRUCTOR(S)	TITLE	3 rd March	10 th March		11 th March		24 th March	25 th March
			14:00	9:00	14:00	9:00	14:00	14:00	14:00
APERIODIC	Olivier PEREZ	Aperiodic crystals: from data collection to structure solution						S03 S23 S28 S44 S57	
Bilbao	Sophie DEBRION	Symmetry analysis using the Bilbao Crystallographic Server					S11 S22 S25 S46 S59		
CDI-Ptycho	Vincent FAVRE-NICOLIN	X-ray Coherent Diffraction Imaging and Ptychography						S12 S34 S41 S48 S54	
CRYST	Claire COLIN	Crystallography basics	S13 S24 S27 S32 S36 S40 S42						
CULT	Marine COTTE Giulia VERONESI Hiram CASTILLO	Multi-modal micro-analyses for cultural heritage				S13 S30 S31 S32 S34	S26 S36 S37 S43 S45 S48		S10 S14 S17 S22 S39 S51
Data Reduc	J�r�me KIEFFER	Data reduction tools for scattering experiments: application to SAXS and WAXS				S04 S41 S47 S50			
FullProf	Elodie TAILLEUR	Powder neutron diffraction: crystal and magnetic structure refinement using Fullprof	S15 S26 S43 S47				S14 S24 S29 S49		
GSAS-II	Brian TOBY	Powder neutron and x-ray crystallography in GSAS-II	S07 S29 S30 S31 S34 S46						
JANA	Morgane POUPON Margarida HENRIQUES Vaclav PETRICEK	Jana 2020: Powder and single-crystal diffraction using X-rays and neutrons	S01 S20 S22 S25 S51 S52						S21 S40 S42 S50 S55
MAGDIF	Joe PADDISON	Magnetic diffuse scattering	S08 S11 S21 S23 S28 S59					S01 S20 S40 S42 S55 S58	S03 S18 S25 S38 S44 S57
McStas	Tobias WEBER	Neutron scattering simulations with McStas	S10 S18 S33 S49 S56						

TUTORIAL	INSTRUCTOR(S)	TITLE	3 rd March	10 th March		11 th March		24 th March	25 th March
			14:00	9:00	14:00	9:00	14:00	14:00	14:00
microLAUE	Jean-Sébastien MICHA	White Beam Microdiffraction						S04 S06 S16 S30 S46 S51	S05 S13 S19 S34 S52
OASYS	Manuel SANCHEZ DEL RIO	Modeling SR beamlines with OASYS	S16 S19 S35 S41 S45 S48 S50						
PtychoTomo	Julio Cesar DA SILVA	Ptychographic X-ray Computed Tomography data analysis: phase retrieval and tomographic reconstruction	S02 S04 S05 S06 S09 S39			S10 S27 S61 S63		S13 S24 S31 S35 S37 S60	S16 S26 S28 S30 S47 S58
REFLECTO	Samuel TARDIF François RIEUTORD	Study of flat interfaces using X-ray reflectivity						S02 S05 S09 S26 S47 S52	S12 S36 S46 S48 S53
RIXS 1	Victor BALEDENT	Valence fluctuations in SmS studied by RIXS (XAS/XES)						S21 S22 S43 S50 S64	S01 S08 S33 S45 S56
RIXS 2	Alessandro NICOLAOU	Resonant Inelastic X-ray Scattering in condensed matter: crystal field excitations in LaVO ₃	S12 S38 S44 S53 S54 S55					S14 S15 S19 S25 S29	S06 S20 S23 S41 S49 S62
SPINWAVE	Manila SONGVILAY	Spin wave calculation					S01 S23 S38 S40 S44 S55	S08 S11 S18 S33 S49 S62	
TAS	Dalila BOUNOUA	Phonons studied with triple axis spectroscopy		S07 S03 S51 S53			S02 S17 S54 S60		
XAS 1	Yves JOLY	Simulation of X-ray absorption spectroscopies							S07 S15 S24 S35 S54
XAS 2	Marius RETEGAN	X-ray spectroscopy calculations using multiplet approaches			S08 S19 S33 S35				S11 S29 S31 S43 S64
XPCS	Yuriy CHUSHKIN	X-ray Photon Correlation Spectroscopy data analysis and practice						S07 S10 S17 S36 S38	S02 S04 S09 S27 S32 S37
XRF	Jaime Alberto SEGURA-RUIZ	XRF mapping using a hard X-rays nanoprobe: ID16B beamline at the ESRF and its multi-modal detection setup						S27 S32 S39 S45 S53 S61	

LAB	INSTRUCTOR(S)	TITLE	3 rd March	10 th March		11 th March		24 th March	25 th March
			14:00	9:00	14:00	9:00	14:00	14:00	14:00
X-ray lab	Olivier LEYNAUD	X-ray powder diffraction	S03 S14 S17 S37					S06 S15 S16 S20 S21	



HERCULES 2021 – PROGRAMME OF GRENOBLE

PROGRAMME of GRENOBLE

SCHEDULE FOR SESSION B

Last update 17/02/2021

Week 1: 22nd to 26th February

	Monday 22	Tuesday 23	Wednesday 24	Thursday 25	Friday 26
8:30 – 8:40	Welcome				
8:40 – 9:25 10' break 9:35 – 10:20	Introduction to the science at large scale facilities: neutron, synchrotron and XFEL sources Marc de Boissieu	Introduction to interactions of X-rays and neutrons with matter (2/2) Andrew Harrison	Neutrons: scattering and instrumentation (2/2) Andrew Wildes	Introduction to imaging techniques Federica Marone	From a diffraction experiment to the crystal structure Marc de Boissieu Training on Crystallography Claire Colin & Béatrice Grenier
10:50 – 11:35 10' break 11:45 – 12:30	Introduction to interactions of X-rays and neutrons with matter (1/2) Andrew Harrison	Crystallography (1/2) Béatrice Grenier	Crystallography (2/2) Béatrice Grenier	Hard X-ray optics for SR beamlines Ray Barrett	Questions on lectures (A and B together, with lecturers of the week)
14:00 – 14:45 10' break 14:55 – 15:40	ILL & ESRF presentations (45' each) UGA presentation (15')	Neutrons: scattering and instrumentation (1/2) Andrew Wildes	X-ray detectors Heinz Graafsma	Introduction to small angle scattering Martin Müller	13:45 – 14:00 Fostering Science Thibaut DAVID 14:00 – 14:40 NFFA.eu Ennio CAPRIA DECTRIS presentation Dubravka Sisak Jung
16:10 – 16:55 10' break 17:05 – 17:50	Introduction to synchrotron radiation David Attwood	Soft X-rays and VUV: specific optics and applications David Attwood	Virtual ESRF visit Laurent Hardy Yannick Lacaze Gaël Le Bec	Virtual ILL visit Andrew Wildes	15:00 – 18:00 POSTER SESSION on Gather Town
	18:10 Welcome cocktail on Gather Town				

Common lectures



Others



SCHEDULE FOR SESSION B

Week 2: 1st to 5th March

	Monday 1	Tuesday 2	Wednesday 3	Thursday 4	Friday 5
8:40 – 9:25 10' break 9:35 – 10:20	Introduction to neutron and X-ray inelastic scattering Christiane Alba-Simionesco	Electron microscopy for structural biology Ambroise Desfosses	Nuclear Magnetic Resonance Martin Blackledge	Biological Small Angle X-ray Scattering Mirjam Czjzek	FELs & ultrafast applications Sakura Pascarelli
10:50 – 11:35 10' break 11:45 – 12:30	Fundamentals of X-ray Absorption Fine Structure (1/2) Sakura Pascarelli	Basics of protein crystallography, data collection, data reduction, phasing (1/2) Mark Roe	Native Mass spectrometry to study intact protein complexes Elisabetta Boeri-Erba	Small angle neutron scattering Frank Gabel	Science at neutron spallation sources Sean Langridge
14:00 – 14:45 10' break 14:55 – 15:40	Fundamentals of X-ray Absorption Fine Structure (2/2) Sakura Pascarelli	Basics of protein crystallography, data collection, data reduction, phasing (2/2) Mark Roe	TUTORIALS / LABS or	Full-field coherent Imaging Peter Cloetens	“How to write a good proposal” (A and B separated)
16:10 – 16:55 10' break 17:05 – 17:50		Crystal growth and low resolution structures Monika Spano	ESRF PRACTICALS (in small groups)	Serial (femtosecond) crystallography Thomas Barends	Questions on lectures (A and B separated)

Common lectures	
Session B lectures	
Others	

SCHEDULE FOR SESSION B

Week 3: 8th to 12th March

	Monday 8	Tuesday 9	Wednesday 10	Thursday 11	Friday 12
8:40 – 9:25 10' break 9:35 – 10:20	Local order by X-ray absorption spectroscopy Wolfram Meyer-Klaucke	Radiation damage in protein crystallography Martin Weik	9:00 TUTORIALS or ESRF PRACTICALS (in small groups)	9:00 TUTORIALS or ESRF PRACTICALS (in small groups)	Neutron crystallography Matthew Blakeley
10:50 – 11:35 10' break 11:45 – 12:30	Time resolved fluorescence and circular dichroism studies with SR David Clarke	Membrane diffraction Dave Barlow			Non-crystallographic ways of obtaining structural and dynamical information at different length and time scales for biological systems Peter Judge
14:00 – 14:45 10' break 14:55 – 15:40	Medical imaging with synchrotron radiation Giuliana Tromba	X-ray and neutron reflectivity in biophysics Yuri Gerelli	TUTORIALS or ESRF PRACTICALS (in small groups)	TUTORIALS / LABS or ESRF PRACTICALS (in small groups)	Fibre diffraction Craig Boote
16:10 – 16:55 10' break 17:05 – 17:50	16:10 – 17:10 Ancient materials research with synchrotron and neutron techniques Sebastian Schoeder	Coherent diffraction imaging and ptychography Chris Jacobsen			Questions on lectures (A and B separated)

Common lectures	
Session B lectures	
Others	

SCHEDULE FOR SESSION B

Week 4: 15th to 19th March: 'Outside' GrenobleWeek 5: 22nd – 26th March

	Monday 22	Tuesday 23	Wednesday 24	Thursday 25	Friday 26
8:40 – 9:25 10' break 9:35 – 10:20	Super-resolution fluorescence microscopy Dominique Bourgeois	9:00 ILL PRACTICALS (in small groups)	Protein dynamics by neutron scattering Giuseppe Zaccai	8:40 – 9:40 X-ray Fluorescence biological Imaging Isabelle Michaud-Soret 10:10 – 11:10 Deuteration for biological research Michael Härtlelein 11:30 – 12:30 Integrative biology Annalisa Pastore	9:20 – 11:00 (10' break included) Analysis and visualization of 3D imaging data Chris Buckley
10:50 – 11:35 10' break 11:45 – 12:30	Crystallography of viruses and very large macromolecules David Stuart		Following protein structural changes as they happen with time resolved X-ray techniques Marco Cammarata		11:30 – 12:30 Hercules Mythology Chris Buckley
14:00 – 14:45 10' break 14:55 – 15:40	Introduction to current trends and challenges of molecular and structural biology Claude Sauter	ILL PRACTICALS (in small groups)	TUTORIALS (in small groups)	TUTORIALS / LABS (in small groups)	12:30 – 14:30 Farewell wine and cheese lunch on Gather Town
16:10 – 16:55 10' break 17:05 – 17:50	Dynamics of macromolecules Giuseppe Zaccai				
18:00 – 19:00				EVALUATION MEETING (A & B separated)	

Common lectures 

Session B lectures 

Others 

PRACTICALS / LABS / TUTORIALS FOR SESSION B

Coordinators: Béatrice GRENIER, Petra PERNOT, Giorgio SCHIRO

Contact: Béatrice GRENIER

During the weeks 2, 3, and 5, organised by Grenoble, all full-time participants will carry out remote practicals at Institut Laue Langevin (ILL) and at European Synchrotron Radiation Facility (ESRF), delivered mostly by instrument responsables and beamline scientists. In addition, they will participate in labs at Institut de Biologie Structurale (IBS) and in remote tutorials (mostly data treatment), taught by staff / users, not only from ILL and ESRF, but also from other large scale facilities. The full-time participants will follow nine practicals / labs / tutorials in total, while part-time participants will not participate to any of those.

All full-time participants will follow additional practicals / tutorials during week 4, fully organised by our partners. Four different groups will be constituted, each following the programme organised by one of the following partner facilities:

- the Spanish synchrotron source **ALBA** near Barcelona and the **European XFEL** in Hamburg (**ALBA + EuXFEL group**),
- the Italian synchrotron light source **Elettra** and Free Electron laser Radiation for Multidisciplinary Investigations (**FERMI**) in Trieste (**Elettra/FERMI group**),
- the Swiss synchrotron radiation facility Swiss Light Source (**SLS**) and the Swiss spallation neutron source **SINQ** at the Paul Scherrer Institute (PSI) in Villigen (**SLS/SINQ group**),
- the Karlsruhe Institute of Technology (**KIT**) Light Source in Karlsruhe and the **European XFEL** in Hamburg (**KIT + EuXFEL group**).

Note that part-time participants will not participate at all in week 4 neither.

Among these 4 groups, the full-time participants have been distributed in groups of 4 to 5 people at the various partner facilities (B1 and B2 or simply B, at each site, and also a larger group, W3, for the tutorial at SINQ). As concerns practicals / labs / tutorials in the programme of Grenoble, no fixed groups were made, but rather an individual and personalised schedule. Therefore, we assigned a number to each participant, for a better readability in the tables that will follow (S65 to S88). All the information regarding the groups B1, B2, ... and the numbering S65, S66, ... can be found in the PRACTICAL INFORMATION section of this booklet.

The complete practicals / labs / tutorials schedule was done in the best possible way (regarding the many constraints) with respect to their main research interests and wishes expressed. Each group will perform selected practicals, labs, and tutorials, as indicated in the following.

The list of all practicals / labs / tutorials (titles and instructors) is given in the following pages, together with the groups (B1, B2, B, W3) and participants (S65, S66, ...) assignment, and the complete individual schedule for all participants is available on a separate 1 page PDF document.

All full-time participants are required to attend the entire practical / lab / tutorial program assigned to them.

► Remote practicals at ILL, Grenoble

23rd MARCH, 9:00 – 12:30 and 14:00 – 17:30



PRACTICAL	INSTRUCTOR(S)	TITLE	9:00	14:00
D11	Sylvain PREVOST	Small-Angle Neutron Scattering for Soft Matter: Nanoparticles, Surfactants and Polymer solutions	S74 S75 S76 S79 S82	S71 S80 S84 S86 S88
D22	Olga MATSARSKAIA	Small-Angle Neutron Scattering for Biological Systems	S65 S69 S73 S77 S85 S87	S66 S72 S76 S78 S83
FIGARO	Armando MAESTRO	Life in two dimensions: From soft to biological matter elucidated by neutron reflectometry	S67 S71 S78 S81 S83 S86	S65 S69 S70 S73 S75 S77 S82 S87
IN15	Ingo HOFFMAN	Basics of Neutron Spin-Echo Spectroscopy	S66 S68 S70 S72 S80 S84 S88	
IN16B	Aline CISSE Judith PETERS	Separation of the dynamic contributions of the protein and the detergent by QENS		S67 S68 S74 S79 S81 S85
LADI-III	Nicolas COQUELLE	Structural biology using neutron Laue diffraction: understanding the chemistry of biological macromolecules	CANCELLED	

This schedule was updated on 22 March, following the last minute cancellation of the two practicals on LADI-III. This implied to redistribute 10 participants on the 4 other practicals available on the same half-day, which also impacted slightly the schedule of a few participants (swaps between morning and afternoon, mostly). All the modifications are notified in red.

Also note that the addition of IN16B practical to student S85 implies to replace tutorial BIOINF by tutorial QENS on 24th March, since the tutorial, given by the same instructor, is a continuation of the practical.

► Remote practicals at ESRF, Grenoble

10th and 11th MARCH, 9:00 – 12:30 and 14:00 – 17:30



PRACTICAL	INSTRUCTOR(S)	TITLE	3 rd March	10 th March		11 th March	
				9:00	14:00	9:00	14:00
BM05	Elodie BOLLER, Cécile OLIVIER	Quantitative crack assessment in osteonal bone by tomography				S67 S68 S69 S74 S79 S81 S86 S87	S72 S82 S83 S84 S85
BM29 BioSAXS	Mark TULLY, Petra PERNOT	Small Angle Scattering on Macromolecules in Solution		S70 S78 S79 S80 S81 S83 S85 S87	S67 S68 S71 S74 S86	S65 S66 S72 S73 S75 S76 S77 S82 S88	
CM01	Eaazhisai KANDIAH	High resolution cryo-EM data collection		S65 S66 S69 S71 S74 S84	S76 S77 S78 S79 S80 S83		
ID09	Matteo LEVANTINO	Time-Resolved X-ray Scattering	S66 S81 S85 S88				
ID19	Marta Majkut, Ludovic Broche	Synchrotron-based microtomography using phase-contrast	S70 S72 S73 S75				
ID23-2 / ID30-3	Daniele DE SANCTIS, Igor MELNIKOV, Christoph MUELLER-DIECKMANN	Advanced data collection methods at MX beamlines		S67 S76 S77 S82	S69 S72 S75 S87 S88	S70 S71 S78 S80 S83 S84 S85	S65 S68 S73 S79 S86

► Remote tutorials and labs



3rd, 10th, 11th, 24th, and 25th MARCH, 9:00 – 12:30 and/or 14:00 – 17:30

Labs / Tutorials at IBS, Grenoble

LAB / TUTORIAL	INSTRUCTOR(S)	TITLE	3 rd March	11 th March	25 th March
			14:00	14:00	14:00
Mass spec	Elisabetta BOERI-ERBA	Different types of mass spectrometry to study biomolecules	S67 S69 S83 S87		
Cryst	Monika BUDAYOVA-SPANNO	Crystallization of biological macromolecules	S65 S68 S80 S82		
COOT	David COBESSI	Macromolecular model building and analysis in electron density maps using COOT	S71 S77 S78 S86		S66 S69 S76 S79
NMR	Adrien FAVIER	Folding characterization, structure and dynamics of proteins by NMR	S74 S76 S79 S84		S65 S67 S70 S80
Anom	Eric GIRARD	Solving protein structures by crystallography with anomalous-based methods		S67 S69 S70 S71 S77 S80	S78 S83 S85 S88

Tutorials

TUTORIAL	INSTRUCTOR(S)	TITLE	10 th March		11 th March	24 th March	25 th March
			9:00	14:00	14:00	14:00	14:00
BIOINF	Sergei GRUDININ	Structural bioinformatics: structural modeling with Bio-SAXS/Bio-SANS data			S66 S74 S75 S76 S78 S81 S87 S88	S69 S72 S73 S80 S86	
RICS	Valeria VETRI	Raster Scan Image correlation Spectroscopy (RICS): measuring diffusion in fluorescence microscopy images		S65 S66 S81 S82			
FLUO	Giuseppe SANCATALDO	Fluorescence Lifetime Imaging and Phasor approach analysis		S70 S73 S84 S85			
SAXS	Aurélien THUREAU	SAXS data processing and analysis on proteins in solution				S66 S70 S71 S75 S78 S88 S83	S72 S73 S74 S77 S81 S82 S84 S87
CDI	Vincent FAVRE-NICOLIN	X-ray Coherent Diffraction Imaging and Ptychography	S68 S72 S73 S75 S86 S88				
QENS	Judith PETERS	Elastic and Quasi-Elastic Neutron Scattering				S67 S68 S74 S79 S81 S85	
MX	Gianluca SANTONI	MX processing: obtaining a structure from the data collected				S65 S76 S77 S82 S84 S87	S68 S71 S75 S86

Updated on 22 March. The modification of tutorial (QENS instead of BIOINF) for S85 follows the assignment of the IN16B practical at ILL.



PROGRAMME of PARTNERS



▶ ALBA + European XFEL



PLANNING OF LECTURES AND PRACTICALS

MONDAY, March 15th - ALBA

TIME	TITLE	LECTURERS
9:00	Welcome message and presentation of ALBA synchrotron	Klaus Attenkofer
9:30	Soft X-ray absorption and XMCD	Javier Herrero
10:30	COFFEE BREAK	
11:00	Macromolecular Crystallography at ALBA: from data to structure	Xavier Carpena
12:00	Low energy Electron and X-ray Photoemission Electron Microscopy (LEEM & XPEEM): Principles and applications	Michael Foerster
13:00	LUNCH	
14:30	Full field soft X-ray transmission microscopy	Andrea Sorrentino
15:30	Ambient pressure X-ray Photoelectron Spectroscopy	Virginia Pérez Dieste

TUESDAY, March 16th - ALBA

Groups A1 and A2 (9 participants all together)

TIME	TITLE	INSTRUCTORS
9:00	Practical at CLAEES: X-ray absorption and emission spectroscopy to access the local structural and electronic properties of the matter	Laura Simonelli Carlo Marini Giulio Gorni
13:00	LUNCH	
14:30-18:00	Tutorial: Analysis of XAS data collected at CLAEES: XANES linear combination approach (Athena program), XES data treatment: quantification of the local magnetic moment by the IAD method (Origin program)	Laura Simonelli Carlo Marini Giulio Gorni

Groups B1 and B2 (10 participants all together)

TIME	TITLE	INSTRUCTORS
9:00	Practical at MIRAS: FTIR microscopy and various experimental setups at MIRAS BL	Tanja Ducic Martin Kreuzer Ibraheem Yousef
13:00	LUNCH	
14:30-18:00	Tutorial: Infrared data handling (chemical imaging and individual spectra) using OPUS and Unscrambler software	Tanja Ducic Martin Kreuzer Ibraheem Yousef

▶ ALBA + European XFEL

WEDNESDAY, March 17th - ALBA

Groups A1 and A2 (9 participants all together)

TIME	TITLE	INSTRUCTORS
9:00	Practical at BOREAS: XAS and XMCD investigation of bulk and surface science samples	Pierluigi Gargiani Manuel Valvidares Javier Herrero
13:00	LUNCH	
14:30-18:00	Tutorial: Analysis of XAS and XMCD data: spectra treatment, sum rules and introduction to multiplet simulations	Pierluigi Gargiani Manuel Valvidares Javier Herrero

Groups B1 and B2 (10 participants all together)

TIME	TITLE	INSTRUCTORS
9:00	Practical at XALOC: Advanced Macromolecular Crystallography Data Collection Protocols	Xavier Carpena Iñaki de Diego Roeland Boer Damià Garriga
13:00	LUNCH	
14:30-16:30	Tutorial: Macromolecular model building and analysis of electron density maps.	Xavier Carpena Iñaki de Diego Roeland Boer Damià Garriga

THURSDAY, March 18th - ALBA

Groups A1 and A2 (9 participants all together)

TIME	TITLE	INSTRUCTORS
9:00	Practical at NCD-SWEET: <i>SAXS/WAXS study on polymer crystallization</i>	Marc Malfois Eduardo Solano
13:00	LUNCH	
14:30-18:00	Tutorial: Analysis of data collected at NCD-SWEET: data reduction using pyFAI and DAWN software. Preliminary data analysis and interpretation	Marc Malfois Eduardo Solano

Groups B1 and B2 (10 participants all together)

TIME	TITLE	INSTRUCTORS
9:00-11:00	Tutorial: Biomedical applications at the soft X-ray microscope MISTRAL	Ana J. Pérez
13:00	LUNCH	
14:30-16:30	Tutorial: Sample preparation for infrared microspectroscopy	Tanja Ducic

▶ ALBA + European XFEL



FRIDAY, March 19th - European XFEL

All groups

TIME	TITLE	LECTURERS
10:30-11:30	Introduction to the European XFEL	Christian Bressler
	Break until the afternoon	

Group A1

TIME	TITLE	INSTRUCTORS
14:00-15:30	Tutorial: X-ray Photon Beam Diagnostics with interactive tunnel tour	Jan Grünert Naresh Gujara
	Break	
16:00-17:30	Tutorial: Matter at extreme pressures in Diamond anvil cells and laser-shocks	Ulf Zastra

Group A2

TIME	TITLE	INSTRUCTORS
14:00-15:30	Tutorial: X-ray scattering and imaging experiments at MID	Anders Madsen
	Break	
16:00-17:30	Tutorial: Soft X-ray Spectroscopy and Coherent Scattering	Andreas Scherz

Group B1

TIME	TITLE	INSTRUCTORS
14:00-15:30	Tutorial: Structural Biology at XFELs: Part I	Kristina Lorenzen
	Break	
16:00-17:30	Tutorial: Fluctuation X-Ray Scattering for Biological Structure Determination with an XFEL	Ruslan Kurta

Group B2

TIME	TITLE	INSTRUCTORS
14:00-15:30	Tutorial: Multi-photon spectroscopy	Michael Meyer, Tommaso Mazza
	Break	
16:00-17:30	Tutorial: Structural Biology at XFELs: Part II	Henry Kirkwood, Raphael de Wijn

PLANNING OF LECTURES

MONDAY, March 15th - ELETTRA-FERMI

TIME	TITLE	INSTRUCTORS
09:00	WELCOME	
09:30-10:15	FERMI: the first externally seeded Free Electron Laser in the extreme ultraviolet and soft X-ray spectral regions	L. Giannessi
	Coffee break	
10:40-11:20	Deep X-Ray Lithography beamline @ Elettra: "all you can treat"	B. Marmiroli
11:20-12:00	Soft X-ray Microscopy principle and Applications	A. Giannoncelli
12:00-12:40	Unravelling atomic level details of materials using X-Ray diffraction at Elettra	N. Demitri
	Lunch break	
15:30-16:50	Photoelectron Spectro-Microscopy at Elettra: recent advances and perspectives	M. Amati

TUESDAY, March 16th - ELETTRA-FERMI

TIME	TITLE	INSTRUCTORS
09:00	Grazing incidence Small Angle X-ray Scattering: A useful tool in the development of solar energy conversion devices	S. Bernstorff
09:40	Fast-demagnetization processes witnessed using FERMI seeded-FEL	F. Capotondi
10:20	Coffee break	
10:40	Chemical analysis with micro and nano infrared spectroscopy	C. Stani
11:20	3D and 4D X-ray imaging techniques for comprehensive microstructural properties of materials: from biological to geological applications	L. Mancini
12:00	The Low Density Matter beamline at the FERMI Free Electron Laser	C. Callegari
12:40	Lunch break	
15:30	Frontier Science at FERMI	F. Bencivenga

WEDNESDAY, March 17th - ELETTRA-FERMI

TIME	TITLE	INSTRUCTORS / DETAILS
09:00	1 st slot of practicals	Title/groups in the table
12:40	Lunch break	
15:30	Hints and tips for a successful beamtime proposal	C. Blasetti

THURSDAY, March 18th - ELETTRA-FERMI

TIME	TITLE	INSTRUCTORS
09:00	2 nd slot of practicals	Title/groups to be confirmed
12:40	Lunch break	
15:30	Virtual tour and One-2-One meetings	

FRIDAY, March 19th - ELETTRA-FERMI

TIME	TITLE	INSTRUCTORS
09:00	3 rd slot of practicals	Title/groups in the table
12:30	Closing remarks	

PLANNING OF PRACTICALS - SESSION A

FACILITY / BEAMLINE	INSTRUCTOR(S)	ACRONYM / TITLE	DUR.	17/03	18/03	19/03	STUDIED MATERIAL/TOPIC
Elettra / NanoSpectroscopy	Andrea Locatelli, Tevfik Onur Menteş	PEEM / Imaging surfaces and thin films using photoemission electron microscopy	2h30	A1			Thin films, Surfaces and interfaces, XMCD-PEEM, XAS-PEEM, energy-filtered PEEM, Peak fitting
Elettra / ALOISA	Martina Dell'Angela, Roberto Costantini, Luca Schio	TR-XES / Light-induced modification of the energy level alignment at organic heterojunctions	2h30		A1		Time resolved core level photoemission / Organic thin films
Elettra / SAXS	Heinz Amenitsch, Barbara Sartori	SAXS / Self Assembly of mesoporous materials (MCM-41); in situ experiments of the formation highly ordered hexagonal structures.	2h30	A2			in situ chemistry, material science, time resolved experiments
Elettra / XAFS	Simone Pollastri, Danilo Oliveira de Souza, Giuliana Aquilanti	EXAFS / Short-range order in crystalline, amorphous, liquid, and supercooled germanium probed by X-ray absorption spectroscopy	2h30			A2	XAS, Germanium
Elettra / MCX	Lara Gigli, Mattia Gaboardi, Jasper Plaisier	PD / Applications of powder diffraction	2h30		A2		Structure determination by Rietveld refinement, Phase identification.
Elettra / APE-LE	Jun Fujii, Debashis Mondal, Ivana Vobornik	ARPES / Probing electronic structure of quantum materials by spin- and angle- resolved photoelectron spectroscopy	2h30			A3	Spin-ARPES, quantum materials, electronic structures
Elettra / APE-HE	Giovanni Vinai	XMCD / Voltage control of magnetism: an in-situ x-ray magnetic circular dichroism investigation	2h30		A3		XMCD, magnetoelectric, heterostructures
FERMI / TeraFERMI	Paola Di Pietro, Andrea Perucchi	TR-XAS / THz induced birefringence in z-cut quartz	2h30	A3			Photonics, z-cut Quartz
FERMI / TIMER	Riccardo Mincigrucci, Laura Foglia, Filippo Bencivenga	TR / Nanoscale thermal transport.	2h30			A1	Fermi FEL, time-resolved Transient Grating spectroscopy

PLANNING OF PRACTICALS - SESSION B

FACILITY / BEAMLINE	INSTRUCTOR(S)	TITLE	DUR.	17/03	18/03	19/03	STUDIED MATERIAL/TOPIC
Elettra / SYRMEP and NanoLab	Giuliana Tromba, Loredana Casalis, Pietro Parisse	Tissue stiffness determination via AFM nano-indentation	2h30			B	Tissue, Atomic Force Microscopy, Tomography
Elettra / SISSI	Lisa Vaccari, Giovanni Birarda, Chiaramaria Stani	Chemical analysis with micro and nano infrared spectroscopy	2h30	B			FTIR microscopy and nanoscopy of bio-samples and/or Cultural Heritage samples
Elettra / XRD2	Annie Heroux, Nicola Demitri, Elisa Costanzi	Structural characterization of biomolecules using XRD	2h30		B		Lysozyme and/or sucrose single crystals, Single Crystal X-Ray Diffraction

▶ SLS/SINQ



PLANNING OF LECTURES

Hercules School 2021 @ Paul Scherrer Institute

	Monday March 15	Tuesday March 16	Wednesday March 17	Thursday March 18	Friday March 19
8:15 - 8:30	Welcome				
8:30 - 9:15	Lecture 1: Angle-Resolved Photoelectron Spectroscopy: 1 <i>V. Strocov</i>	Lecture 4: Chemical Spectroscopy: 1 <i>O. Safonova, P. Hemberger, T. Huthwelker</i>	Lecture 7: Introduction SINQ <i>C. Niedermayer</i>	Lecture 10: Specialized Talk SmuS <i>Z. Salman</i>	Student Talks I: 3x (10 + 5) min
9:20-10:05	Lecture 2: Angle-Resolved Photoelectron Spectroscopy: 2 <i>N. Plumb</i>	Lecture 5: Chemical Spectroscopy: 2 <i>O. Safonova, P. Hemberger, T. Huthwelker</i>	Lecture 8: Examples from Neutron Spectroscopy <i>F. Juranyi</i>	Lecture 11: Introduction SwissFEL <i>C. Bostedt</i>	Student Talks II: 3x (10 + 5) min
10:05 - 10:30	break	break	break	break	break
10:30-11:15	Lecture 3: Extreme Ultraviolet Lithography <i>I. Mochi</i>	Lecture 6: Introduction Proton Therapy <i>D. Meer</i>	Lecture 9: Introduction SmuS <i>H. Luetkens</i>	Lecture 12: Specialized Talk Swiss FEL <i>K. Schnorr</i>	Student Talks III: 4x (10 + 5) min 10:30 - 11:30 10 min break
11:20-12:05	Virtual Tour 1: SLS	Virtual Tour 2: Proton Therapy	Virtual Tour 3: SINQ	Virtual Tour 4: SwissFEL	Quiz & Farewell 11:40-12:15
12:05 - 13:30	lunch	lunch	lunch	lunch	
13:30 - 17:30	Beamline Practicals 1	Beamline Practicals 2	Tutorials SINQ	Preparation Student Talks	

► SLS/SINQ



PLANNING OF PRACTICALS - SESSION A

FACILITY / BEAMLINE	INSTRUCTOR(S)	ACRONYM / TITLE	DUR.	15/03	16/03	17/03	TECHNIQUE
SLS / ADRESS	Vladimir Strocov, Fatima Alarab	ARPES / What is the Fermi Surface of your Smartphone? Explore electronic structure of semiconductor heterostructures by soft-X-ray ARPES	4h		A1		Soft-X-ray ARPES (Angle-Resolved Photoelectron Spectroscopy)
SLS / microXAS	Dario Ferreira Sanchez	XSM / Identifying degradation mechanisms on Solid Oxide Cells through X-ray μ -XRD and μ -XRF synchrotron studies	4h	A1			Two- and Three-Dimensional X-ray micro- XRD and XRF synchrotron imaging
SLS / PHOENIX	Camelia Borca, Thomas Huthwelker	XSM-XAS / Iron spatial distribution and its oxide forms in fluid catalytic cracking particles	4h		A4		Micro X-ray Absorption Spectroscopy
SLS / SIS	Nicholas Plumb, Ming Shi, Milan Radovic	ARPES / Electronic structure of a transition metal dichalcogenide	4h		A3		Angle-resolved photoemission spectroscopy
SLS / SuperXAS	Olga Safonova, Adam Clark	XANES, EXAFS / Evolution of silica supported Cu-Zn catalyst for CO ₂ hydrogenation under reducing conditions	4h	A2			Quick X-ray Absorption Spectroscopy
SLS / X-Treme	Jan Dreiser	XAS-XMCD / X-ray magnetic circular dichroism of Fe(II) spin crossover molecules	4h	A3			X-ray absorption spectroscopy (XAS) / X-ray magnetic circular dichroism (XMCD)
SLS / XIL-II	Iacopo Mochi	Ptycho / Lensless imaging of an extreme ultraviolet photomask sample	4h	A4			Extreme ultraviolet ptychography
SLS / PEARL	Matthias Muntwiler	XES-reflecto / Corrugation of a two-dimensional boron nitride layer	4h		A2		Photoelectron Spectroscopy and Diffraction

▶ SLS/SINQ



PLANNING OF TUTORIALS - SESSION A

FACILITY / TUTORIAL	INSTRUCTOR(S)	ACRONYM / TITLE	DUR.	15/03	16/03	17/03	TECHNIQUE
SINQ / NPD, SCND	Lukas Keller, Denis Cheptiakov	PD/SCD / Tutorial: Neutron diffraction: (Magnetic) Structure Determination	4h			W1	Powder and/or single-crystal diffraction, Magnetic or not
SINQ / TAS	Daniel Mazzone, Christof Niedermayer	TAS / Tutorial: Inelastic neutron scattering: Magnetic excitations	4h			W2	TAS and multiplexing TAS of the CAMEA type
SINQ / REFLECTO	Thomas Geue, Jochen Stahn	Reflecto / Tutorial: Reflectometry: Soft condensed matter at interfaces	4h			W3	Reflectometry (with B)

PLANNING OF PRACTICALS & TUTORIALS - SESSION B

FACILITY / BEAMLINE or TUTORIAL	INSTRUCTOR(S)	TITLE	DUR.	15/03	16/03	17/03	TECHNIQUE
SLS / TOMCAT	Federica Marone, Christian Schlepütz	Reconstruction and quantification of X- ray tomographic microscopy data	4h	B			X-ray tomographic microscopy
SLS / PoLLuX	Benjamin Watts	Quantitative Composition Mapping of Polymer Blend Film	4h		B		Scanning Transmission X- ray Spectro-Microscopy (STXM)
SINQ / REFLECTO	Thomas Geue, Jochen Stahn	Reflecto / Tutorial: Reflectometry: Soft condensed matter at interfaces	4h			W3	Reflectometry (with A)

▶ KIT + European XFEL



PLANNING OF LECTURES

MONDAY, March 15th

For all participants

STARTING TIME	END TIME	TOPIC	LECTURER
09:00	09:30	Welcome	Sakura Pascarelli Anton Plech Michael Hagedstein
09:30	10:15	Accelerators at KIT	Marcel Schuh Anke-Susanne Müller
10:15	10:30	Break	
10:30	11:30	Introduction to the European XFEL	Christian Bressler
11:30	11:45	Break	
11:45	12:30	Beamlines at KIT	Tilo Baumbach Anton Plech
12:30	14:00	Break	
14:00	17:30	at KIT or EuXFEL: Practicals / Tutorials	

▶ KIT + European XFEL



PLANNING OF PRACTICALS - SESSION A

FACILITY / BEAMLINE	INSTRUCTOR(S)	TITLE	DUR.	15/03	16/03	17/03	18/03	19/03
				14:00- 18:00	9:00- 18:00	9:00- 18:00	9:00- 18:00	9:00- 18:00
KIT / LIGA	M. Börner H. Fornasier U. Köhler A. Last	X-ray lithography and fabrication of microparts	1 day		A3			A1
KIT / INE/SPEC	T. Vitova J. Rothe L. Weinhardt D. Hauschild	X-ray and electron spectroscopy of energy materials	1 day		A1	A2		
KIT / SCD	G. Buth A. Plech	X-ray reflectivity of thin films and surfaces	1 day			A1	A3	A2
KIT / TOPOTOMO	T. van de Kamp M. Zuber E. Hamann	Tomography and laminography	1 day				A1	
KIT / FLUO	M. Czyzycki	Fluorescence spectroscopy of biological materials	1 day		A2			A3
KIT / KARA	M. Schuh	Operation of the circular accelerator KARA	1/2 day	A2				
KIT / FLUTE	N. Smale	Operation of the linear accelerator FLUTE	1/2 day	A3				

PLANNING OF TUTORIALS - SESSION A

FACILITY / BEAMLINE/NAME	INSTRUCTOR(S)	TITLE	DUR.	15/03	16/03	17/03	18/03	19/03
				14:00- 17:30	9:00- 12:30	9:00- 12:30	9:00- 12:30	9:00- 12:30
EuXFEL/ XRS	Ruslan Kurta	Fluctuation X-Ray Scattering for Materials Research with an XFEL	1h30	A1				
EuXFEL / XPD	Jan Grünert, Naresh Kujala	X-ray Photon Beam Diagnostics with an interactive tunnel tour	1h30	A1				
EuXFEL / HED	Ulf Zastra	Matter at extreme pressures in Diamond anvil cells and laser-shocks	1h30				A2	
EuXFEL / SQS	Michael Meyer, Tommaso Mazza	Multi-photon spectroscopy	1h30				A2	
EuXFEL / MID	Anders Madsen	X-ray scattering and imaging experiments at MID	1h30			A3		
EuXFEL / SCS	Andreas Scherz	Soft X-ray Spectroscopy and Coherent Scattering	1h30			A3		

▶ KIT + European XFEL



PLANNING OF PRACTICALS - SESSION B

BEAMLINE/NAME	INSTRUCTOR(S)	TITLE	DUR.	15/03	16/03	17/03	18/03	19 /03
				14:00-18:00	9:00-18:00	9:00-18:00	9:00-18:00	9:00-18:00
KIT / TOPOTOMO	T. van de Kamp, M. Zuber, E. Hamann	Tomography and laminography	1 day					B
KIT / FLUO	M. Czyzycki	fluorescence spectroscopy of biological materials	1 day			B		
KIT / LIGA	M. Börner, H. Fornasier, U. Köhler, A. Last	X-ray lithography and fabrication of microparts	1 day				B	
KIT / KARA	M. Schuh	Operation of the circular accelerator KARA	1/2 day	B				

PLANNING OF TUTORIALS - SESSION B

BEAMLINE/NAME	INSTRUCTOR(S)	TITLE	DUR.	15/03	16/03	17/03	18/03	19 /03
				14:00-17:30	9:00-12:30	9:00-12:30	9:00-12:30	9:00-12:30
EuXFEL / BIO	Kristina Lorenzen	Structural Biology at XFELs: Part I	1h30		B			
EuXFEL / SPB	Henry Kirkwood, Raphael de Wijn	Structural Biology at XFELs: Part II	1h30		B			

LECTURERS of GRENOBLE

Name	Surname	Institute	email
ALBA SIMIONESCO	Christiane	CEA-LLB	
ATTWOOD	David	Univ. of California, Berkeley	
BARENDS	Thomas	Max Planck Institute for Medical Research	
BARLOW	Dave	King's college London	
BARNES	Adrian	University of Bristol, Department of Physics	
BARRETT	Ray	ESRF	
BAUMBACH	Tilo	KIT	
BLAKELEY	Matthew	EMBL	
BLAKLEDGE	Martin	IBS	
BOERI ERBA	Elisabetta	IBS / EMBL / UVHCI	
BOOTE	Craig	Cardiff University	
BOURGOIS	Dominique	IBS	
BUCKLEY	Chris	GE Healthcare, BioSciences The Grove Centre	
CALLEGARI	Carlo	Elettra Sincrotrone Trieste	
CAMMARATA	Marco	ESRF	
CAPRIA	Ennio	ESRF	
CERNY	Radovan	Univ. Genève	
CLARKE	David	CLRC Daresbury Laboratory	
CLOETENS	Peter	ESRF	
COLIN	Claire	UGA / Institut Néel	
CZAKKEL	Orsolya	ILL	
CZIZEK	Myrjam	Station biologique de Roscoff	
DAVID	Thibaud	CEA Tech	
DE BOISSIEU	Marc	SIMaP	
DE BRION	Sophie	UGA / Institut Néel	
DESFOSSÉS	Ambroise	IBS	
DIL	Hugo	EPFL	
ESPINOSA	Enrique	Université de Lorraine	
FAVRE NICOLIN	Vincent	ESRF / UGA	
GABEL	Frank	IBS	
GATTA	Diego	Univ. Milano	
GERELLI	Yuri	ILL	
GRAAFSMA	Heinz	DESY Hamburg	
GRENIER	Béatrice	UGA / CEA-IRIG	

GRUEBEL	Gerhart	DESY Hamburg	
GUIZAR-SICAÏROS	Manuel	PSI	
HAERTLEIN	Michael	ILL	
HARDY	Laurent	ESRF	
HARRISSON	Andrew	DIAMOND	
HJORVARSSON	Bjorgvin	Uppsala University	
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