

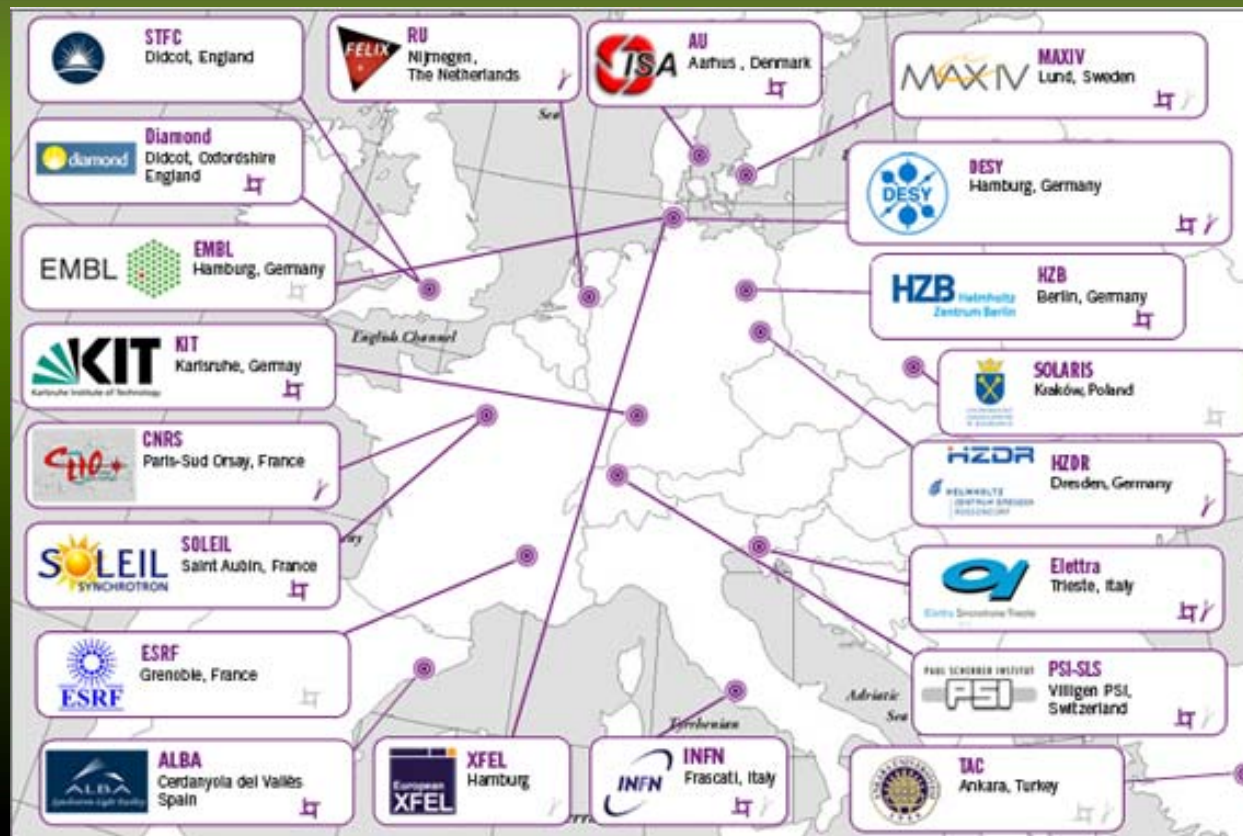


An Introduction to International Grants Synchrotron facilities and Grants

Mohammadamin Emami

1. Department of Conservation & Restoration, Art University of Isfahan, Iran

From the Idea to the Experiments



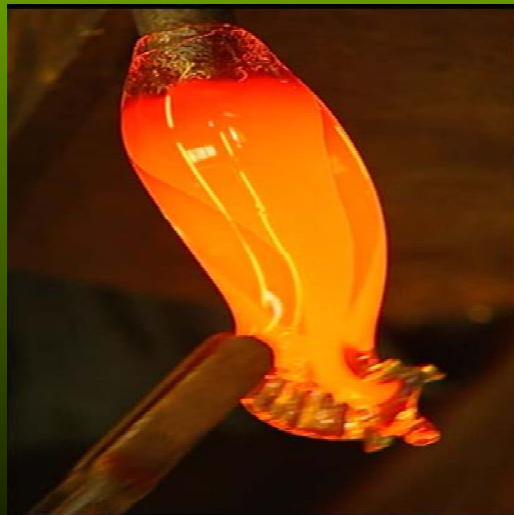
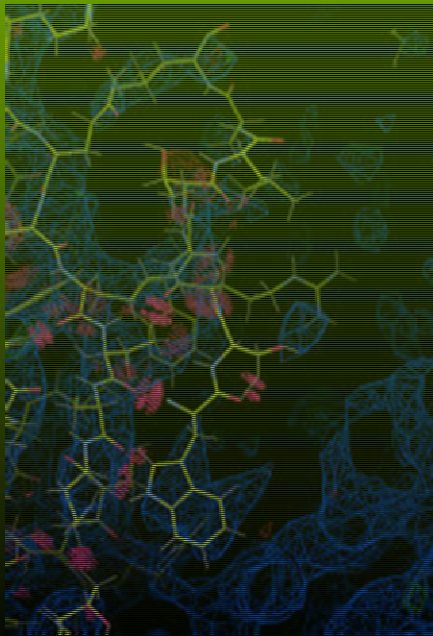


- Synchrotron Radiation; main features
- Beamtime proposal preparation
- Beamtime proposal submission
- Experiment at the synchrotron radiation facility
- International, regional and national funds and scholarships
- Synchrotron radiation facilities around the world

iGlass
Reality reinvented



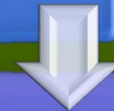
Wall Format Display GLASS



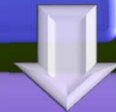
Appropriate technique(s)



Beamline(s)/ synchrotron



Prerequisite materials

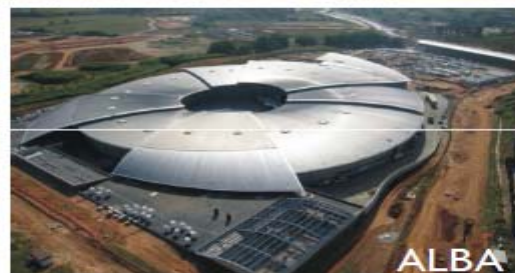


Proposal preparation

International laboratories

Elettra, Italy		Kurchatov Institute, Russia	
ALBA, Spain		SESAME, Jordan	
DESY, Germany		CLS, Canada	
Diamond, UK		NSRRC, Taiwan	
ICTP, Italy		BUDKER Institute, Russia	
CERN		Istituto Nazionale di Fisica Nucleare, Italy	

Modern SR facilities





First Step

- Before submitting a proposal you should first **identify the beamlines** that can be used for your project and contact the Beamline Spokesperson for each beamline.
- Discuss with the Beamline Spokesperson
 - Does the beamline meet the specifications required for your project?
 - Does your project require additional instrumentation or a non-standard beamline configuration? Can the instrumentation be supplied or the beamline reconfigured?
 - The amount of beam time that would be required to complete your project.
 - Can a preliminary feasibility check be made on your sample?



Lightsources.org

- **Lightsources.org** is the result of a collaboration between communicators from light source facilities around the world.
- This platform groups 21 synchrotrons and 6 FEL facilities representing 22 organisations from 3 geographic zones: Europe / the Middle East, the Americas, and Asia / Australia.

lightsources.org

Home About Lightsources.org For Users Careers Light sources of the world

The Australian Synchrotron is a 3 GeV national synchrotron and supports a broad range of high quality research, with applications in sectors from medicine and nanotechnology to manufacturing and mineral exploration.

Learn More

40000+
publications from our user community in 2013-2017

8300+
protein structures deposited from our user community in 2017

23
member organisations representing 28 facilities worldwide

Lightsources.org weekly update
Subscribe



Way for light


<http://www.wayforlight.eu/en/>



THE CATALOGUE OF EUROPEAN LIGHTSOURCES

FAQ | [umbrella login](#)

INDUSTRIES | USERS | TRAINING | ABOUT US | CONTACTS




BROWSE THE CATALOGUE OF FACILITIES

SYNCHROTRONS | FELS | LASERS

OR SEARCH FOR THE BEAMLINES YOU NEED


Facility Type ▾ Technique ▲ Discipline ▾ Free text search 🔍

- Absorption
- Diffraction
- Emission or Reflection
- Imaging
- Ion Spectroscopy
- Lithography
- Photoelectron emission
- Scattering




offering
TRAINING

Light sources represent the ideal training and education environment: check out the latest opportunities for improving your skills and widening your career opportunities



porting
INDUSTRIES

world-class, accelerator-based light sources for materials characterisation going far beyond conventional techniques



enabling
USERS

Wayforlight is a user portal. We offer contacts of the European Synchrotron and free electron laser user organisation to more than 30,000 users of European lightsources as well as...

Go to Settings to activate Windows.

ESRF-user-office-J....pdf ^ ESRF-user-office-J....pdf ^ WritingBeamtimeP....pdf ^ WritingBeamtimeP....pdf ^ WorkshopBrucePr....pdf ^ Show all X



Way for light

<http://www.wayforlight.eu/en/>

TECHNIQUES

- ☒ Absorption
- ☒ EXAFS
- ☐ IR spectroscopy 3
- ☐ NEXAFS 49
- ☐ Time-resolved studies 21
- ☐ UVCD 0
- ☐ XMCD 14

60 BEAMLINES in 14 FACILITIES

SYNCHROTRON

ALBA

Cerdanyola del Vallès (Barcelona), Spain

BL22 (CLAESS)

The BL22 (CLAESS), Core Level Absorption and Emission Spectroscopies, is an advanced hard X-ray absorption beamline equipped with ...

BL29 (BOREAS)

The BL29 (BOREAS), Resonant Absorption and Scattering, is a soft X-ray beamline with a helical undulator to produce variable-polarization ...

SYNCHROTRON

BESSY II

Berlin, Germany

ALICE (diffractometer/reflectometer for soft X-ray resonant magnetic scattering)

Although the chamber named ALICE was designed for the analysis of magnetic hetero- and nanostructures

FEMTOSPEX Molecules and Surfaces

An electron spectroscopy setup for time resolved Laser-Pump/x-ray-Probe experiments is currently being built and in the test phase ...

**Always check the
synchrotron website for the
submission calendar.**



Travel & Subsistence Support

BESSY II

General support regulations

The travel and subsistence support is limited to:

- a maximum of **two participants** per beamtime
- a **maximum refund** per experimentalist of **400 Euros** for beamtimes which last **more than 48 hours**
- a **maximum refund** per experimentalist of **200 Euros** for shorter beamtime campaigns of **less than 48 hours**
- the period of the scheduled beamtime. Up to two additional days each for preparation of experiments and post beamtime activities can be supported.

Proposals from countries outside the EU may receive EU travel support upon request and only to a certain extent.



2. Step

- 2-3 pages: **Take the time to make it short**
- Describe the importance of your science in terms any scientist can understand
- Aim broadly, proposals are read by physicists, chemists, biologists, etc....
- Describe your experiment well. Include details of samples to be measured and of experimental setup if non-standard. Account for the time you request and make clear that the time will be well-used.

Consult with a beamline scientist and/or your collaborators before submitting proposal.

More hints on proposal writing

- Describe the “**Societal Impact**” in the Abstract – reviewers love this.
- Describe **other measurements** that have been made on these samples
- Be specific and explicit about:
 - Element(s) and edge(s) to be studied
 - Concentrations of elements to be studied.
 - Transmission, fluorescence, multi-element detector
- **Give literature references.** (Don’t attach your CV. Don’t attach PDFs of published papers.)
- If you’re a student or postdoc (most reviewers love this, too):
 - say so.
 - list yourself as Spokesperson, not your advisor.
 - write the proposal yourself, with help from advisor / senior students.
- If you’ve had some beamtime and “need a bit more time”, include a plot of any data collected so far.
- List a 2nd choice beamline.
- Proposal Shifts number of 8-hour shifts required for next run and for the lifetime of the proposal
- Each proposal is reviewed usually by 3 reviewers who provide a rating between 1 and 5 (1 high).



Scientific structure

- Scientific Importance of Proposed Experiment
 - Background
 - Impact
- Describe Work Previously Done at a Synchrotron Facility
- List of Three Publications to Assist in Proposal Review
- Research Description

Safety Approval Form

Proposal Submission Flowchart



Proposal document: administrative and technical information

 Consorcio para la Construcción,
Equipamiento y Explotación del Laboratorio
de Luz Sincrotrón - CELLS

PROPOSAL FOR BIOLOGICAL SAMPLES EXPERIMENTS

CONFIDENTIAL DOCUMENT

Main Proposer:

First name
Last name
Identity card number (ID/Passport...)
Home organization name
Professional category
Email

Co-proposer:

First name
Last name
Identity card number (ID/Passport...)
Home organization name
Professional category
Email


Co-proposer:

First name
Last name
Identity card number (ID/Passport...)
Home organization name
Professional category
Email

Co-proposer:

First name
Last name
Identity card number (ID/Passport...)
Home organization name
Professional category
Email

If there are more co-proposers, you can add them by copy and paste the previous sections.
Before completing the proposal, if necessary, consult these links:

 Consorcio para la Construcción,
Equipamiento y Explotación del Laboratorio
de Luz Sincrotrón - CELLS

Scientific General Part:

Title
Keywords
Research area of the proposal
Industrial Relevant
Type of Scientific Proposal
Period or call (year/first or second semester)
If this proposal is continuation of another, please specify the previous ID
If it is resubmission of another, please specify the previous ID, and resume how the proposal has changed
Give the ID of previous Proposals, if any, whose experimental reports are related to this one

Beamlines Requirements:

Requested Beamline
End Station
Photons energy requested, or energy range if necessary
Spot size requested
Number of shifts required

Additional Requirements for BL01-MIRAS:

Select the sampling technique mode
Which microscope detector do you require
Select the magnification you need in the microscope for your experiment
Which micro sample holder substrate do you require?

Proposal document: safety content

	Consorcio para la Construcción, Equipamiento y Explotación del Laboratorio de Luz Sincrotrón - CELLS
--	---

Beamline and other areas of presence at ALBA Synchrotron:

Detail the Beamline, the support laboratories (Chemistry, Biology, Materials Science, etc...) and other CELLS sites where the user will carry out their activities.

.....

Biological sample description

Substance
Brief sample description
Number of samples and concentration, if applicable

Attachments

We remind you, you should attach the Material Safety Data Sheet (MSDS) or equivalent document in PDF file.

Depending on the nature of the sample, maybe the MSDS is not available. If so, the equivalent document should be written by a Biosafety Committee, or similar, with a recognized panel of experts. The criteria used in their evaluation must be clearly stated.

Sample safety

Hazard category	Choose an item
Biological agents: please specify the biological classification according to the legislation (*)	Choose an item

If your samples is genetically modified, please provide the authorization number from the respective government body
--	-------

If your samples is Non aggressive pathogen to human or Pathogenic to Animal/Plants Samples, please provide: potential hosts, details of
---	-------

	Consorcio para la Construcción, Equipamiento y Explotación del Laboratorio de Luz Sincrotrón - CELLS
---	---

Genetic Modification: be aware that class 1 GMOs have a unique authorization number, but each class 2 GMO sample type has its own number.

(1) **Human or Animal Tissue Samples:** please, attach the corresponding declaration to your proposal. Template.

(2) **Animal Sample:** provide the permit number from the Animal Tissue Authority. Ethical approval is required. Please attach both documents to the proposal. (**).

This information is MANDATORY for your proposal to be accepted.

Legislation:

(*) - Royal Decree 664/97, about workers protection against hazard or risk regarding the exposition to biological agents at work.

- Royal Decree 178/04, which sets the legislation for the confined use, voluntary liberation and commercial handling of with genetically modified organisms.

(**) - Royal Decree 1201/2005 of July 30 which regulates the use of animals for experiments and other scientific purposes.

Specific hazard	Choose an item
Comments

Non-human Tissue Sample: please give source and details on reliability of claimed absence of pathogens where applicable.


Safety precautions to be taken in ALBA facilities	Choose an item
Comments

Biological containment = 2: please be aware ALBA can only accommodate containment not higher than level 2 experiments.

Further safety information related with the sample itself or any preparation process that will be done at ALBA
--	-------

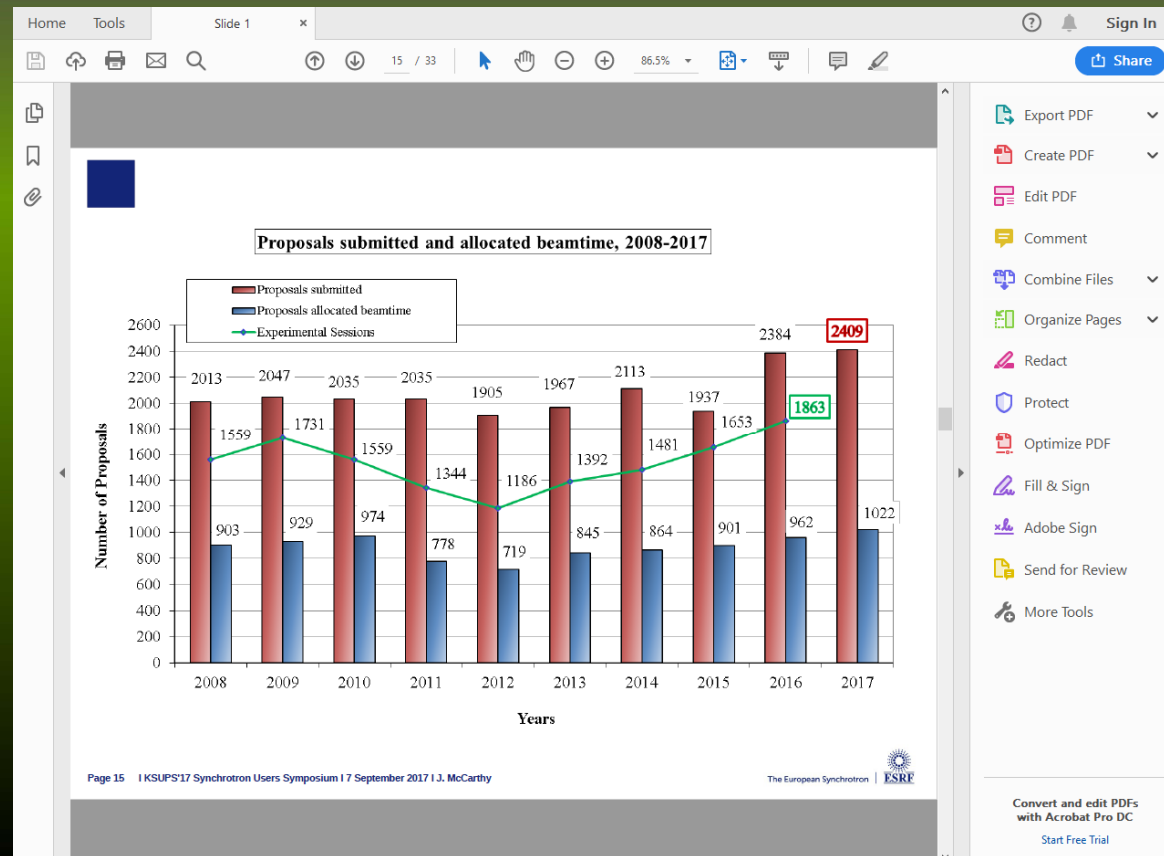
Page Break

Proposal document: scientific content

		Consorcio para la Construcción, Equipamiento y Explotación del Laboratorio de Luz Sincrotrón - CELLS	
Additional Requirements for BL11-NCD			
Q-range in nm-1			
Type of data		Choose a type of data	
Additional Requirements BL13-XALOC			
Do you plan to use the sample charger?		Choose a do you plan to use the sample charger	
Type of technique you intend to use (MAD, SAD, MR,...)			
Experiment Context			
Why is SR needed to solve the proposed scientific case?			
Proposal framework			
Do you have any other research grants? If yes, please provide on going research project codes or references		Choose do you have any other research grants	
Is the proposal in collaboration with an industrial group? If yes, state the collaboration title, starting date and ending date.		Choose is the proposal in the collaboration with a	
Is the proposal a significant part of PhD thesis? If yes, give a reference title.		Choose is the proposal a significant part of PhD	
Are all co-proposers and main proposer in this proposal early career researchers, i.e., less than ten years after Ph.D. thesis?		Choose Are all co-proposers and main proposer	
Page Break			

		Consorcio para la Construcción, Equipamiento y Explotación del Laboratorio de Luz Sincrotrón - CELLS	
Abstract of proposed experiment			
Abstract (300 words as a rough guide)			
Scientific and Experimental Description			
Your description should contain the following sections: Background, Objective, Experimental method, Expected results, Justification for the Beamtime requested, References.			
Description			
Maximum 2000 words (3 pages maximum including any graphics)			
Page Break			

Proposal submitted and allocated beamtime, 2008-2017, ESRF ~40% acceptance rate



XAFS/XRF proposals evaluated: first external users from July 2018

Country	Submitted	Selected
CYPRUS	1	1
EGYPT	6	2
IRAN, ISLAMIC REPUBLIC OF	2	0
ITALY	1	0
JORDAN	2	1
KENYA	2	0
PAKISTAN	7	4
SWEDEN	1	0
TURKEY	14	11
TOTAL	36	19

Outcome of the evaluation of proposals submitted for the IR BL: first users in October 2018

Country	Submitted	Selected
COLOMBIA	1	1
CYPRUS	2	2
EGYPT	4	2
FRANCE	1	1
IRAN, ISLAMIC REPUBLIC OF	3	1
ITALY	1	1
JORDAN	2	1
PAKISTAN	4	0
PALESTINE	1	0
TOTAL	19	9

Proposal Deadlines

<http://www.wayforlight.eu/en/users/next-call-deadlines/>

17.12.2018

FEL

European XFEL

The European XFEL is a research facility open to scientists worldwide. Beamtime is free of charge, but experiment proposals must go through a peer-review process. Proposals must be submitted through the [User Portal to the European XFEL \(UPEX\)](#) in the frame of specific calls for proposals. As an important condition for access, after the experiments, the authors must strive to publish the results in peer-reviewed journals.

OPEN CALL FOR PROPOSALS

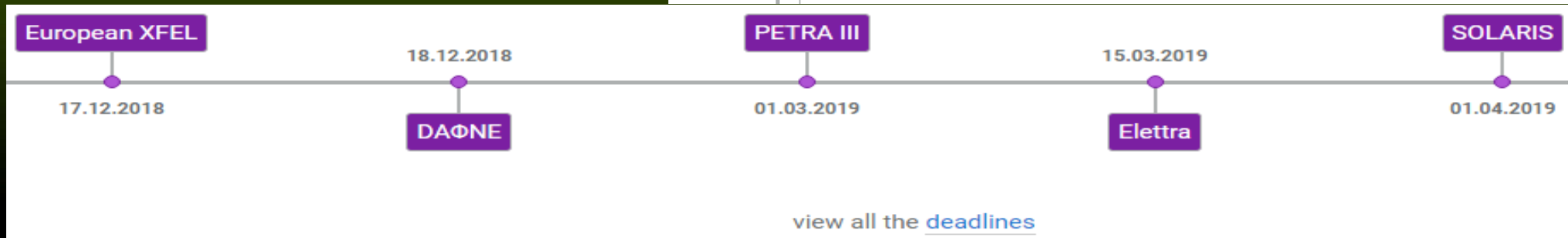
Deadline: MONDAY 17 December 2018 14:00 HAMBURG/SCHENEFELD TIME (UTC+01:00)

Outcome of beamtime allocation process: April 2019

Allocation period: July-November 2019

Instruments overview: <https://www.xfel.eu/facility/instruments>

Information for perspective users: https://www.xfel.eu/users/index_eng.html





CALIPSOplus

Convenient Access to Light Sources Open to Innovation, Science and to the World.
<http://www.calipsoplus.eu/>



- The aim of the CALIPSOplus project is to remove barriers for access to world-class accelerator-based light sources **in Europe and in the Middle East**. To this end more than 82,500 hours of trans-national access are provided to these research infrastructures and specific programmes are in place to teach new users how to successfully use synchrotrons and FELs.





- CALIPSO proposes a single entry point to simplify access modalities, to coach potential users to find the best beamline for their experiment and to favour interactivity; in addition, targeted education actions will widen and strengthen the community.

CALIPSO ended in May 2015, and a new proposal for an Horizon2020 CALIPSOplus proposal has been submitted to the EC in March 2016.

Access during the project lifetime

Promoted excellence and equal opportunities for all European users. Project selection based on **scientific merit**. Access to 16 European facilities (11 synchrotrons, 5 FELs).

In 3 years:

1400+ user projects supported
2100+ users from 31 countries
400+ peer reviewed publications
53% junior (<35 years old) users

OPEN SESAME



- ☐ TOPICS
- ☐ OPPORTUNITIES
- ☐ CONSORTIUM
- ☐ NEWS
- ☐ ROADSHOW



OPEN-SESAME project has received funding from the EU's H2020 framework programme for research and innovation under

**Sharing experience to
unlock the power of
synchrotron light**
in the Middle East.

Transferring knowledge to the community emerging around SESAME synchrotron to fully exploit the brightest x-rays of the Middle East.

This is OPEN SESAME

OPEN SESAME



- OPEN SESAME (www.opensesame-h2020.eu) is a Horizon 2020 project, which provides training opportunities for the SESAME light source in Jordan.
- An intergovernmental organization, SESAME's members are Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority and Turkey. This call for Fellowships was open to students working towards Masters or Doctoral degrees in the realm of light source science in any of these Members.





SESAME(Synchrotron-light for Experimental Science and Applications in the Middle East)

http://www.sesame.org.jo/sesame_2018/



No	Beamline	Energy Range	Source Type
1	XAFS/XRF (X-ray Absorption Fine Structure/X-ray Fluorescence)	4.5-30 keV	Bending Magnet
2	IR (Infrared Spectromicroscopy)	0.001-3 eV	Bending Magnet
3	MS (Materials Science)	5-25 keV	2.1 Tesla MPW (SLS)
4	Macromolecular Crystallography (MX)	~4 ~14 keV	In Vacuum Undulator



Lightsources for Africa, the Americas, Asia and Middle East Project (LAAAMP)

<https://laamp.iucr.org/home>

Through this project, entitled in full *Utilisation of Light Source and Crystallographic Sciences to Facilitate the Enhancement of Knowledge and Improve the Economic and Social Conditions in Targeted Regions of the World*, ICSU will partner with IUPAP and IUCr to enhance Advanced Light Sources (AdLS) and crystallographic sciences in Africa, Mexico, the Caribbean, Southeast Asia and Middle East.

An IUPAP-IUCr project within the 2016-2019 ICSU Grants Programme

LAAAMP

Lightsources for **A**frica, the **A**mericas, **A**sia and **M**iddle East **P**roject

Thank you for your Attention