

HERCULES

European School

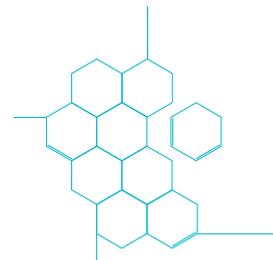
Neutrons and
synchrotron radiation
for science

2016

March 29th
to
April 29th

Grenoble
FRANCE

<http://hercules-school.eu>



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HERCULES European School

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ORGANIZATION

ORGANIZED BY:

- › Université Grenoble Alpes
- › Grenoble INP

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F. VAN DER VEEN, *PSI Villigen*

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M. WILMANN, *EMBL Hamburg*

SUPPORTED BY:

- › European Commission: Research Infrastructures:
 - SINE20
- › European Synchrotron Radiation Facility (ESRF)
- › Institut Laue Langevin (ILL)
- › IBS
- › DESY
- › European X-Fel
- › ELETTRA
- › FERMI
- › Ministère de l'Enseignement Supérieur et de la Recherche - France
- › Centre National de la Recherche Scientifique (CNRS):
 - Formation Permanente (ANF)
 - Laboratoires du Polygone Louis Néel, Grenoble
- › Commissariat à l'énergie atomique (CEA):
 - Directions des Sciences de la Matière (DSM), des Sciences du Vivant (DSV), Institut Nanosciences et Cryogénie (INAC)
- › GIANT
- › FOSTERING SCIENCE
- › SOLEIL
- › Laboratoire Léon Brillouin (LLB)
- › Swiss Light Source - Paul Scherrer Institute
- › Métro

DIRECTORS

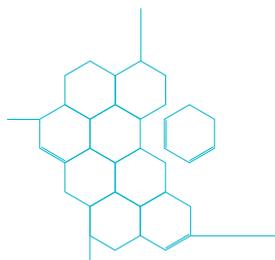
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GENERAL
INFORMATION

HERCULES is a 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 which are:

Session A:

- ▶ Physics and chemistry of condensed matter
- ▶ 52 full time and 4 part time participants

Session B:

- ▶ Biomolecular structure and dynamics
- ▶ 24 full time

▶ It mainly takes place in Grenoble, at the “Maison des Magistères” on the Polygone Scientifique Louis Néel, where the Institut Laue Langevin and the European Synchrotron Radiation Facility are also located.

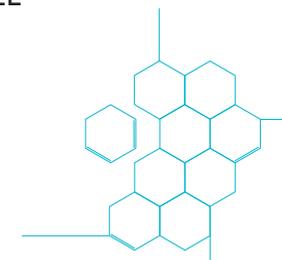
▶ The HERCULES course includes lectures, tutorials, practicals and visits to laboratories.

- ▶ It also includes one week of practicals and lectures outside Grenoble
- in the Paris area (April 10-27) at:
 - **SOLEIL, Saint-Aubin**, dedicated to a complementary synchrotron radiation programme including: soft X-rays, ultraviolet and infrared radiation and their new fields of applications.
 - **Laboratoire Léon Brillouin (LLB), CEA Saclay**: experimental reinforced neutron programme.

or

- in Switzerland (Villigen) at **Swiss Light Source** for practicals and lectures.
- in Italy (Trieste) at **Elettra and FERMI**
- in Germany (Hamburg) at **DESY and European X-FEL**

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



LOCATION AND TIMES OF LECTURES, PRACTICALS AND TUTORIALS



Timetable and locations will be provided to you at the beginning of the school.

LECTURES

Take place:

- › in the morning from **9.00 to 12.30** with a coffee break at 10.30
- › in the afternoon from **14.00 to 17.30** with a break at 15.30 (see timetable enclosed in the brochure).

Location of lectures:

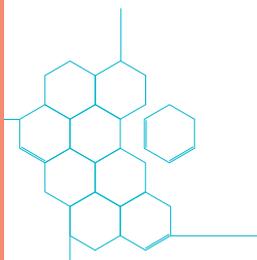
- › either in the CNRS amphitheatre or in the Maison des Magistères.

PRACTICALS AND TUTORIALS

See enclosed list of groups and practicals and tutorials allocated to each group.

VISITS OF LARGE FACILITIES

- › **ILL**: B. GRENIER
- › **ESRF**: M. KRISCH – G. BEUTIER
- › **SOLEIL**: A.COATI - L. NATAF
- › **LLB**: F. DAMAY
- › **ELETTRA and FERMI**: C. BLASETTI - L. BADANO
- › **PSI**: N. PLUMB - M. FUEGLISTER
- › **DESY and European X-Fel**: T. TSCHENTSCHER - R. GEHRKE



PRACTICAL INFORMATION

TRAVEL INFORMATION

Participants are expected to arrive at Grenoble on **March 28th 2016**.



TRAINS:

From Paris, Geneva, Milano, Barcelona, etc... arrive at Grenoble train station (Gare SNCF)

Paris-Grenoble by TGV train (high speed train):

www.voyages-sncf.com



INTERNATIONAL FLIGHTS:

Arrival at Lyon Saint-Exupéry airport (about 100 kms from Grenoble).

There is a shuttle bus connection from the airport to Grenoble bus/train station and a few trains.

http://www.faurevercors.fr/FAUREVERCORS_WEB/FR/Navette.awp

Arrival also possible at Geneva (CH) airport (about 160 kms from Grenoble).

There is a shuttle bus connection from the Geneva airport to Grenoble:

<http://www.aerocar.fr/>



DOMESTIC FLIGHTS FROM PARIS (and a few international flights):

Arrival at Grenoble Isère airport (about 40 kms from Grenoble).

Regular shuttle bus connection to Grenoble coach/railway station.

<http://www.grenoble-airport.com/-Navettes-regulieres-.html>

WELCOME



When you arrive in Grenoble, whether it is by train, plane or car, **please report to the HERCULES desk in the Hotel "Résidence Hôtelière Séjours et Affaires Marie Curie" situated just behind the train station between 5.30 PM and 9.00 PM on March 28th 2016.**

A 'buffet' for dinner will be served from 7.00 to 9.00 PM.

ACCOMMODATION



Participants who have asked for accommodation will be staying in the following hotel :

Séjours & Affaires Marie-Curie
60/62, rue Félix Esclangon - 38000 GRENOBLE

Tel : +33 (0)4 76 84 72 22

Fax : +33 (0)4 76 84 16 83

grenoble.mariecurie@sejours-affaires.com

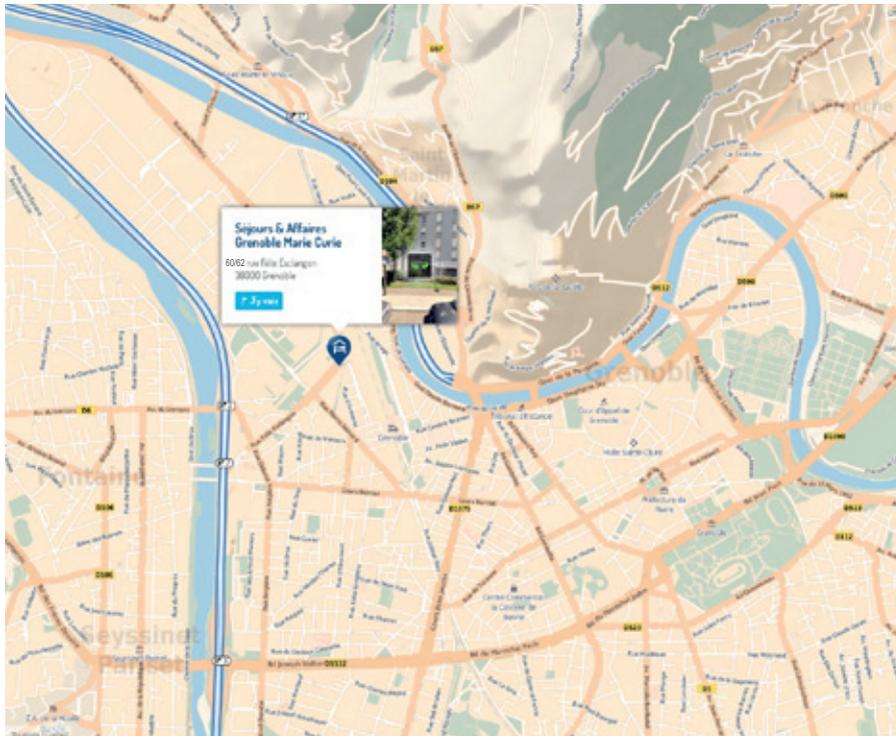
Small studio flats are booked from **March 28th 2016 to April 29th** in Grenoble and accommodation is organized for the nights in Paris area, Villigen, Hamburg and Trieste.

A room will be specially booked in Grenoble to store your luggage during the travel outside Grenoble.

The hotel is close to bus or tram stops.

Rooms are booked until Friday 29th in the morning.

How to go to the hotel?



MEALS



› Breakfast:

Continental breakfast is available from 7.30 A.M in the hotel. It is included with the room in the fees.

› Lunch:

Lunch will be taken in the **ILL/ESRF restaurant** during the stay in Grenoble (excluding the weekend). This restaurant is close to the lectures place. We shall provide a canteen card **which will be credited by ESRF for week-day lunches**.

For your information, each dish is indicated by a number of points. Coffee is also available next to the restaurant.

› Dinner:

Dinners and weekend meals are not supported by HERCULES. There are many reasonably priced restaurants near the hotels or it will be possible to cook in your studio flat.

ENTERTAINMENT



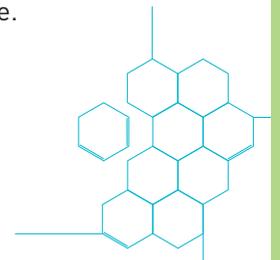
There is a good choice of **clubs, cinemas, concerts, theatres ...** in Grenoble city centre. Several ski resorts are less than one hour drive from Grenoble (direct bus lines available).

For social events organized by HERCULES see the daily information document (snow-shoes outing, dinner party...)

PUBLIC TRANSPORTATION: HOW TO GO TO THE LECTURES PLACE (MAISON DES MAGISTÈRES) FROM THE HOTEL ?



The course takes place at the **"Maison des Magistères"**, on the Polygone Scientifique Louis Néel, just outside the city. You will need to use **public transportation** or you can go walking (15 min) to get there.



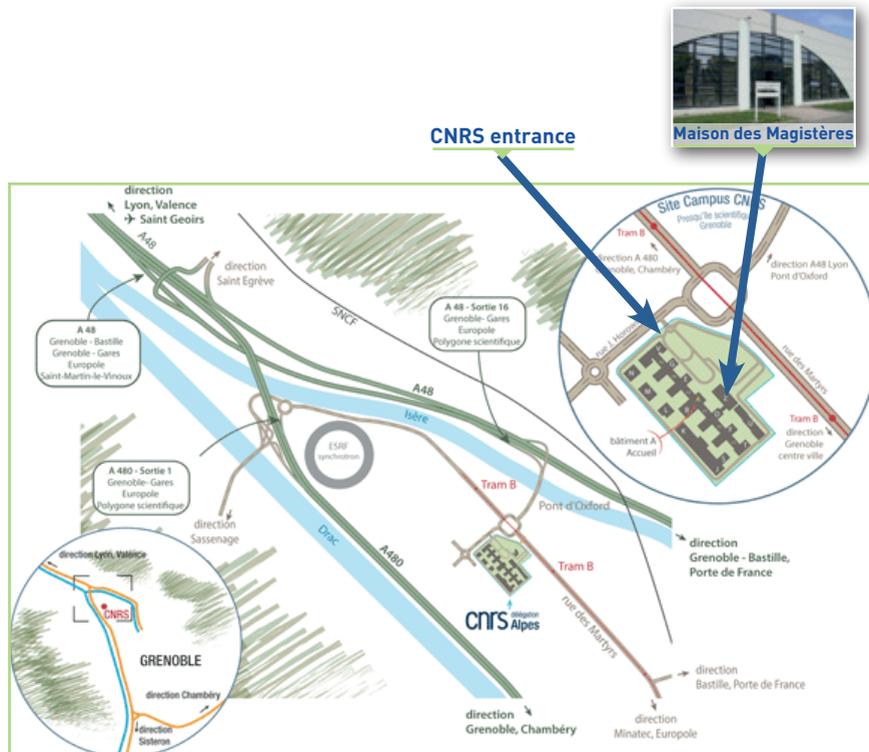
▶ **Tramway line B** connects directly the hotel with the Polygone Scientifique terminus. You will be given maps, timetable and a few tickets for your convenience on your arrival at Grenoble. You can buy tickets for public transportation from "TAG" desks and tobacco shops (current price: 36.50 € for 30 tickets or 1,50 € or 2 € on board for one ticket). Tickets are valid for all lines (tram and buses). A ticket is valid for one hour including connections (you have to punch it every time you get on a bus (inside) or tram (before entering it)).

- ▶ You can also **hire a bike** at the train station.
- ▶ For those who come **by car**, be aware that parking the car downtown or near the station is expensive. You can park at the Maison des Magistères, entrance gates are open from 8.00 am to 6.00 pm, on week days only.

When you arrive on the CNRS site on Monday 29th, please present your Identity Card / Passport and your HERCULES badge at the entrance Gate.



The guardians will also ask you to open your bags to check.



MAIL



You can buy stamps at tobacco shops and post-offices. The closest post office to the hotel is 'Grenoble Gambetta' situated 12 avenue Alsace Lorraine.

ELECTRONIC MAIL



You will be able to use computer facilities as well as a **wireless network** in the "Maison des Magistères", ground floor. When you will arrive to Grenoble, we will ask you to sign the rules for using Université Grenoble Alpes's computer facilities.

BANKS



You will, of course, find banks in town. The nearest to the hotels are situated Avenue Alsace Lorraine.

POSTER SESSION



A **poster session** will be organized on Friday April 1st afternoon. The poster session is an opportunity given to you to present your recent research activities to other HERCULES participants as well as to Grenoble scientists.

It is an important aspect of the HERCULES school. This enables one to initiate an interface between the participants and the local scientific community. **Please prepare your poster in advance** and bring it with you to Grenoble. For your information, the maximum size of the poster should be about: 0,85 m wide x 1,15 m high.

STAY IN PARIS, VILLIGEN, HAMBURG AND TRIESTE



Travel is organized and supported by HERCULES.

Always carry your identity card/passport with you, as it can be asked when crossing the country borders and for entering on the various sites.

- | | |
|---|--|
| ▶ Grenoble-Villigen <i>on April 10th</i> | ▶ Villigen-Grenoble <i>on April 15th</i> |
| ▶ Grenoble-Paris <i>on April 9th</i> | ▶ Paris-Grenoble <i>on April 17th</i> |
| ▶ Grenoble-Trieste <i>on April 10th</i> | ▶ Trieste-Grenoble <i>on April 16 or 17th</i> |
| ▶ Grenoble-Hamburg <i>on April 11th</i> | ▶ Hamburg-Grenoble <i>on April 16th</i> |

Students will be accommodated in guest houses.

SCHEDULES

HERCULES SCHOOL 2016: PLANNING IN PARIS 9-15 April 2016 (Saturday-Friday)



Session B: Biomolecular structure and dynamics

Session A: Physics and chemistry of condensed matter

Saturday 9 April

Arrival at Synchrotron SOLEIL and free WEEK-END

Monday 11 April

At LLB all day long, 9:00-17:30

Time	
18:00-18:30	Welcome by SOLEIL (A. THOMPSON) Practical information (A.COATI / L.NATAF)
18:30-19:30	S. RAVY for all students <i>Auditorium, Reception building</i>
19:30	Welcome Buffet

Tuesday 12 and wednesday 13 April

At SOLEIL all day long

Time	
9:00-12:30	PRACTICALS
13:30-17:00	

Thursday 14 April

At SOLEIL

Time					
9:00-10:30	P. DUMAS Synchrotron infrared emission and spectroscopic applications <i>Auditorium, Reception building</i>				
10:30-11:15	<i>COFFEE BREAK</i>				
11:15-12:45	<table border="1"> <thead> <tr> <th>Session A</th> <th>Session B</th> </tr> </thead> <tbody> <tr> <td>F. SIROTTI Magnetisme and Dichroïsme <i>Auditorium, Reception building</i></td> <td>J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i></td> </tr> </tbody> </table>	Session A	Session B	F. SIROTTI Magnetisme and Dichroïsme <i>Auditorium, Reception building</i>	J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i>
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F. SIROTTI Magnetisme and Dichroïsme <i>Auditorium, Reception building</i>	J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i>				
12:45-14:00	<i>Lunch at SOLEIL</i>				
14:00-15:30	<table border="1"> <thead> <tr> <th>Session A</th> <th>Session B</th> </tr> </thead> <tbody> <tr> <td>F. OTT Neutron sources, optics and detectors <i>Auditorium, Reception building</i></td> <td>J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i></td> </tr> </tbody> </table>	Session A	Session B	F. OTT Neutron sources, optics and detectors <i>Auditorium, Reception building</i>	J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i>
Session A	Session B				
F. OTT Neutron sources, optics and detectors <i>Auditorium, Reception building</i>	J. PEREZ Small angle X ray scattering on solutions <i>T5-PRACTICALS</i>				
15:30-16:00	<i>COFFEE BREAK</i>				
16:00-17:30	Data Analysis Talk Preparation				

Friday 15 April

At SOLEIL all day long

Time	
9:00-10:30	Data Analysis Talk Preparation
10:30-11:15	<i>COFFEE BREAK</i>
11:15-12:45	C. LAULHE Time-resolved X-ray Scattering <i>Auditorium, Reception building</i>
12:45-14:00	<i>Lunch at SOLEIL</i>
14:00-15:30	Presentation, Experimental reports <i>Auditorium, Reception building</i>
15:30-16:00	<i>COFFEE BREAK</i>
16:00-17:30	F. BAUDELET Seminar "Histoire du Synchrotron en France" <i>Auditorium, Reception building</i>

HERCULES SCHOOL 2016: PLANNING IN VILLIGEN 10-15 April 2016 (Sunday-Friday)



Sunday 10 April

Time	Where	What
	Guesthouse PSI West	Arrival
18:50	Meeting point: Outside guesthouse entrance	Walk to OASE
19:00	OASE PSI east	Welcome dinner

Monday 11 April

Time	Where	What
8:00 - 9:00	TIME OUT PSI west	Breakfast
9:00 - 9:15	WBGB/019	Welcome (by O.Bunk or F.Nolting)
9:15 - 12:30	@ beamlines: TOMCAT, SIM, ADRESS, PX-III, XTREME	Experiments / work in groups
12:30 - 13:30	TIME OUT PSI west	Lunch
13:30 - 17:00	@ beamlines: TOMCAT, SIM, ADRESS, PXIII, XTREME	Experiments / work in groups
17:00 - 19:00		Free time
19:00 - 20:00	OASE PSI east	Dinner

Tuesday 12 April

Time	Where	What
8:00 - 9:00	TIME OUT PSI west	Breakfast
	@ beamlines: SIM, ADRESS, POLLUX, PXIII, SIS	Experiments / work in groups
12:30 - 13:30	TIME OUT PSI west	Lunch
13:30 - 17:00	@ beamlines: SIM, ADRESS, POLLUX, PXIII, SIS	Experiments / work in groups
17:00 - 19:00		Free time/ Dinner
19:00	Departure of bus to Bad Zurzach	Excursion to thermal bath Bad Zurzach
22:00	Bad Zurzach	Departure of bus to PSI

Wednesday 13 April

Time	Where	What
8:00 - 9:00	TIME OUT PSI west	Breakfast
9:00 - 9:50	WBGB/019	Ch. Rüegg ("Intro to SINQ")
9:50 - 10:40	WBGB/019	Z. Salman ("Muons for science")
10:40 - 12:30		Tour SINQ
12:30 - 13:30	TIME OUT PSI west	Lunch
13:30 - 14:30		Tour SpS (A group) / Proton therapy (B group)
14:30 - 17:00	WBGB/019 +020, WSLA/008, Time Out	Divide into groups, prepare presentations
17:00 - 19:00		Free time
19:00 - 20:00	OASE PSI east	Dinner

Thursday 14 April

Time	Where	What
8:00 - 9:00	TIME OUT PSI west	Breakfast
9:00 - 9:30	WBGB/019	C. McGuinness (proposal writing)
9:30 - 11:15	WBGB/019	Student presentations (part 1)
11:15 - 12:15	Meet outside SLS	Visit inside the SLS ring (A. Lüdeke & team)
12:15 - 13:15	TIME OUT PSI west	Lunch
13:15 - 13:30		Walk to east side
13:30 - 14:30	OSGA/EG06	C. Milne ("Intro to SwissFEL")
14:30 - 16:00	Depart from OSGA/EG06	Visit SwissFEL
16:00 - 17:00	OSGA/EG06	Student presentations (part 2)
	PSI west entrance gate	Meeting point for short walk to the Trotte Villigen
		Walk to Trotte
	Trotte, Villigen	Farewell dinner

Friday 15 April

Time	Where	What
8:30 - 9:30	Bus stop west & TIME OUT PSI west	Check out of rooms; store luggage in the HERCULES bus; breakfast
9:30 - 10:30	WBGB/019	D. Sisak Jung (Dectris)
10:30 - 11:00	WBGB/019	Th. Schmitt (soft x-ray RIXS)
11:00 - 11:30	WBGB/019	to be announced
11:30 - 12:00	WBGB/019	D. Cheptikov (neutrons, battery materials)
12:00 - 12:30	WBGB/019	J. White (neutron studies of magnetic skyrmions)
12:30 - 13:30	TIME OUT PSI West	Lunch
	Bus stop west	Departure

HERCULES SCHOOL 2016: PLANNING IN TRIESTE 10-15 April 2016 (Sunday-Friday)



Sunday 10 April

Arrival and dinner at Center Hotel

Monday 11 April

Time	Where	What
9:00-10:30	Training room	A. Goldoni - Welcome and overview of Elettra and FERMI
10:00-10:30		coffee break
10:30-11:30	Training room	A. Baraldi - High energy resolution and real-time core level photoelectron spectroscopy
11:30-12:30	Training room	C. Callegari - Spectroscopy techniques for atomic and molecular physics
12:30-14:00		Lunch
14:00-15:00	Training room	L. Casalis - AFM: imaging biological matter at high resolution
15:00-16:00	Training room	P. Storici - Protein production at Elettra: a facility for biostructural studies
16:00-16:30		coffee break
16:30-17:00	Training room	C. Blasetti - wayforlight and the European Synchrotron User Organisation
17:00-18:00	Training room	Questions and group formation

Tuesday 12 April

Time	Where	What
9:00-10:00	Training room	L. Badano - Production of seeded FEL radiation
10:00-10:30	Training room	M. Girod - CERIC-ERIC single access for multi technique research
10:30-11:00		coffee break
10:30-11:30	Training room	S. Bernstorff - Small Angle X-ray Scattering (SAXS) and Grazing Incidence SAXS
11:30-12:30	Training room	M. Zangrando - Photon beam transport and diagnostics at synchrotron and FEL facilities
12:30-14:00		Lunch
14:00-15:00	Training room	J. Plavec - NMR and its complementarities in structural characterization
15:00-19:00		Social Programme

Wednesday 13 April

Time	Where	What
9:00-10:00	Training room	F. Capotondi - Imaging techniques with FEL
10:00-11:00	Training room	A. Locatelli - Synchrotron-based photoemission electron microscopy: principles and practice
11:00-11:30		coffee break
11:30-12:30	Training room	A. Gianoncelli - Soft X-ray Microscopy principle and applications.
12:30-14:00		Lunch
14:00-18:00	FERMI Elettra	FERMI1 (A) - FERMI 2 (B) Elettra2 (C) - Elettra 4 (D)

Thursday 14 April

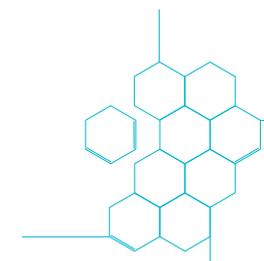
Time	Where	What
9:00-13:00	FERMI Elettra	FERMI 1 (D) - FERMI 2 (A) Elettra 2 (B) - Elettra 3 (C)
13:00-14:00		Lunch
14:00-18:00	FERMI Elettra	FERMI 1 (B) - FERMI 2 (C) Elettra 6 (A) - Elettra 1 (D)

Friday 15 April

Time	Where	What
9:00-13:00	FERMI Elettra	FERMI 1 (C) - FERMI 2 (D) Elettra 5 (B) - Elettra 4 (A)
12:30-14:00		Lunch
14:00-15:30	Training room	Group work - presentation drafting - with coffee
15:30-18:00	Training room	Group presentations and feedback
19:00		Social Dinner

Saturday 16 April

Departure



**HERCULES SCHOOL 2016:
PLANNING HAMBURG**
10-15 April 2016 (Sunday-Friday)



Monday 11 April

Time	
14:00-15:30	Arrival to Hamburg; take over rooms in Guesthouse
16:00-18:00	Welcome session and introductory talks to DESY photon science and European XFEL facilities

Tuesday 12 April

Time	
9:00-12:30	PETRA-III PRACTICALS
13:30-17:00	

Wednesday 13 April

Time	
9:00-17:00	Site visit DESY photon science facilities (PETRA-III, FLASH) 'Two lectures on applications of XFELscience' Site visit European XFEL

Thursday 14 April

Time	
9:00-12:30	PETRA-III PRACTICALS
13:30-17:00	

Friday 15 April

Time	
9:00-17:00	Data evaluation and presentation of results

Saturday 16 April

Departure

PROGRAMME IN GRENOBLE COMMON LECTURES



BASIC METHODS AND INSTRUMENTS

1. Diffraction, refraction and absorption of X-rays and neutrons *W.F Kuhs*
2. Synchrotron radiation:
 - ▶ production: different sources and their characteristics *D. Attwood*
 - ▶ X-ray optics *R. Baret*
 - ▶ detectors *H. Graafsma*
3. Neutrons: scattering and instrumentation *A.Wildes / S. Langridge*
4. Neutron and X-ray diffraction by crystals: kinematical approximation
 - ▶ Experimental diffraction methods *W. F Kuhs*
- 5A_5B. Disorder and its effects on x-ray diffraction
 - D. Moss (session B)*
 - Marc de Boissieu (session A)*
6. Small angle scattering *M. Mueller*
7. X-ray absorption spectroscopy: fundamentals and simple model of EXAFS *S. Pascarelli*
8. Imaging techniques *J.Y Buffière*
9. Free Electron Lasers and Ultra Fast X-Ray Science *M. Altarelli*

INTRODUCTORY LECTURES

11. Crystallography *B. Grenier*
12. Magnetism *L. Paolasini*
13. Introduction to spectroscopy *G. Margaritondo*
14. Fourier Transform : basic concepts (on line lecture slides) *C.Boote*
15. Quantum Mechanics (on line lecture slides) *E. Belorizky*

PROGRAMME:

SESSION A: PHYSICS AND CHEMISTRY OF CONDENSED MATTER

LECTURES

I- Introduction

A1. Soft X-Rays magnetic dichroism

F. Ott

II- Interaction of radiation with matter: elastic case

A2. Dynamical theory

T. Baumbach

AB3. Coherent imaging

P. Cloetens

A4. Neutron and X-ray reflectometry

O. Seeck

A5. Single crystal structure analysis

to be announced

A6. Powder diffraction

T. Hansen

A7. Polarized X-rays

M. Altarelli

A8. Neutron magnetic scattering and use of polarized neutrons

*S. Langridge /
N. Qureshi*

III- Interaction of radiation with matter: inelastic case

A9. X-ray photon correlation spectroscopy

G. Grübel

A10. X-ray absorption spectroscopy: theoretical basis

M. W Haverkort

A11. X-ray absorption spectroscopies: the mono-electronic approach

Y. Joly

A12. X-ray dichroism and its applications (Paris)

F. Sirotti

A13. X-ray photoemission electron microscopy

C.M. Schneider

A14. Neutron triple axis spectroscopy

M. Enderle

A15. Neutron time of flight spin echo, back-scattering, spectroscopy

T. Perring

A16. Anomalous diffraction

V. Favre-Nicolin

A17. Inelastic X-ray scattering

M. Krisch

A18. X-ray and UV photoemission spectroscopy

M. Grioni

IV- Special topics and selected examples of applications

A19. High spatial resolution X Ray microscopy

D. Attwood

A20. Synchrotron infrared emission and spectroscopic applications (Paris)

P. Dumas

A21. Solving surface problems using SR techniques

G. Renaud

A22. Magnetic layers and multilayers

H. Zabel

A23. Liquid and amorphous materials

A. Barnes

A24. Soft condensed matter

A. Rennie

A25. Self-organized nano-structures in the light of synchrotron radiation

G. Renaud

A26. Ancient materials research with synchrotron and neutron techniques

S. Schoeder

A27. Coherent and transient states studied with X-Rays FELS:

present and future prospects

C. Callegari

AB9. Medical imaging with synchrotron radiation

G. Tromba

AB10. Time-resolved diffraction

B. Lauthé

HERCULES 2016: PROGRAMME OF LECTURES (subject to modification)

Updated : 09/03/2016

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I March 29-April 3		March 29	March 30	March 31	April 1 st
9.00 - 10.30 11.00 - 12.30		8.45: Welcome 1-W.F.KUHS ESRF Badges	4-W.F.KUHS 2-D.ATTWOOD	3-A.WILDES A19/B16 D.ATTWOOD	3-A.WILDES I1-B.GRENIER
14.00 - 15.30 16.00 - 17.30		ESRF/ILL presentations ILL/ESRF visits	ILL/ESRF visits I3-G. MARGARITONDO	4-W.F.KUHS 2-R.BARRETT	POSTER SESSION Welcome dinner
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9.00 - 10.30 11.00 - 12.30	6-M.MUELLER I1-B.GRENIER	5A-M.DE BOISSIEU I2-L.PAOLASINI	TP ESRF	TP ESRF	9-M.ALTARELLI A7-M.ALTARELLI
14.00 - 15.30 16.00 - 17.30	2-H.GRAAFSMA 8-J-Y.BUFFIERE	7-S.PASCARELLI 7-S.PASCARELLI			TUTORIALS
III April 11-17	April 11	April 12	April 13	April 14	April 15
		TRAVEL TO PARIS or VILIGEN or HAMBURG or TRIESTE			

Week	Monday	Tuesday	Wednesday	Thursday	Friday
IV April 18-24	April 18	April 19	April 20	April 21	April 22
9.00 - 10.30 11.00 - 12.30	3-S.LANGRIDGE AB3-P.CLOETENS	A8-N. QURESHI A24-A.RENNIE	A4-O.SEECK A9-G.GRUEBEL		A16-V.FAVRE-NICOLIN A17-M.KRISCH
14.00 - 15.30 16.00 - 17.30 18.00 - 19.00	A2-T.BAUMBACH A8-S.LANGRIDGE A26-S.SCHOEDER	A5- AB9-G.TROMBA	A11-Y.JOLY A21-G.RENAUD	ILL PRACTICALS	TUTORIALS
V April 25-29	April 25	April 26	April 27	April 28	April 29
9.00 - 10.30 11.00 - 12.30	A15-T. PERRING A13-CM SCHNEIDER	A18-M.GRIONI A18-M.GRIONI	A23-A.BARNES A27-C.CALLEGARI	A10-M.WHAVERKORT Evaluation meeting	A25-G.RENAUD HERCULES Mythology Last day meal
14.00 - 15.30 16.00 - 17.30	A22-H.ZABEL A6-T.HANSEN	A14-M.ENDERLE TUTORIALS	TUTORIALS	TUTORIALS	

PRACTICALS AND TUTORIALS

Session A

Coordinators: D. DJURADO, V. FAVRE-NICOLIN, G. MANZIN, F. DAMAY, A. COATI, L. NATAF, N. PLUMB, T. TSCHENTSCHER, R. GEHRKE.

All full time participants will carry out practicals or tutorials in the European Facilities in Grenoble European Synchrotron Radiation Facility (ESRF) and Institut Laue-Langevin (ILL). Unfortunately, this year at ILL due to the long breakdown of the reactor only series of tutorials without neutrons will be organized. Also, practicals will be organized in the Swiss Synchrotron radiation facility Swiss Light Source in Paul Scherrer Institute, at Villigen, the French synchrotron radiation facility SOLEIL and the Laboratoire Léon Brillouin

near Paris, in Trieste at Elettra and FERMI and at Hamburg at DESY and at European X-FEL. The full time participants have been distributed between these two sites, the best as possible in agreement with their main research interests. Finally, some laboratories in Grenoble also welcome some practicals permitting to some participants to discover techniques they are not used with.

NB: Full time participants are required to attend the entire practical and tutorial program assigned to them.

Tutorials in GRENoble

Practical	Topic (instrument)	Instructors	Groups
T1A	Micro-Laue	O. Robach J.S. Micha	8A, 10A, 12A, 13A
T2A	EXAFS - introduction	F. D'Acapito, A. Puri, G. Lepore	8A, 9A, 10A
T3A	Small Angle X-ray Scattering	A. De Geyer	1A, 6A,
T4A	Structure of amorphous and liquids	H. Fischer	1A, 9A
T5A	Determination of Magnetic Structures	F. Damay	2A, 4A
T6A	Modeling a SR beamline	M. Sanchez del Rio	5A, 7A
T7A	Calculating XAFS spectra with multiplets	M. W. Haverkort	3A, 5A, 11A

Practicals in Laboratories in GRENoble at Institut Néel & INAC – CEA

Practical	Topic (instrument)	Instructors	Groups
LAB1A	X-ray Powder Diffraction	O. Leynaud	
LAB2A	4-circle diffraction	O. Leynaud	4A, 7A, 9A, 12A
LAB3A	Small Angle X-ray Scattering	A. De Geyer	2A, 3A
LAB4A	Reflectivity and GIXD	S. Pouget	6A, 13A

Experimental demonstrations at ILL, in GRENoble

Local coordinator: B. GRENIER

Practical	Instructor	Title	Beamline	Groups
ILL1A	A. Velamazán	Powder magnetic neutron diffraction	D1B	13A, 10A
ILL2A	E. Mossou	Single crystal diffraction studies of minerals and organic compounds using monochromatic thermal neutrons	D19	8A, 13A
ILL3A	O. Fabelo	Single crystal neutron diffraction for nuclear and magnetic structure determination of a hybrid compound using Fullprof suite	D9	2A, 4A
ILL4A	N. Qureshi	Neutron Laue diffraction on antiferromagnetic MnO: indexation of nuclear and magnetic Bragg reflections in a Laue pattern	CYCLOPS	10A, 3A
ILL5A	T. Pirling	Neutron diffraction for materials science and engineering	SALSA	12A, 5A
ILL6A	T. Saerbeck	Exploring thin-film structure and magnetism with neutron reflectometry	D17	1A, 6A
ILL7A	L. Mangin-Thro	Diffuse scattering of disordered systems	D7	7A, 12A
ILL8A	D. Honecker	Polarised small angle neutron scattering of magnetic nanoparticle dispersions	D33	11A, 7A
ILL9A	M. Boehm	Collective excitations measured with three axis spectroscopy	IN3	5A, 1A
ILL10A	S. Rols	Time of Flight inelastic neutron scattering on powders: fast diffusions, phonon density of states and magnetic excitations	IN4C	9A, 11A
ILL11A	J. Ollivier	Time Of Flight inelastic neutron scattering on powders and single crystals	IN5	4A, 2A
ILL12A	T. Seydel	Neutron Backscattering Spectroscopy	IN16B	3A, 8A
ILL13A	P. Fouquet	Diffusion measurements with nanometer resolution using neutron spin-echo spectroscopy	IN11	6A, 9A

Synchrotron Radiation Practicals at ESRF, in GRENOBLE				
Local coordinators: V. FAVRE-NICOLIN, D. DJURADO, G. BEUTIER				
Practical	Instructors	Title	Beamline	Groups
ESRF1A	O. Robach, J.S. Micha	Microdiffraction Laue	BM32	2A, 8A, 12A, 3A
ESRF2A	A. Fitch	High Resolution powder diffraction	ID22	11A, 12A
ESRF3A	J. Rubio-Zuazo	Atomic structure determination of buried interfaces with X-ray diffraction	BM25B	13A, 6A
ESRF4A	G. Beutier	Single crystal resonant diffraction	D2AM	8A, 3A
ESRF5A	S. Grenier	Single crystal magnetic resonant diffraction	D2AM	13A, 4A
ESRF6A	A. Rack E. Boller P. Tafforeau	Synchrotron-based microtomography and volume image analysis	BM05	5A, 7A
ESRF7A	M. Salome H. Castillo	X-ray microscopy and micro-spectroscopy	ID21	7A, 1A
ESRF8A	B. Hesse M. Cotte	FTIR microscopy	ID21	10A, 2A
ESRF9A	G.R. Castro	Local short range atomic and electronic structure by means of XAS	BM25A	4A, 5A
ESRF10A	F. D'Acapito A. Puri G. Lepore	EXAFS	LISA- BM08	6A, 10A, 8A
ESRF11A	D. Motta-Meira M. Monte Caballero	Standard EXAFS	BM23	1A, 13A
ESRF12A	O. Proux, I. Kieffer	X-ray absorption spectroscopy measurements	BM30 B	9A, 11A
ESRF13A	M. Wulff	Dynamics with short X-ray pulses	IDO9 TR	5A, 6A
ESRF14A	M. Moretti C. Sahle M. Rossi	Magnetic excitations in iridium oxides by RIXS	ID20	3A, 11A, 4A, 9A
ESRF15A	T. Schulli	Scanning diffraction microscopy for strain imaging in microelectronic structures	ID01	2A, 10A

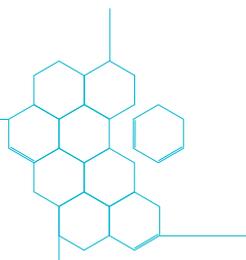
Neutron Practicals at LLB, in PARIS				
Local coordinator: F. DAMAY				
Practical	Title	Beamlines	Instructors	Groups
LLB1A	Phonon and magnon excitations in CaF ₂	G4.3	M. Songvilay	2A
LLB2A	Stabilization by nanoparticles of nanostructured emulsions	TPA	S. Désert	1A
LLB3A	Neutron powder diffraction : crystal and magnetic structures	G4.1	F. Damay/ N. Martin	3A

Synchrotron Radiation Practicals at SOLEIL in PARIS				
Local coordinators: A. COATI et L. NATAF				
Practical	Topic (instrument)	Beamlines	Instructors	Groups
SOL1A	Structural and magnetic transition of iron under pressure, investigated by XES, XAS and XMCD	ODE/ GALAXIES	J. Ablett, B. Lebert, L. Nataf	3A
SOL2A	Spin transition in molecular magnets studied by IR, THz spectroscopy and XAFS	SAMBA/ AILES	P. Roy, E. Fonda	2A
SOL3A	SR IR and XAFS study of micro-oxaluria in kidney biopsies	DIFFABS/ SMIS	S. Reguer, C. Sandt	1A

Practicals at DESY/ PETRA III, European XFEL in HAMBURG, GERMANY				
Local coordinators: R. GEHRKE, T. TSCHENTSCHER				
Practical	Instructors	Title	Groups	
P02.1	J. Bednarcik, M. Etter, A. Schökel	In situ X-ray diffraction study of phase transitions using XRD and PDF	11A, 12A, 13A	
P08	F. Bertram, K.Perumal, U. Ruett	Grazing incidence diffraction on ultrathin films	11A, 12A, 13A	
P10	M. Sprung, F. Lehmkuehler	SAXS and XPCS on hard sphere systems	11A, 12A, 13A	

Practicals in ELETTRA / FERMI in TRIESTE, ITALY			
Local coordinators : L. BADANO, C. BLASETTI			
Practical	Title	Beamline	Groups
FERMI control room	Transport, characterization and optimization of the electron and/or FEL beams	FERMI 1	4A, 5A, 6A, 7A
FERMI experimental hall	Endstation setup and data processing	FERMI 2	4A, 5A, 6A, 7A
TWINMIC	X-ray microscopy imaging and low energy X-ray Fluorescence	Elettra 1	7A
SAXS	TR-SAXS: in situ chemistry - formation of mesoporous materials	Elettra 2	5A, 6A
BACH	X-ray photoemission and X-ray absorption spectroscopy	Elettra 3	6A
NanolInnovation lab	Atomic Force Microscopy / Topography	Elettra 4	4A, 7A
BadElph	Angle-resolved photoemission spectroscopy	Elettra 5	5A
Nanospectroscopy	X-ray photoemission electron microscopy	Elettra 6	4A

Synchrotron Radiation Practical at SLS in VILLIGEN, SWITZERLAND			
Local coordinator : N. PLUMB			
Practical	Instructors	Beamline	Groups
SLS1A	A. Kleibert	SIM	8A, 10A
SLS2A	V. Strocov	ADRESS-SX-ARPES	8A, 10A
SLS3A	C. Piamonteze – J. Dreiser	XTREME	9A
SLS4A	N. Plumb	SIS	9A



GROUPS FOR PRACTICALS AND TUTORIALS (SESSION A - 2016)

GROUP	NAME	SURNAME	PRACTICALS and TUTORIALS
1A	Victoria	DISTEFANO	ILL6A, ILL9A
	Ekaterina	IASHINA	ESRF11A, ESRF7A
	Oonagh Mitchell	MANNIX WATTS	SOL3A, LLB2A T3A, T4A
2A	Yu-Hsiang	CHEN	ILL3A, ILL11A
	Benoit	GESLOT	ESRF1A, ESRF15A, ESRF8A
	Alexandra Tomas	MANNIG VERHALLEN	SOL2A, LLB1A LAB3A, T5A
3A	Javier	LÓPEZ	ILL4A, ILL12A
	Stuart	MILLER	ESRF14A, ESRF4A, ESRF1A
	David	VÁZQUEZ SOCORRO	SOL1A, LLB3A
4A	Charlotte	ZBOROWSKI	LAB3A, T7A
	Jakob Voldum	AHLBURG	ILL11A, ILL3A
	Rustam Rhea	RYSOV STEWART	ESRF9A, ESRF14A, ESRF5A ELET4, ELET6
5A	Rafal	WAWRZYNCZAK	LAB4A, T1A,
	Giacomo	BARBONE	ILL9A, ILL5A
	Johannes	BEIL	ESRF6A, ESRF9A, ESRF13A
6A	Thanh Tra	NGUYEN	ELET5, ELET2
	Marta	TARKANOVSKAYA	T6A, T7A
	Dominic	BRESSER	ILL13A, ILL6A
7A	Nathan	DAVIES	ESRF10A, ESRF3A, ESRF13A
	Henriette Wase	HANSEN	ELET2, ELET3
	Maik	KAHNT	LAB4A, T3A
8A	Svitlana	LIZUNOVA	ILL7A, ILL8A
	Maxim	POLIKARPOV	ESRF7A, ESRF6A
	Simone	SALA	ELET1, ELET4
9A	Karolina	STACHNIK	LAB2A, T6A
	Nico	GIORDANO	ILL2A, ILL12A
	BO-CHENG	LIN	ESRF4A, ESRF1A, ESRF10A
10A	Julian	MARS	SLS1A, SLS2A
	Wieslawa Fabiola	SANJUAN-SZKLARZ	T1A, T2A
	Ayumi	KOISHI	ILL10A, ILL13A
11A	Jose Ignacio	ROBLED0	ESRF12A, ESRF14A
	Olesya	TIMAEVA	SLS3A, SLS4A
	Morten Gotthold	VINUM	LAB2A, T4A
12A	MAN-LING	LIN	ILL4A, ILL1A
	Naini	NAINI BAJAJ	ESRF10A, ESRF8A, SRF15A
	Lea Hildebrandt	ROSSANDER	SLS1A, SLS2A
13A	José Xavier	SIERRA TRUJILLO	T1A, T2A
	Barbara	BERKE	ILL8A, ILL10A
	Silvia	BOCCATO	ESRF2A, ESRF14A, ESRF12A
14A	Aram	BUGAEV	P02.1, P08, P10
	Agnese	CARINO	T7A
	Daria	ANDRONIKOVA	ILL5A, ILL7A
15A	Paul	KLAR	ESRF2A, ESRF1A
	Nicolas	POUVREAU	P02.1, P08, P10
	Maciej	ZIELINSKI	LAB2A, T1A
16A	Francoise Mystere	AMOMBO NOA	ILL1A, ILL2A
	Sander	BRUGMAN	ESRF3A, ESRF11A, ESRF5A
	Pavlo	HORBACH	P02.1, P08, P10
17A	Evgenii	SKOPIN	LAB2A, T5A

PROGRAMME:

SESSION B: BIOMOLECULAR STRUCTURE AND DYNAMICS

LECTURES

I- Introduction		
B.	Non-crystallographic ways of obtaining structural and dynamical information at different length and time-scales for biological systems	<i>A. Watts</i>
B1.	Challenges in structural molecular biology	<i>I. Schlichting</i>
II- Protein crystallography		
B2.	Basics of protein crystallography, data collection, data reduction, phasing	<i>M. Roe</i>
B3.	Neutron crystallography	<i>M. Blakeley</i>
III- Protein dynamics		
B4.	Dynamics of macromolecules	<i>G. Zaccai</i>
B5.	Protein dynamics by neutron scattering	<i>G. Zaccai</i>
B6.	Kinetic protein crystallography	<i>D. Bourgeois</i>
IV- Diffusion and diffraction on larger scale biological systems		
B7.	Small angle X-ray scattering on solutions	<i>J. Perez</i>
B8.	Small angle neutron scattering	<i>F. Gabel</i>
B9.	Fibre diffraction	<i>C. Boote</i>
V- Spectroscopy		
B10.	Local order by X-ray absorption spectroscopy	<i>W. Meyer-Klaucke</i>
B11.	Time-resolved fluorescence and circular dichroism studies with SR	<i>D. Clarke</i>
B12.	Synchrotron infrared emission and spectroscopic applications	<i>P. Dumas</i>
VI- Imaging		
AB3.	Coherent Imaging	<i>P. Cloetens</i>
B13.	Soft X-ray microscopy and spectroscopy with zone plates	<i>C. Jacobsen</i>
AB9.	Medical imaging with synchrotron radiation	<i>G. Tromba</i>
B15.	Synchrotron radiation as a tool for cancer research	<i>G. Le Duc</i>
VII- Special topics		
B16.	Soft X-rays and VUV: specific optics and applications	<i>D. Attwood</i>
B18.	Biology with 4th generation sources	<i>C. Jacobsen</i>
B19.	Studies of iron biomineralizing proteins: the formation of magnetic bacteria	<i>R. Zarivach</i>
B20.	Crystallography of viruses and very large macromolecules	<i>D. Stuart</i>
B21.	Analysis and visualisation of 3D X-ray data	<i>C. Buckley</i>
B22.	X-ray and neutron reflectivity in biophysics	<i>G. Fragneto</i>
B23.	NMR	<i>M. Sattler</i>
B24.	Native Mass Spectrometry to study intact protein complexes	<i>E. Boeri-Erba</i>
B25.	Membrane diffraction	<i>G. Fragneto</i>
B26.	Crystal growth and low resolution structures	<i>M. Spano</i>
AB10	Time-resolved diffraction	<i>B. Lahlé</i>

HERCULES 2016: PROGRAMME OF LECTURES (subject to modification)

Updated : 09/03/2016

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14.00 - 15.30 16.00 - 17.30 18.00 - 19.00	B4-G.ZACCAI B5-G.ZACCAI S. SCHOEDER	B20-D.STUART AB9-G.TROMBA	B2-M.ROE B6-D.BOURGEOIS	TUTORIALS	
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9.00 - 10.30 11.00 - 12.30	B11-D.CLARKE B19-R.ZARIVACH	B8-F.GABEL B11-D.CLARKE	B24-E.BOERI-ERBA B22-G.FRAGNETO	B25-G.FRAGNETO B26-M.SPANO	B21-C.BUCKLEY HERCULES Mythology Last day meal
14.00 - 15.30 16.00 - 17.30	TUTORIALS	B8-F. GABEL B15-G.LEDUC	TUTORIALS	TUTORIALS Evaluation meeting	

PRACTICALS AND TUTORIALS

Session B

Coordinators: P. PERNOT, D. DJURADO, F. GABEL, J. PETERS, B. DEMÉ, N. PLUMB, A. COATI, L. NATAF, F. DAMAY, T.TSCHENTSCHER, R. GEHRKE.

All full time participants will carry out practicals or tutorials in the European Facilities in Grenoble European Synchrotron Radiation Facility (ESRF) and Institut Laue-Langevin (ILL). Unfortunately, this year at ILL, only series of tutorials without neutrons will be organized. Also, practicals will be organized in the Swiss Synchrotron radiation facility Swiss Light Source in Paul Scherrer Institute, at Villigen, the French synchrotron radiation facility SOLEIL and the

Laboratoire Léon Brillouin near Paris and in DESY and European X-FEL at Hamburg. The full time participants have been distributed between these sites, the best as possible in agreement with their main interests in research. Finally, some laboratories in Grenoble also welcome some practicals permitting to some participants to discover techniques they are not used with.

NB: Full time participants are required to attend the entire practical and tutorial program assigned to them.

Experimental demonstrations at ILL, in Grenoble

Local coordinators: B. GRENIER, B. DEME

Practical	Title	Beamline	Instructor	Groups
ILL1B	Neutron Reflectometry for Soft Matter: from sample preparation to data interpretation	D17 / FIGARO	Y. Gerelli	2B, 4B
ILL2B	Small-Angle Neutron Scattering for low resolution structure of biological complexes in solution	D22	A. Martel	5B, 6B
ILL3B	Neutron macromolecular crystallography using the quasi-Laue diffractometer	LADI-III	M. Blakeley	5B, 6B
ILL4B	Molecular dynamics of biological samples probed by incoherent neutron scattering	IN13	J. Peters	1B, 3B
ILL5B	Neutron spin-echo spectroscopy for soft matter science	IN11	O. Czakkel	3B, 4B
ILL6B	Studying nanosecond dynamics with high resolution neutron backscattering	IN16B	M. Appel	1B, 2B
TG4B	Neutron oriented	to be announced		

Synchrotron Radiation Practicals at ESRF, in Grenoble

Local coordinator: P. PERNOT

Practical	Title	Beamline	Instructors	Groups
ESRF1B	Overview and practice of in crystallo Optical Spectroscopies (Absorption, Fluorescence and Raman)	ID29s (Cryobench)	A.Royant, G. Gotthard	1B, 3B
ESRF2B	Computed Tomography on biomedical samples	ID17	A. Bravin, A. Mittone	1B, 4B
ESRF3B	X-ray fluorescence microscopy and phase contrast imaging at the sub-cellular level	ID16A	P. Cloetens, Y. Yang	3B, 4B
ESRF4B	Synchrotron-based microtomography and volume image analysis	BM05	A. Rack, E. Boller, P. Tafforeau	4B, 6B
ESRF5B	Small Angle Scattering on Macromolecules in Solution	BM29	M. Brennich, A. Round, P. Pernot	2B, 3B, 4B, 6B
ESRF6B	Data collection on MX beamlines: from the sublime to the complex	ID29	D. de Sanctis	1B, 6B
ESRF7B	X-ray Absorption Spectroscopy experiments: EXAFS and XANES	BM30B (FAME)	D. Testemale, O. Proux, L. Kieffer	1B, 5B
ESRF8B	Micro-XRF and micro-XANES analysis of nano materials in biological samples	ID21 - X-ray mscop	H. Castillo, M. Salome	2B, 5B
ESRF9B	Revealing ancient painting techniques by FTIR microscopy	ID21 - FTIR	B. Hesse, M. Cotte	2B, 6B
ESRF10B	Filming protein dynamics with short X-ray pulses	ID09TR	M. Wulff	3B, 5B
ESRF11B	High-phasing power of lanthanides heavy-atom derivatives for SAD experiments	BM30A (FIP)	M. Pirocchi, E. Girard	2B, 5B

Tutorials at Paris & Grenoble

Tutorial	Topic	Site	Instructor	Groups
TS-1B	Synchrotron infrared emission and spectroscopic application	Soleil	P. Dumas	all
TS-2B	Small angle X-ray scattering on solutions	Soleil	J. Perez	all
TS-3B	Time-resolved X-ray scattering	Soleil	C. Laulhe	all
TG-1B	EXAFS data analysis in biology	CNRS	D. Testemale	1B, 5B
TG-2B	BioSAXS data analysis	ESRF	M. Brennich, A. Round	2B, 3B, 4B, 6B

Practicals at IBS, in Grenoble. Local coordinator: F. GABEL			
Practical Title	Instructors	Groups	
IBS1B Folding characterization, structure and dynamics of proteins by NMR	A. Favier	6B + N.Pramampol 5B - N.Pramanpol + C.Yang + P.Parlanti	
IBS2B Macromolecular model building and analysis in electron density maps using COOT	D. Cobessi	3B - M.Arefyev+B.Gumi Audenis + R.Kumar 1B + R.Delhom	
IBS3B Crystallization of biological macromolecules	M. Budayova -Spano	1B + R.Delhom 6B + N.Pramampol	
IBS4B Solving protein structures by crystallography with anomalous-based methods	E. Girard	2B-R.Delhom+M.Arefyev 3B-M.Arefyev+B.Gumi Audenis+R.Kumar	
IBS5B Native mass spectrometry to study intact protein complexes	El. Boeri -Erba	5B-N.Pramanpol+ C.Yang + P.Parlanti 2B-R.Delhom+M.Arefyev	

Synchrotron Radiation Practical at SOLEIL, in Paris

Local coordinators: A. COATI, L. NATAF

Practical Title	Beamline	Instructors	Groups
SOL1B Study of micro-oxaluria in kidney biopsies by SR IR and UV micro imaging	SMIS DISCO	C. Sandt M. Réfrégiers	2B
SOL2B SAXS and Synchrotron Radiation Circular Dichroism applied to Biology	SWING DISCO SRCD	F. Wien J. Perez	1B

Neutron Practical at LLB, in Paris. Local coordinator: F. DAMAY

Practical Title	Beamline	Instructors	Groups
LLB1B Protein diffusion in crowded solutions, spin echo	Muses	S. Longeville	1B, 2B
LLB2B Small angle neutron scattering on biological samples	PACE	J. Fada	1B, 2B

Synchrotron Radiation Practical at SLS, in Villigen, SWITZERLAND

Local coordinator: N. PLUMB

Practical Title	Beamline	Instructors	Groups
SLS1B X-ray tomographic microscopy	Tomcat	F. Marone	6B
SLS2B Microspectroscopy	POLLUX	B. Watts	5B
SLS3B PXIII Advanced X-ray crystallographic data collection protocols at beamline X06DA	PXIII	V. Olieric	5B, 6B

Practicals at DESY/ PETRA III, European XFEL in Hamburg, GERMANY

Local coordinators: R. GEHRKE, T. TSCHENTSCHER

Practical Title	Beamline	Instructors	Groups
PET1B SAXS, WAXS and GISAXS on soft and hard condensed matter	P03	S.V. Roth, B. Beyersdorff, W. Ohm, M. Schartzkopfin	3B, 4B
PET2B Macromolecular crystallography. Crystallization methods and structure determination by X-ray diffraction	P11	A. Burkhard, S. Panneerselvam, O. Lorbeer	3B, 4B

GROUPS FOR PRACTICALS AND TUTORIALS (SESSION B - 2016)

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	Loïc	JOLY	
	Veronica Michael	LATTANZI PACHLER	
2B	Robin	DELHOM	ESRF5B, ESRF9B, ESRF11B, ESRF8B, LLB2B, LLB1B, SOL1B ILL6B, ILL1B, IBS4B (Delhom: IBS3B), IBS5B (Delhom: IBS2B), TG2B
	Margarita	FOMINA	
	Yen-Chih Peter Vig	HUANG MILLARD	
3B	Mikhail	AREFEV	ESRF10B, ESRF3B, ESRF5B, ESRF1B, PET1B, PET2B, ILL-5B, ILL-4B, IBS2B (Arefyev: IBS4B), IBS4B (Arefyev: IBS5B), TG2B
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	Ulf Irina	MOLICH PIAZZA	
4B	Berta	GUMÍ-AUDENIS	ESRF3B, ESRF2B, ESRF4B, ESRF5B, PET2B, PET1B, ILL1B, ILL5B, IBS2B (Yang+Parlanti: IBS5B), IBS4B (Yang+Parlanti: IBS1B), TG2B
	Rohit	KUMAR	
	Paola Ching-Hsun	PARLANTI YANG	
5B	Lodovico	BALDUCCI	ESRF7B, ESRF10B, ESRF8B, ESRF11B, SLS3B, SLS2B, ILL3B, ILL2B, IBS5B (Pramanpol: IBS1B) IBS1B (Pramanpol: IBS3B) TG1B
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	Laurent Nuttawan	MARICHAL PRAMANPOL	
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	Chris Yen-Chen Alejandro	LO PANJKOVICH	

LLB - SOLEIL - Paris

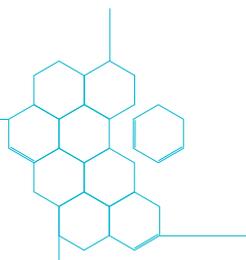
DESY - Hamburg

PSI - Villigen

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IN CASE OF EMERGENCY

Appel d'urgence européen
(European emergency call)

☎ 112

SAMU

(Emergency services)

☎ 15

POLICE

☎ 17

POMPIERS

(Fire brigade)

☎ 18

Centre Anti-Poison
(Poisons unit)

☎ 04 76 42 42 42

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Pharmacie de la Gare
38 avenue Alsace Lorraine

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(near the hotels)

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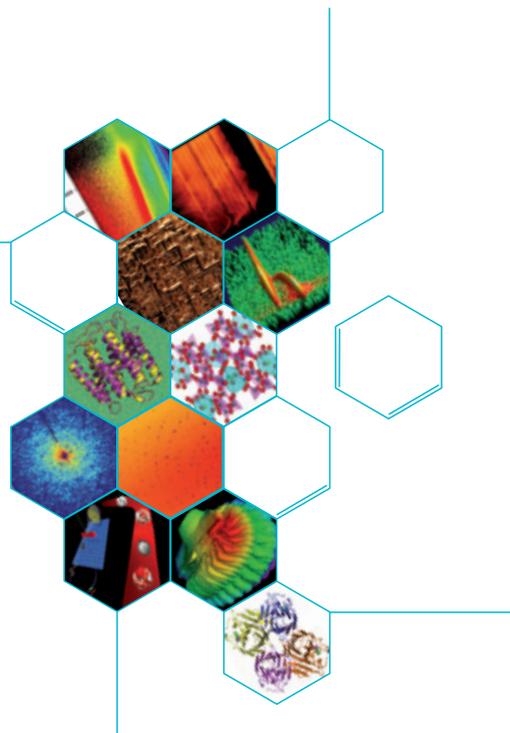
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