The Extreme Light Infrastructure

EXTREME SCIENCE

A European Research Infrastructure Consortium

Housekeeping Rules

The **meeting** will be **recorded.**

Include **Name and Affiliation** in your user name.

Only Speakers/Panelists have **speaking permissions.**

Questions can be **posted** in the **Q&A** and will be addressed by the moderators and speakers.

In case of **technical or any other questions**, please use the **Chat function** to get in touch with the host.

2nd Joint ELI Call for Users
Webinar Programme, 17 March 2023

Introduction

10:00 **Introduction to 2nd Joint ELI User Call**
Andrew Harrison, ELI ERIC Director of Science

10:10 **ELI Beamlines Presentation of Available Systems**
Daniele Margarone, ELI Beamlines Director of Research and Operations

10:25 **ELI ALPS Presentation of Available Systems**
Dimitris Charalambidis, ELI ALPS Chief Scientific Advisor

10:40 **ELI ERIC Application Process and User Office**
Zita Váradi, ELI ALPS User Office

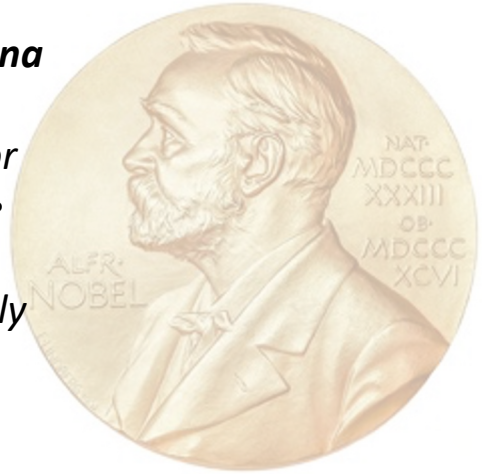
10:50 **ELI Nuclear Physics Presentation of Available Systems and Application Process**
Sophia Chen, ELI NP User Office

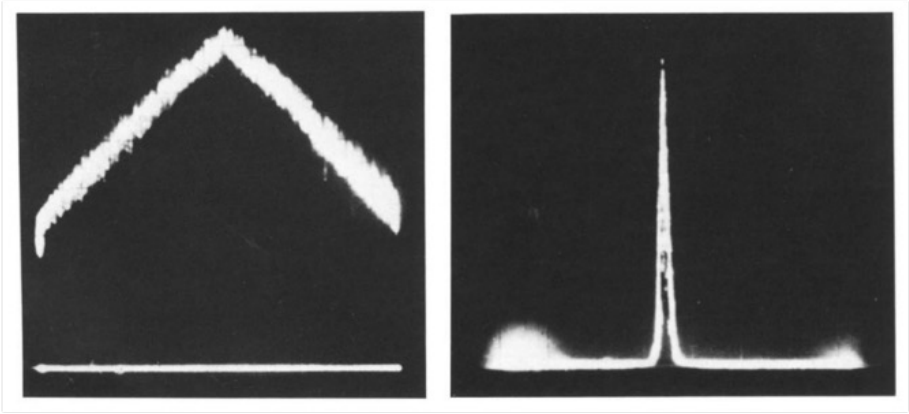
11:00 **Q&A / Discussion**

From Nobel Prize to Extreme Light

A Technological Breakthrough Enables ELI

Gérard Mourou and Donna Strickland *won the* ***2018 Nobel Prize for Physics*** *for proposing* ***"Chirped Pulse Amplification"*** *for high-power, ultrafast, extremely intense lasers.*

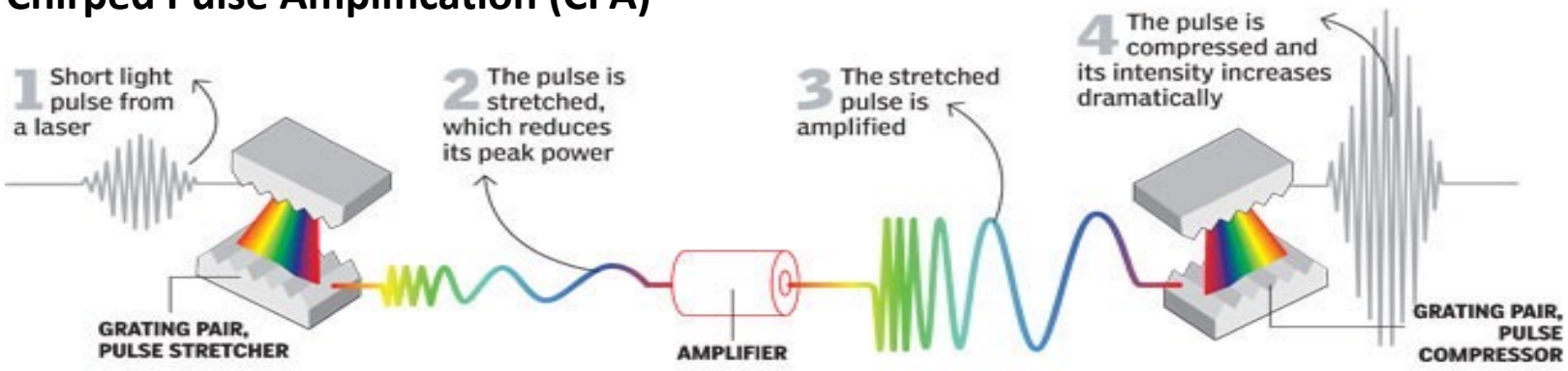




Images of stretched and compressed pulses, from Strickland's 1985 paper on Chirped Pulse Amplification (CPA) which led to petawatt-class lasers

Mourou, et al proposed ELI in 2004, and from 2007-2010 initial reseach including 15 institutions and € 7.9M from the Seventh Framework Programme.

Chirped Pulse Amplification (CPA)



Extreme Light Infrastructure for Europe

3 Complementary User Facilities:

- **High-Energy Beam Facility**, developing and applying ultra-short pulses of ultra-intense radiation to explore extreme conditions or produce high-energy particles and radiation *(ELI Beamlines, Prague, CZ)*
- **Attosecond Laser Science**, capitalising on new regimes of time resolution *(ELI ALPS, Szeged, HU)*
- **Nuclear Physics Facility** with ultra-intense lasers and brilliant gamma beams (up to 19 MeV) to produce and explore new nuclear states or generate neutron beams *(ELI NP, Magurele, RO)*

A European Research Infrastructure Consortium

Construction was possible with European Structural Investment Funds (ESIF)

The Czech Republic, *Host of Seat*

Hungary, *Host*

Italian Republic

Lithuania

Federal Republic of Germany *Observer*

Bulgaria *Observer*

Member countries support ELI ERIC jointly with national funding.

A European International Organisation Established in 2021

Horizon 2020 (INFRADEV) helps finance the integration of the joint user programme, as well as initial access pilots, flagship experiments

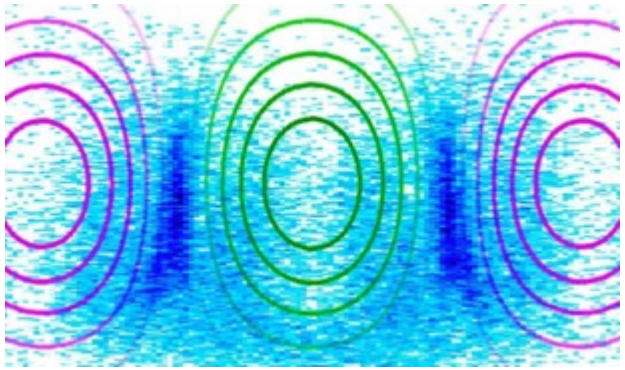
Democratising science using high-performance lasers

Radiation Physics and Electron Acceleration
Soft to hard x-rays, GeV electrons

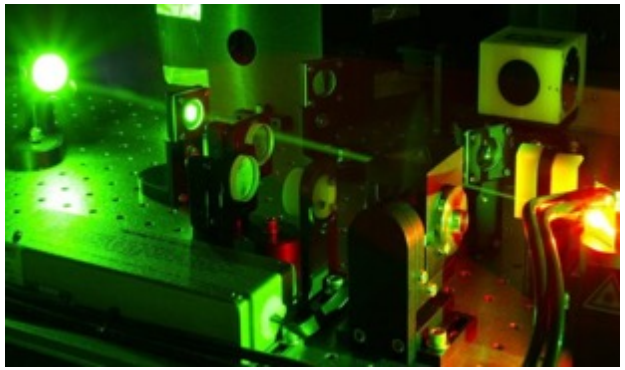
Particle Acceleration
250 MeV Ions Acceleration by lasers

Applications in Material Science and Biology

Plasma Physics and High Energy Density, Astrophysics, Nuclear Photonics



Ultra High Intensity Interactions
High-field physics and theory



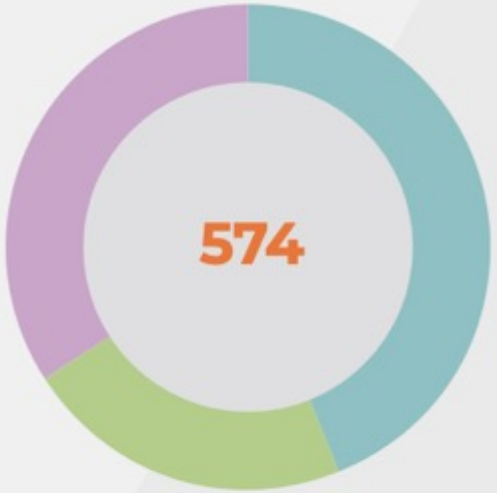
Laser Development

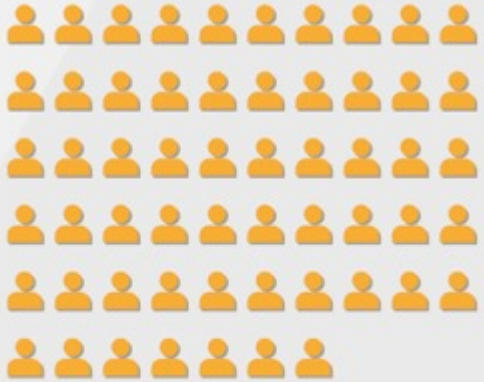
ELI ERIC in Figures

ELI ERIC Facility Staff

Total number of employees **574**

- Researchers 252
- Admin 127
- Technical staff 195





Total number of employees 41

Argentina (2)
Australia (1)
Austria (1)
Bangladesh (1)
Belgium (1)
Brazil (1)
Bulgaria (4)
China (2)
Columbia (1)
Costa Rica (1)
Croatia (1)
Cyprus (1)
Czech Republic (230)
Egypt (1)
France (9)
Georgia (1)
Germany (7)
Greece (4)
Hungary (191)
India (16)
Iran (2)
Italy (13)
Korea (1)
Lithuania (2)
Moldavia (1)
Nepal (3)
Poland (5)
Portugal (1)
Romania* (2)
Russia (17)
Serbia* (1)
Slovakia (11)
South Africa (1)
South Korea (1)
Spain (2)
Sweden (4)
Syria (1)
Turkey (1)
United Kingdom (4)
Ukraine (6)
USA (7)

*incl. dual citizens

International Collaborations and Partnerships

Total Collaborations: 100

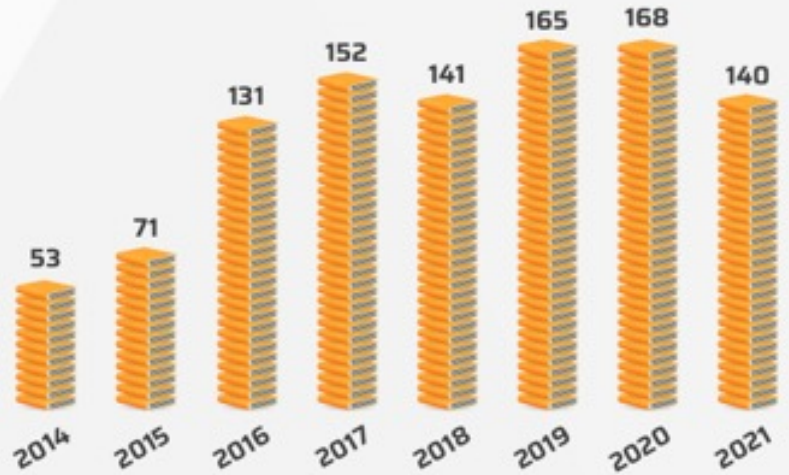
Europea
Czech Republic (6)
France (8)
Germany (15)
Greece (1)
Hungary (10)
Italy (9)
Lithuania (2)
Poland (5)
Portugal (1)
Romania (4)
Serbia (1)
Spain (4)
Sweden (2)
Switzerland (2)
United Kingdom (6)

International
Canada (3)
China (2)
Cyprus (1)
India (1)
Israel (1)
Italy (9)
Japan (7)
Republic of Korea (2)
Russia (3)*

*Russian agreements from 2021 and prior

Publications

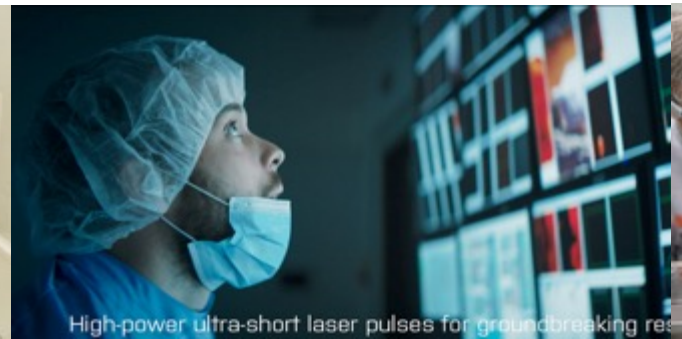
Total number of publications from the ELI ERIC facilities **961**



ELI ERIC is Open to the World

A user facility with three access modes

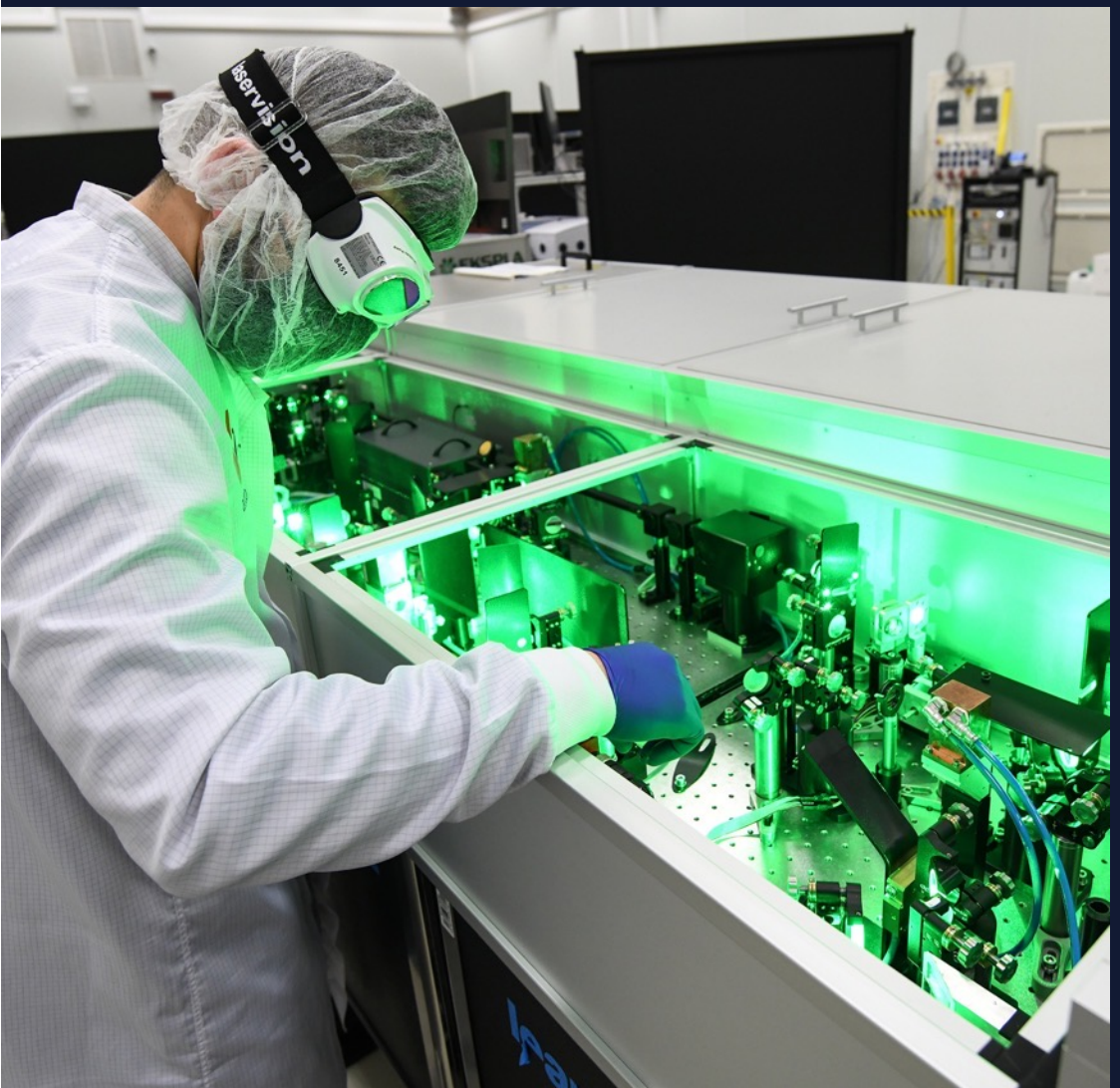
- **Excellence-Based Access** – Evaluation of proposals by international peer-review panels. ***Results of experiments published and open.***
- **Mission-Based Access** – Thematic research granted on the basis of scientific missions pursuing challenges. Proposals reviewed by international panels. ***Results published and open.***
- **Proprietary Access** – Paid access for industrial or other users. ***Results are retained by the user,*** consistent with ELI ERIC's Data and IPR Policy.



ELI User Calls

- First Call launched in June 2022 for experiments late 2022 to April 2023
- 44 proposals accepted and evaluated
- 10 beamlines/sources
- All instruments have been tested during commissioning

2nd Joint ELI User Call



- 3 ELI Facilities
  - ELI ALPS (Deadline 25 April 2023)
  - ELI Beamlines (Deadline 25 April 2023)
  - ELI Nuclear Physics (Deadline 24 March 2023)
- Wide range of complementary equipment for cutting-edge resea
  - 5 Primary Lasers
  - 10 Secondary Sources
  - 11 Endstations
  - 6 Standalone or experimental platforms
- Single point of access https://up.eli-laser.eu
- Access is free and based on a peer-reviewed evaluation of scientific excellence
- Contact [user-office@eli-laser.eu] or main contact points listed for technical questions

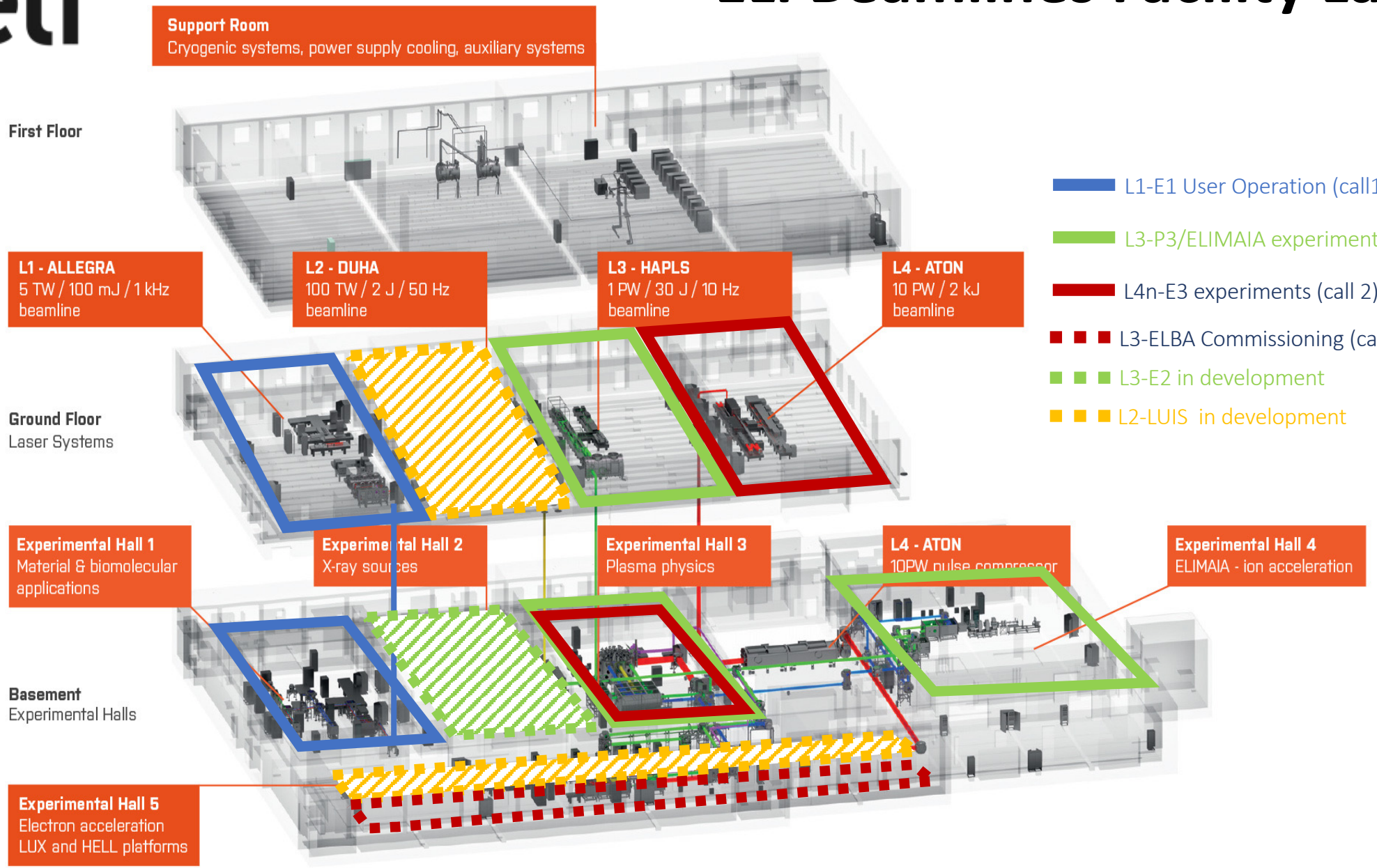
ELI Beamlines

Dolní Břežany, Czech Republic

ELI Beamlines mission profile

- Operate cutting edge, **high-power femtosecond laser** systems with **high energy**, **high repetition-rate** capability
- Explore interaction of **light with matter (plasma) at ultrahigh laser intensities**
- Offer **secondary sources (X-rays and accelerated particles)** with unique capabilities to users
- Enable **pioneering research** not only in plasma physics, high-field physics, nuclear fusion and laboratory astrophysics, but also in material science, biology, chemistry, medicine and other disciplines with strong **multidisciplinary application** potential

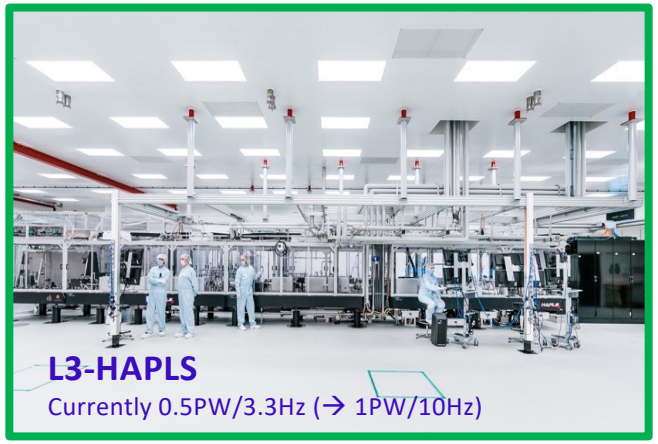
ELI Beamlines Facility Layout



ELI Beamlines User Offer

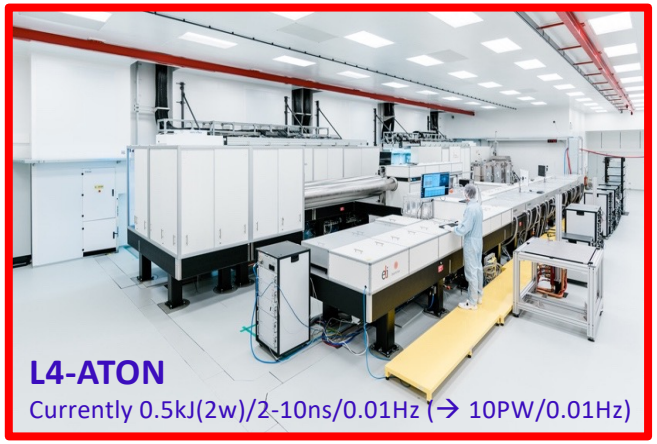
L1-ALEGRA
Currently >3TW/1kHz (→ > 5TW/1kHz)

- Mid-IR to Hard X-rays @1kHz
- Pump-Probe techniques for
- fs-ms dynamics



L3-HAPLS
Currently 0.5PW/3.3Hz (→ 1PW/10Hz)

- Ultrahigh intensity laser-matter interaction (>>10^{21}W/cm^2)
- Laser-plasma p acc. (>>20MeV)
- Tertiary sources (pitcher-catcher)



L4-ATON
Currently 0.5kJ(2w)/2-10ns/0.01Hz (→ 10PW/0.01Hz)

- kJ-class (2w), ns, high rep-rate, pulse-shaping capability
- Platform for HEDP, ICF, shock physics
- Dedicated targetry & diagnostics

Laser systems (Call 2)

Laser parameters	L1 - ALLEGRA	L3 - HAPLS	L4 - ATON
Description	OPCPA, Yb:YAG thin disks, diode pumping	CPA, Ti:Sa, diode pumping	CPA/OPCPA, Nd:glass, flash lamps pumping
Energy	**55 mJ** (100 mJ)	**13 J** (30 J)	**0.5 kJ**
Pulse width	**15 fs**	**27 fs**	**2-10 ns**
Peak Power	**>3 TW** (>6 TW)	**0.5 PW** (1 PW)	**NA** (10 PW)
Wavelength	**840 nm**	**800 nm**	**530 nm** (1060 nm)
Repetition rate	**up to 1 kHz**	**up to 3.3 Hz** (10 Hz)	**1/3min** (1/min)
Intensity contrast	**10^{-10}**	**10^{-11}**	**NA** (10^{-11})

E1 Experimental Hall

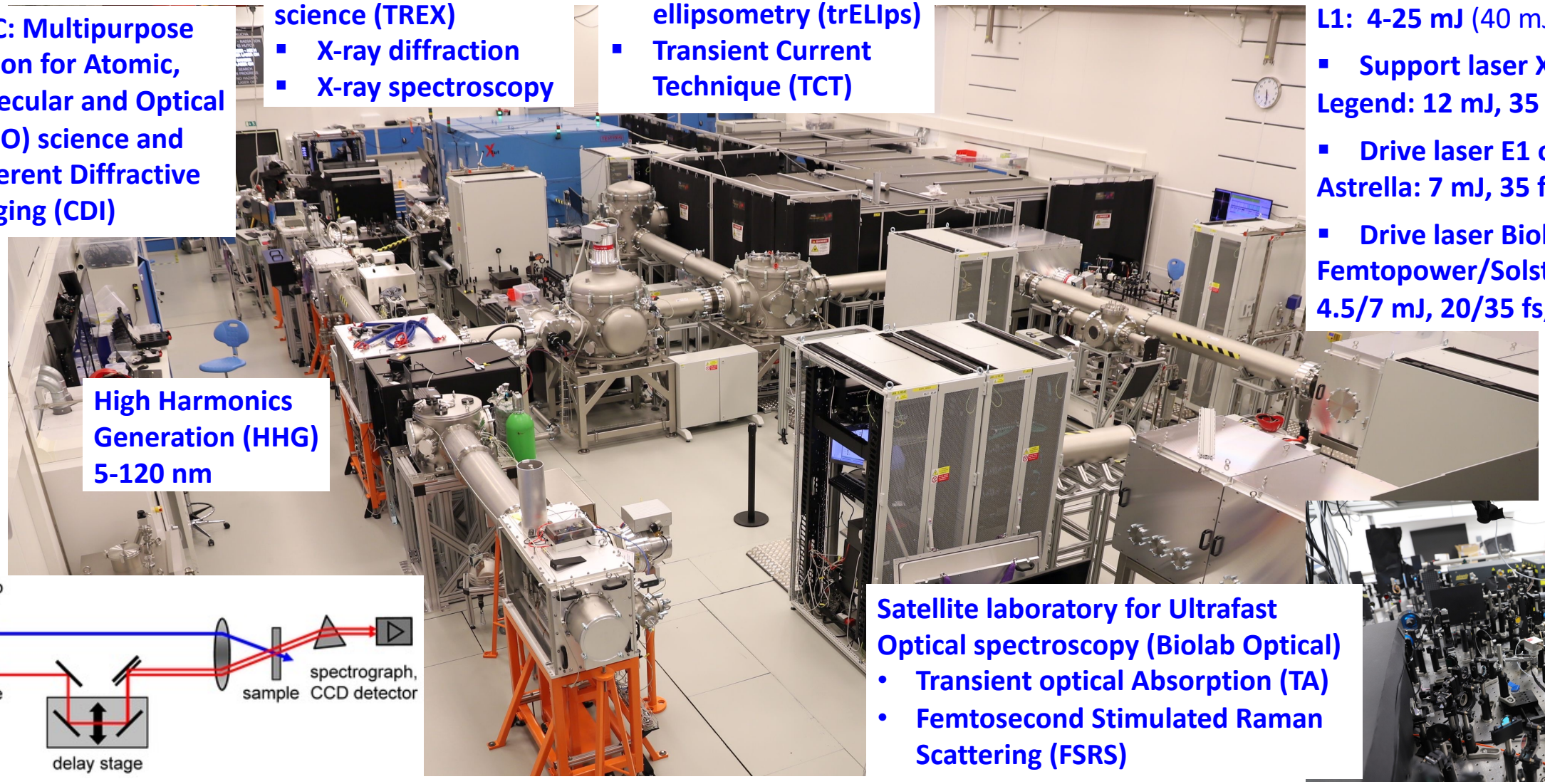
***kHz* Applications in Bio and Material Science**

Plasma X-ray source (PXS), 3-30 keV, 8 keV
End station for X-ray science (TREX)
- **X-ray diffraction**
- **X-ray spectroscopy**

E1 Ultrafast Optical spectroscopy
- **Time resolved spectroscopic ellipsometry (trELIps)**
- **Transient Current Technique (TCT)**

- **Drive laser XUV and X-ray: L1: 4-25 mJ** (40 mJ)**, 15 fs, 1 kHz**
- **Support laser XUV and X-ray: Legend: 12 mJ, 35 fs, 1 kHz**
- **Drive laser E1 optical: Astrella: 7 mJ, 35 fs, 1 kHz**
- **Drive laser Biolab optical: Femtopower/Solstice doublet: 4.5/7 mJ, 20/35 fs, 1 kHz**

MAC: Multipurpose station for Atomic, Molecular and Optical (AMO) science and Coherent Diffractive Imaging (CDI)

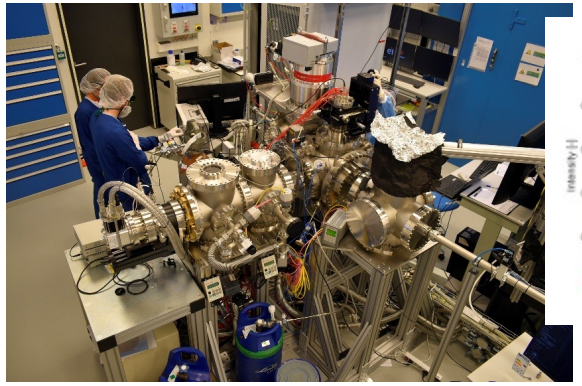


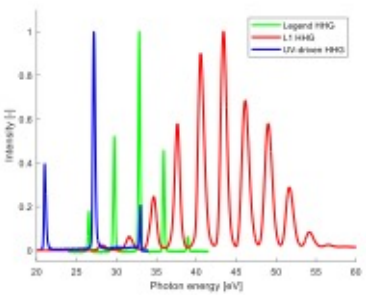
High Harmonics Generation (HHG) 5-120 nm

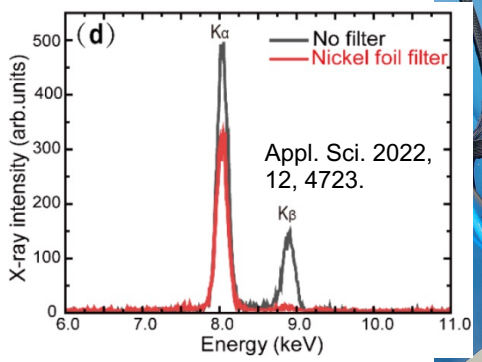
Satellite laboratory for Ultrafast Optical spectroscopy (Biolab Optical)
- **Transient optical Absorption (TA)**
- **Femtosecond Stimulated Raman Scattering (FSRS)**

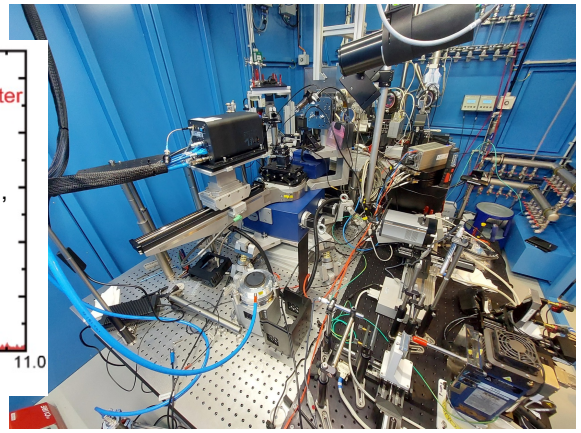
E1 User Science @kHz

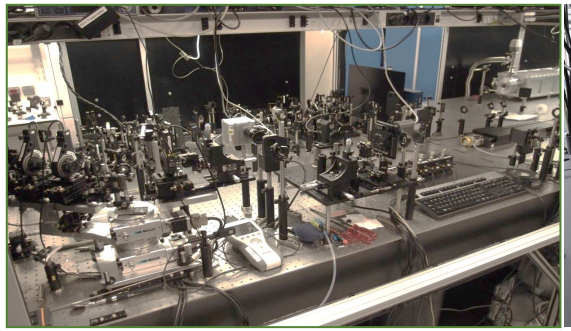
experimental hall and associated labs

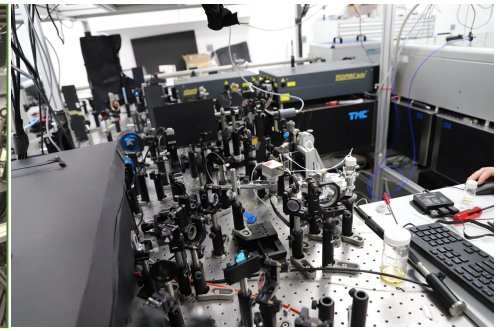












Science with Coherent XUV radiation

- **AMO science**, CDI, XUV **material science**
- Time of flight spectroscopy, Velocity Map Imaging, **XUV spectroscopy**
- Pure and doped **clusters and droplets**, molecular beam, fixed targets
- **XUV source development**, variety of targets and diagnostics

Hard X-ray science

- **X-ray diffraction** and scattering, **X-ray spectroscopy**
- **Plasma X-ray source development**; Cu tape/water jet
- CW X-ray sources for steady state characterization
- Eulerian Cradle diffractometer with fully motorised sample positioning system
- Von Hamos spectrometer geometry; solid, powder, liquid samples

Ultrafast optical spectroscopy (E1 and Biolab)

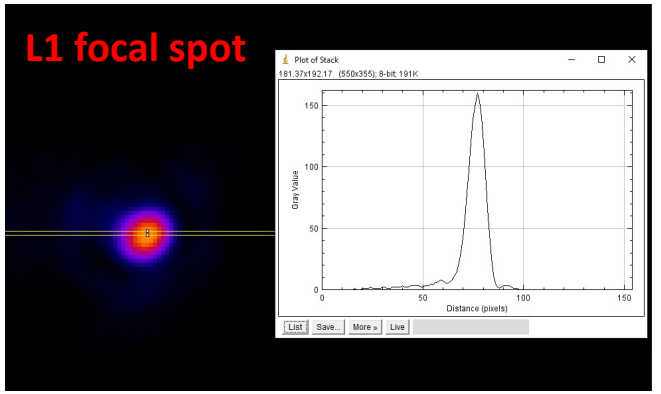
- **Time resolved** spectroscopic **ellipsometry** (E1 optical)
  - Variable excitation wavelength, probe spectrum: 350 nm - 750 nm (1.65 eV - 3.54 eV), temporal resolution ~100 fs
- **Transient Current Technique** (E1 optical)
  - One and two-photon mode, sample cooling, 3D scanning
- **Femtosecond Stimulated Raman Scattering and Transient Absorption** (Biolab Optical)
  - Pulse duration down to few fs
  - Short and long delays (fs to ms) from synchronized amplifiers
  - Simultaneous TA and FSRS (option)

Sample preparations support lab (ELIBIO Biolab)

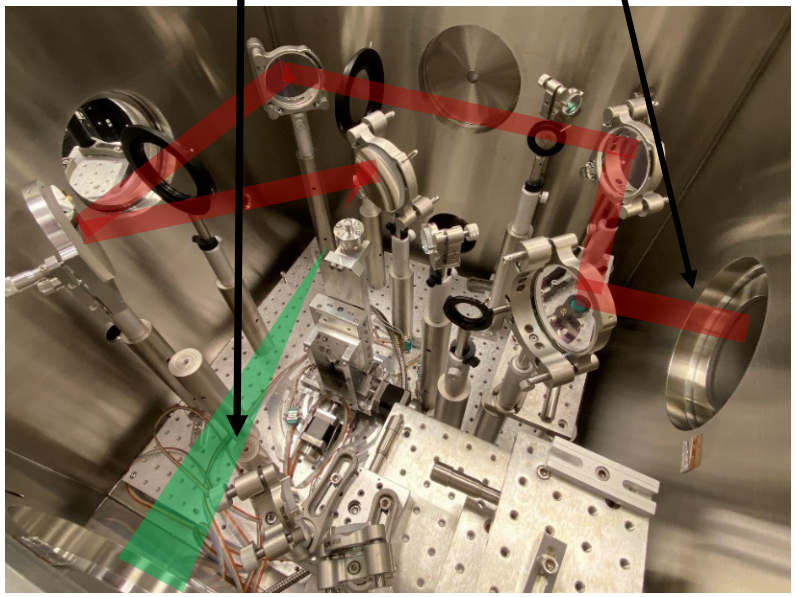
- Sample preparation, including Bio safety level 2
  - Wet processes, crystallization, cold room
- Laser spectroscopy
- Optical/light microscopy
- Electron microscopy

ALFA kHz Laser-Plasma Accelerator (L1 Hall)

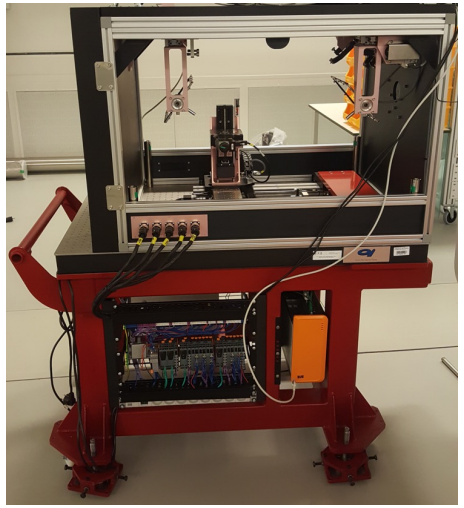
- L1-ALLEGRA laser focused down to enable laser-matter interaction at **relativistic intensities (kHz experimental platform)**
- L1-ALLEGRA drives the ALFA plasma accelerator which delivers ultra-short **electron beams** (~fs) with tuneable energy (up to 30 MeV)
- In-air **end station** for user **sample irradiation**



Electron Beam **L1 Laser**

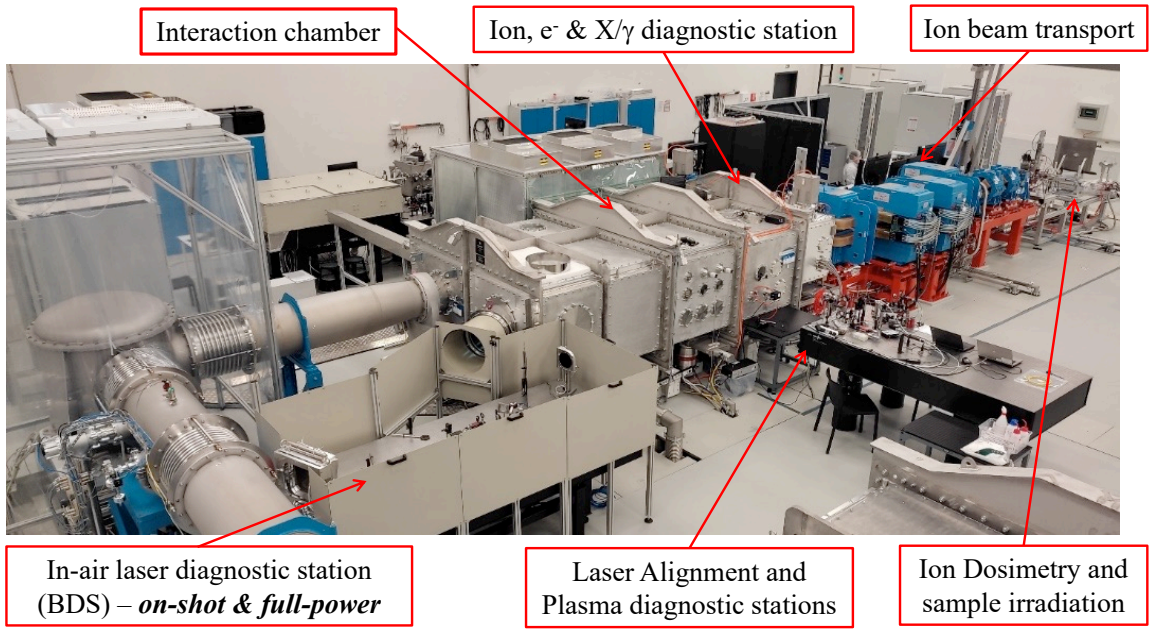


End station for sample irradiation

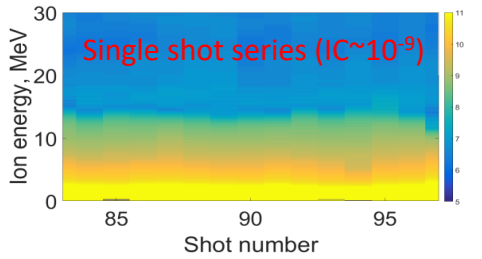


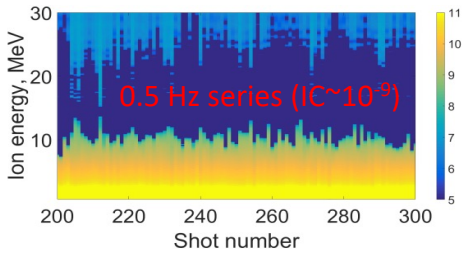
L1-ALFA (Call 2)	Laser beam	Electron beam
Intensity	$6 \cdot 10^{18}$ W/cm^2	-
Energy	55 mJ	30±5 MeV
Pulse width	15 fs	~fs
Repetition rate	up to 1 kHz	up to 1 kHz
Current	-	10-300 pA
Divergence	-	2-8 mrad

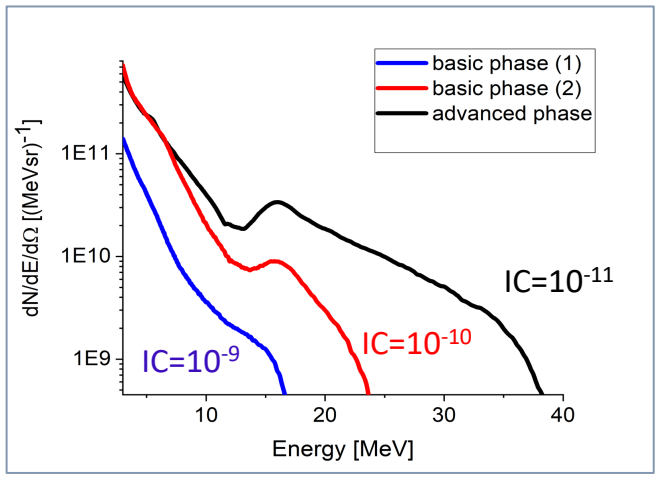
ELIMAIA Laser-Plasma Ion Accelerator (E4)



Ion Accelerator (Call 2)	Demonstrated	Design param.
Laser intensity	$3{\cdot}10^{21}$ W/cm^2	$5{\cdot}10^{21}$ W/cm^2
Laser energy	>10J	30J
Laser pulse width	<30 fs	<30 fs
Repetition rate	up to 0.5 Hz	10 Hz
Proton energy cutoff	25 MeV (40 MeV)	100 MeV
Proton flux (>3 MeV)	~ $1{\cdot}10^{10}$/sr	~ $1{\cdot}10^{11}$/sr



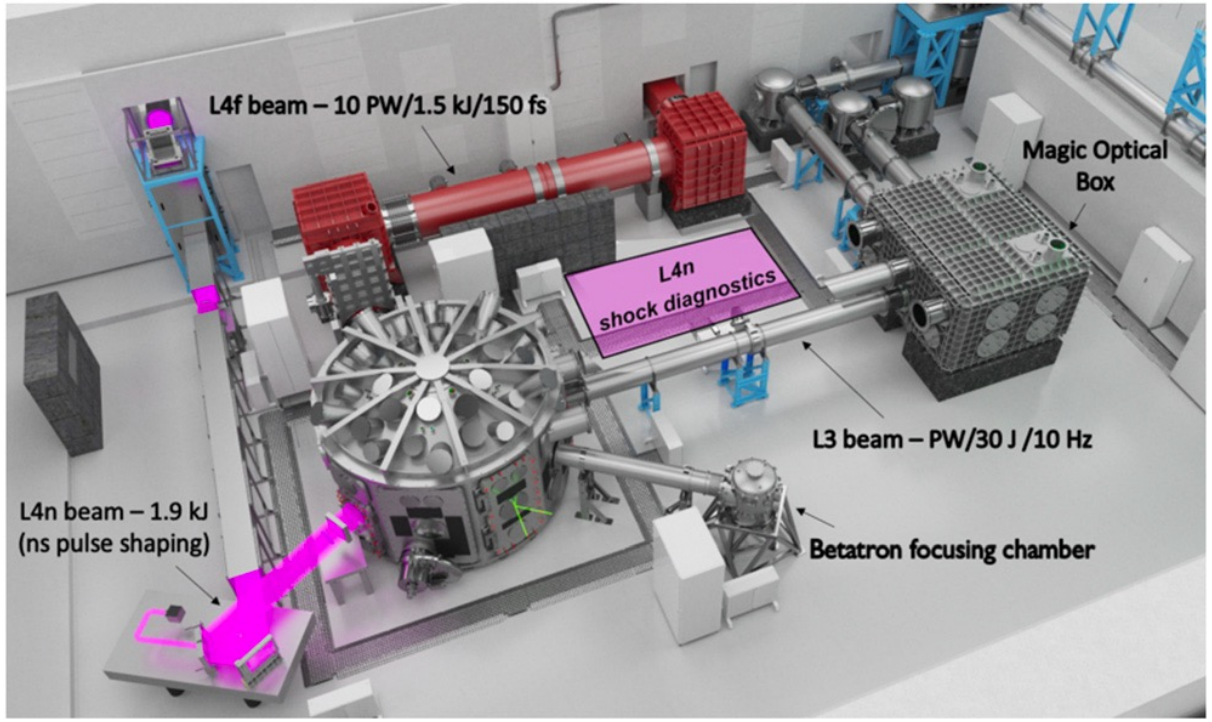




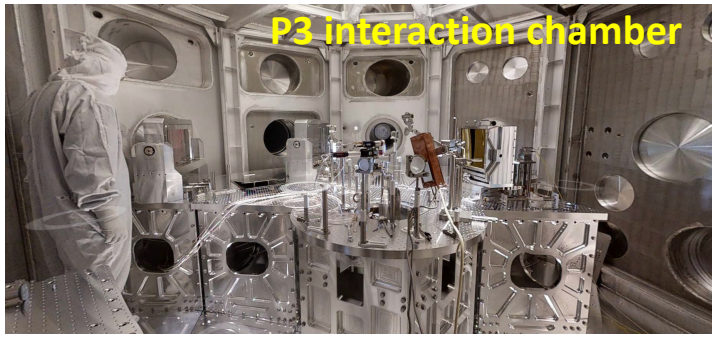
ELIMED end station (commissioning)	Design param. @ user sample
Proton energy	5-60 MeV
Ions/shot	$1{\cdot}10^{8}$-$1{\cdot}10^{10}$/sr
Bunch duration	1-10 ns (>10^9 Gy/s)
Ion beam aperture	~ 1deg (FWHM)
Ion beam spot size	0.1-10 mm (FWHM)
Repetition rate	Active modulation (1Hz)

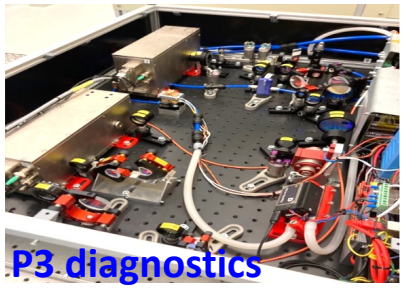
P3 Plasma Physics Platform (E3)

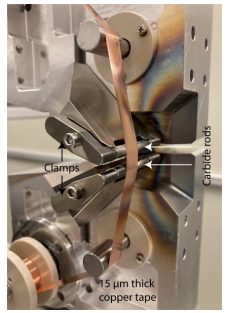
Call 2: L4 uncompressed (ns) beam ONLY



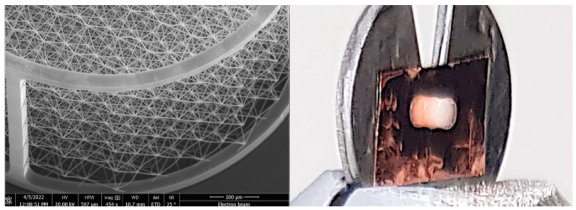
- ➔ L4n-P3 as experimental platform for **HEDP**, including **ICF/IFE** and shock physics
- ➔ High rep. rate capability at kJ level 1 shot/3min (up to 1shot/min)
- ➔ L4 pulse width tuneability (2-10 ns) and temporal shaping capability (150 ps resolution)
- ➔ time-resolved diagnostics for **LPI** (Raman, Brillouin, TPD) and **shock physics**, including VISAR/SOP (commissioning)
- ➔ Hard **X-ray diagnostic** available
- ➔ **Targetry**: solid, gas, multi-layer and foam on tape & raster







P3 targetry



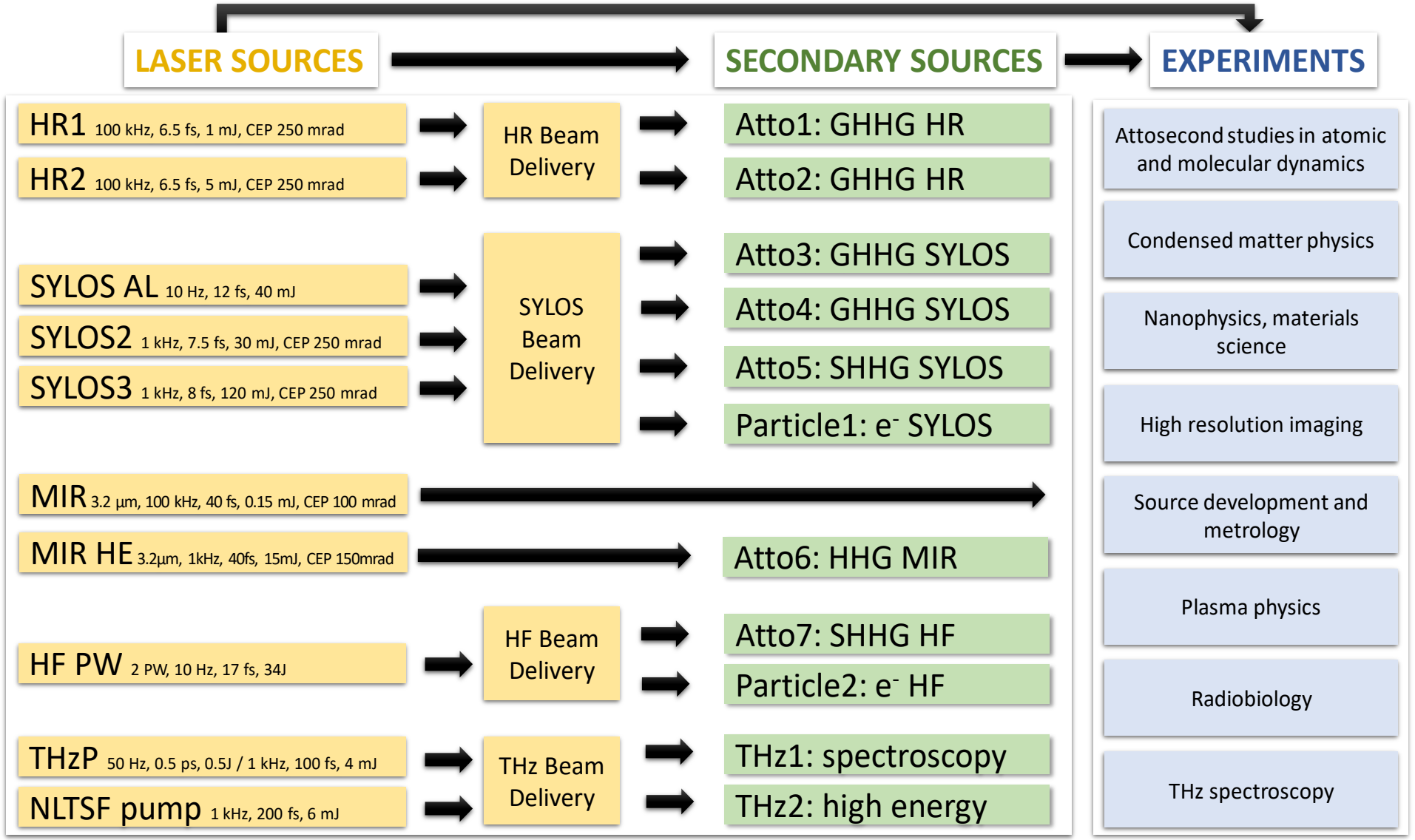
ELI ALPS is a world-class centre for :

- Ultrafast physical processes
- Chemical, medical and materials science analysis
- Attosecond measurement techniques
- Biological imaging technologies
- Artificial photosynthesis
- Nanoscience
- 270 international staff
- Area 30,000 m^2

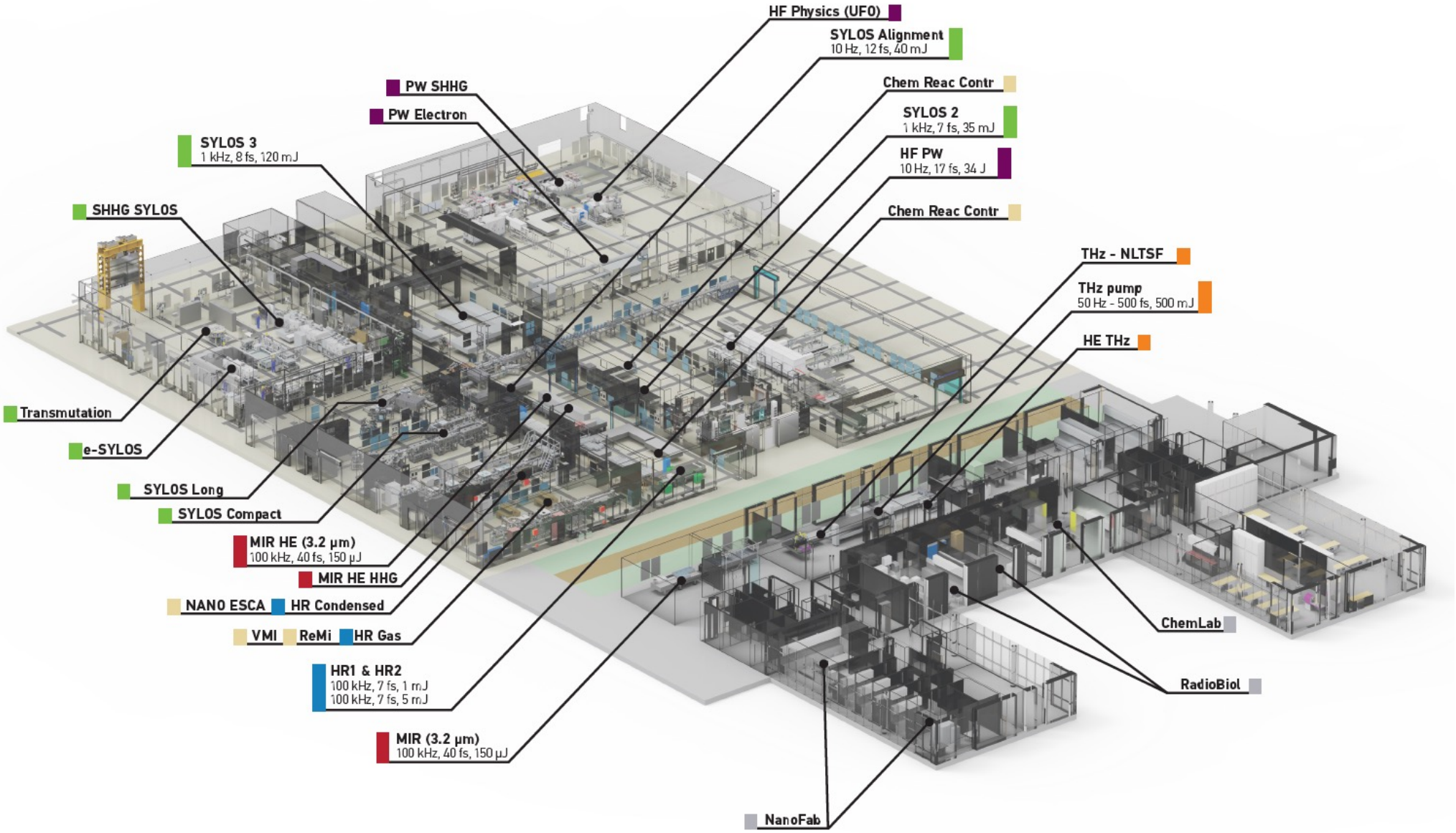
ELI Attosecond Laser Pulse Sources

Szeged, Hungary

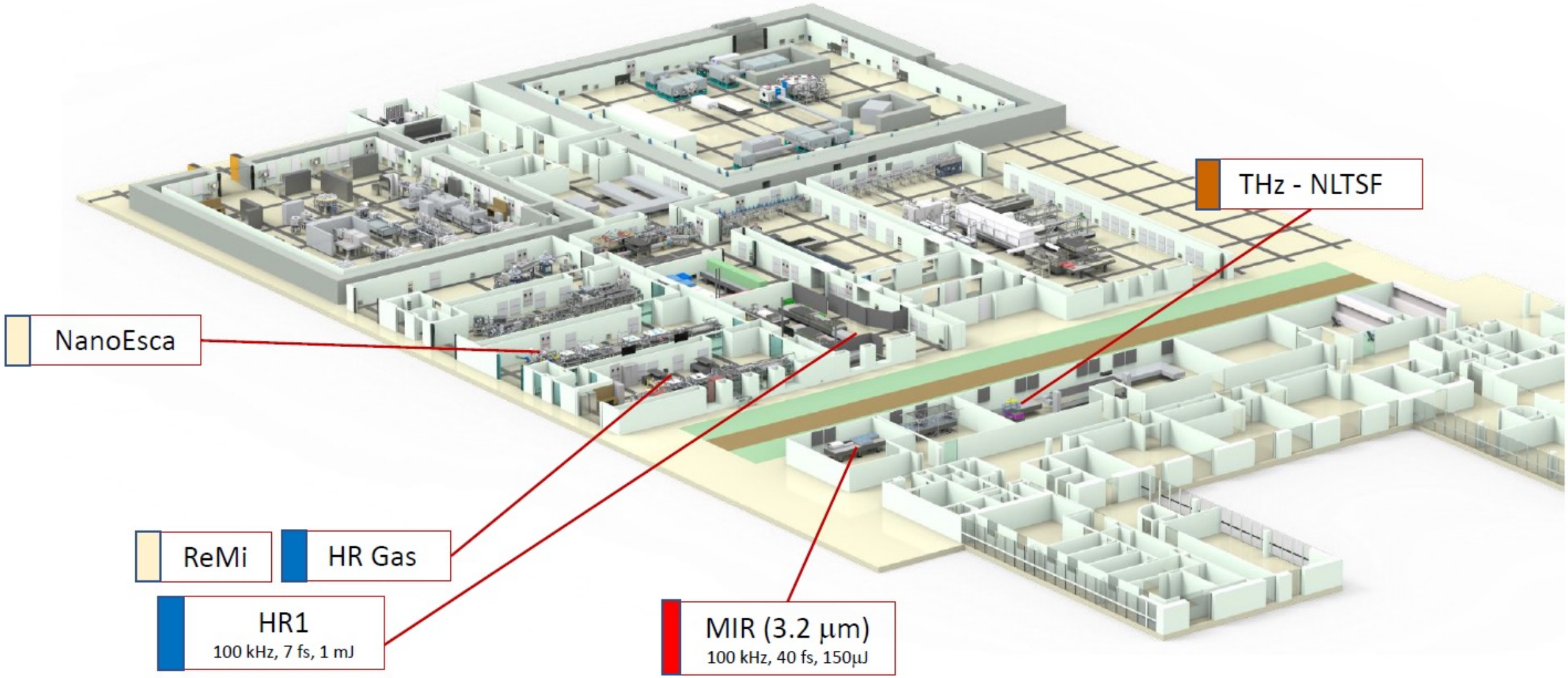
The structure of ELI ALPS



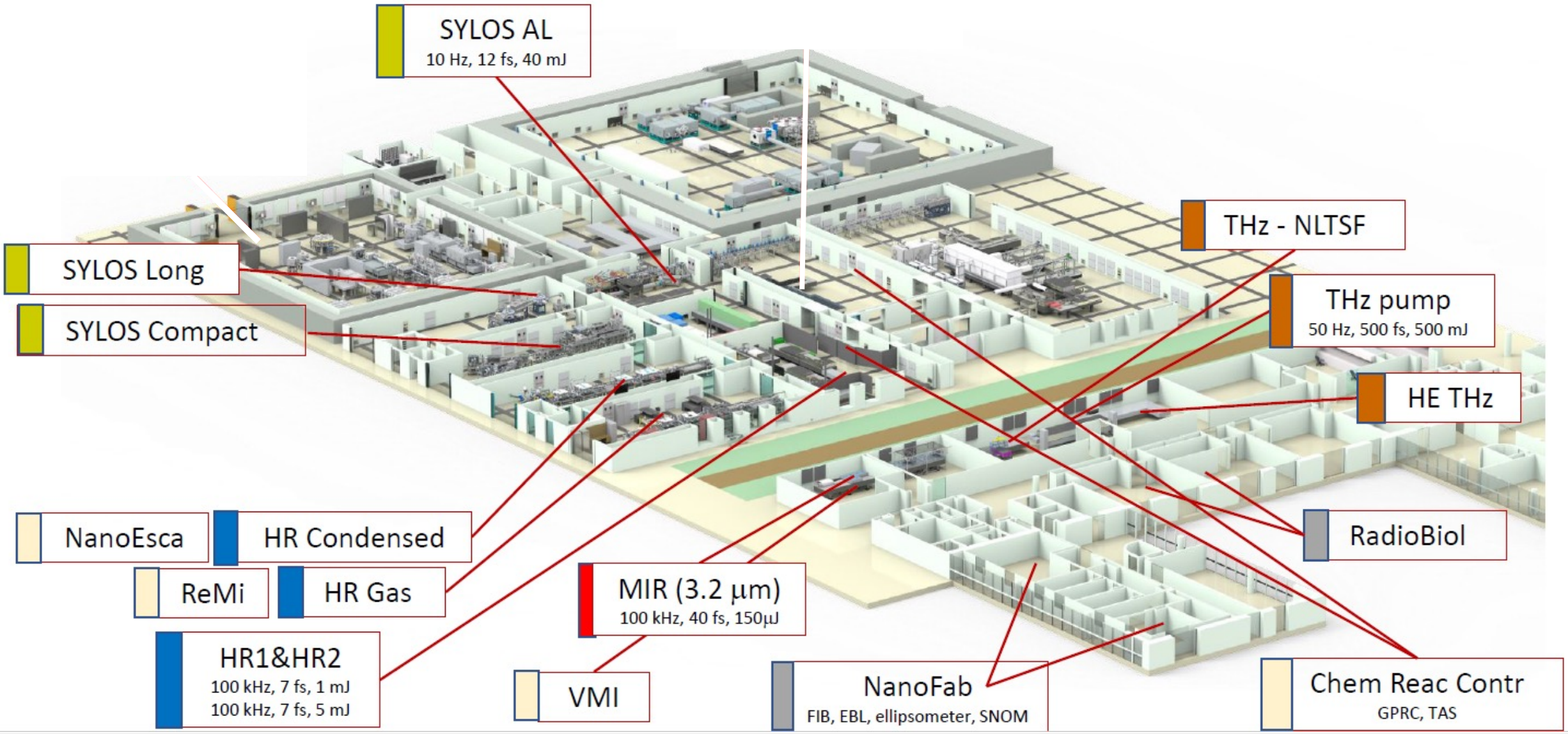
Facility overview



Access offered in 1st ELI ERIC Call



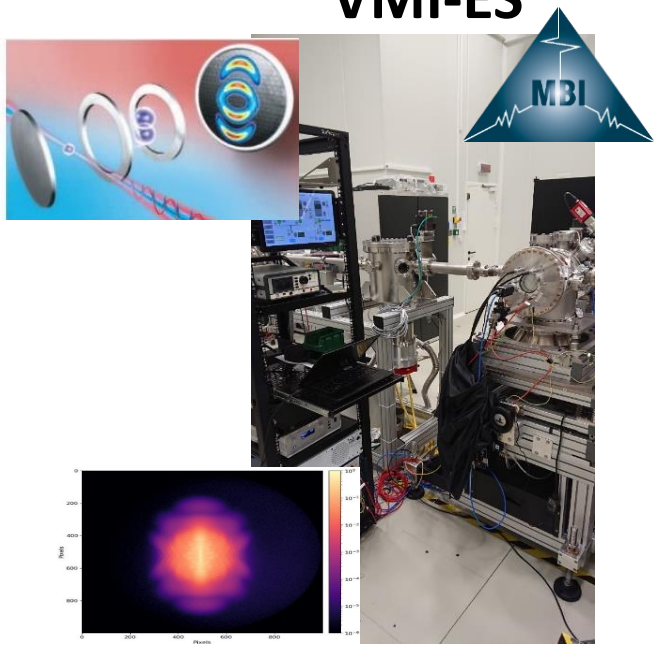
Access offered in 2nd ELI ERIC Call



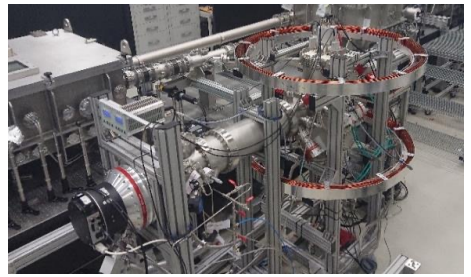
MIR activities

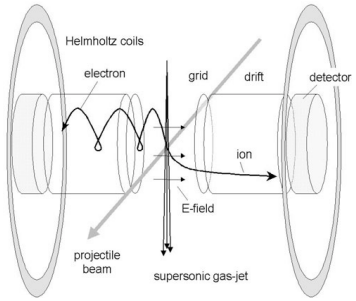
Equipment	Features of the equipment for ERIC Users
MIR	**available in two operation modes: 42 fs or 19 fs CEP stable pulses with continuous power and chirp control**
VMI spectrometer	commissioned at HR GHHG beamline and MIR laser

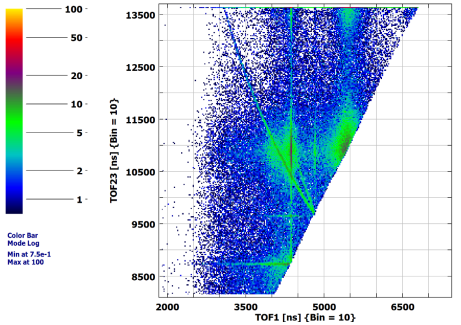
VMI-ES



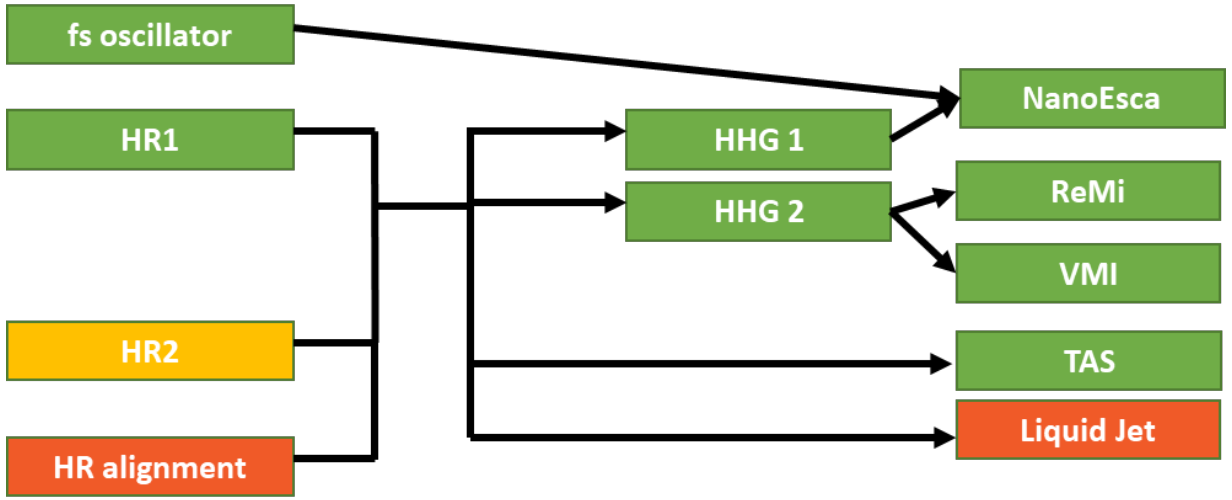
ReMi / Coltrims





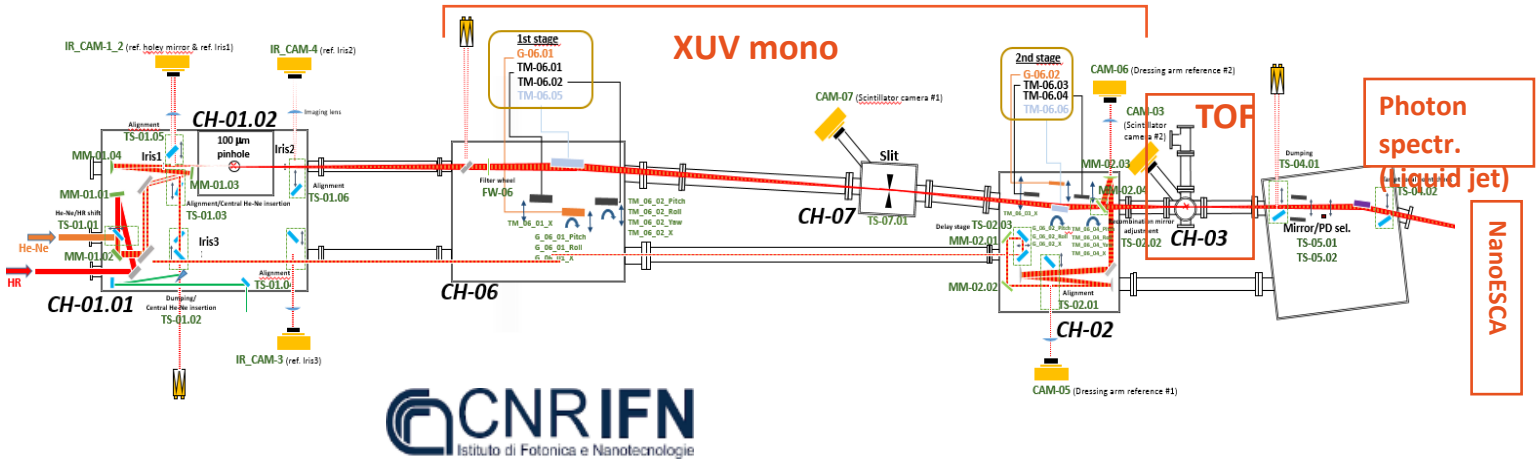


HR activity



Equipment	Features of the equipment for ERIC Users
HR1	available in 30 fs or <7 fs pulses and leakage beam for laser lab experiments (eg TAS)
GHHG HR GAS (LTA4)	available currently with trains of pulses (most likely CEP of laser will be solved Q2 2023)
GHHG HR Condensed (LTA3)	available in broadband and monochromatized modes
Nanoesca	available with continuous (CW) VUV source, CEP stable laser oscillator, NIR-XUV pump-probe scheme
Reaction Microscope	measurement of electrons and ions in coincidence, multihit capacity with hexagonal delay-line detector, thin or dense (customizable) cold target particle beams
Chemical Reaction Control and Dynamics - TAS	Transient absorption spectroscopy: available with visible pump, UVC pump, visible probe, transmission and reflection mode, heatable sample holder

HR GHHG & NanoEsca

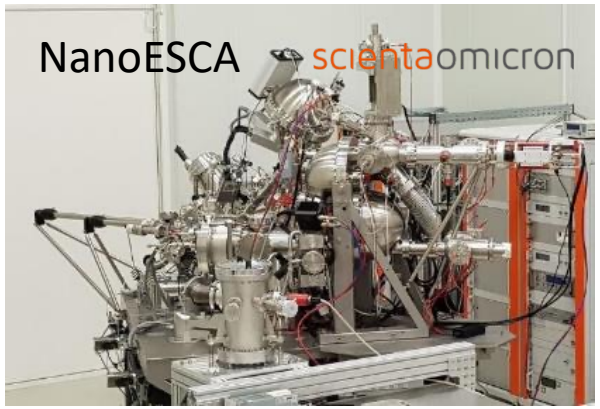


- **Gas phase XUV-IR pump-probe** @ **100 kHz**
- **flexible reconfiguration** according to user needs

Highest flux attosecond pump-probe 100 kHz beamline

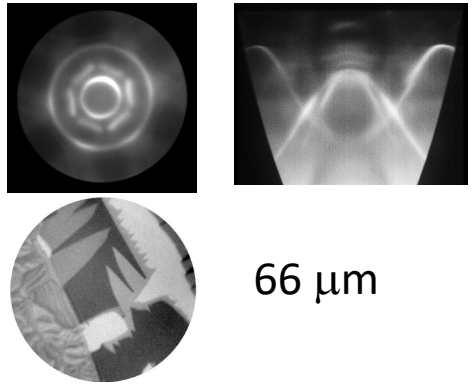
Peng Ye *et al., J. Phys. B: At. Mol. Opt. Phys.* **53** 154004 (2020)
Peng Ye *et al., Ultrafast Science* 2022, 9823783 (2022)

- **Monochromatized XUV pulses with few femtosecond duration**
- **Supports condensed matter end-stations with XUV-IR pump-probe capabilities**



Core capabilities, at 100 kHz XUV – IR / 70 MHz fs CEP oscillator:

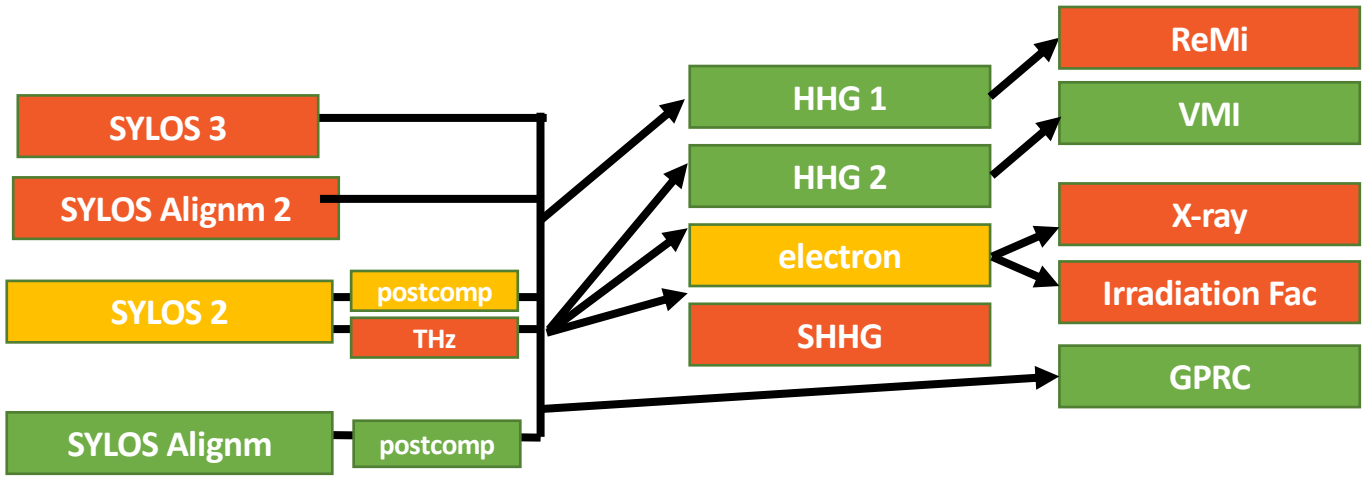
- Photoemission Electron Microscopy (PEEM) mode:
- laterally resolved microscopy of the sample surface with time resolution
- Imaging Photoelectron Spectroscopy mode:
- lateral (nm), time (fs/asec) and energy resolution (few tens of meV)
- Momentum microscopy:
- imaging of the momentum space, time and energy resolution
- With a state-of-the-art Au/Ir(100) imaging spin filter (spin resolved detection)



66 μm

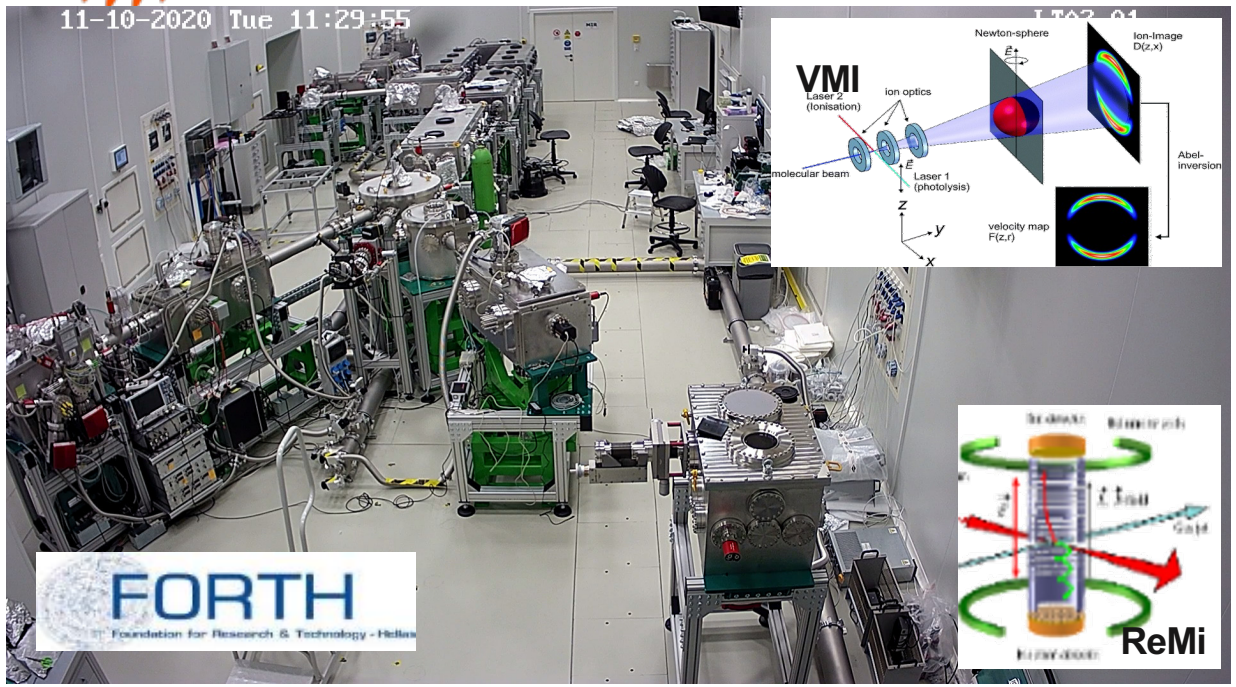
Spin domains on an iron plate

SYLOS activity

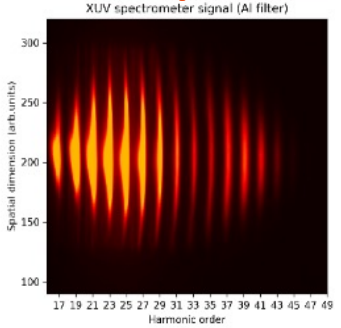


Equipment	Features of the equipment for ERIC Users
SYLOS AL	**available with nominal parameters (<12 fs, >40mJ) and post-compressed >10mJ, <4.5 fs pulses on target**
GHHG SYLOS Compact (LTA2)	**400 nJ full spectrum at generation from Ar, 1 micro J full spectrum at generation from Xe, 1kHz or 10Hz, gaussian like profile, possibility for XUV-XUV or XUV-IR collinear pump-probe measurements**
GHHG SYLOS Long (LTA1)	400 nJ full spectrum at generation from Ar, 1kHz or 10Hz, gaussian like profile, possibility for XUV-XUV or XUV-IR pump-probe measurements
Chemical Reaction Control and Dynamics - GPRC	**Gas phase reaction control: the setup will be available with NIR pump (SYLOS2) and emission probe with high spectral and ns time resolution.**

SYLOS compact GHHG



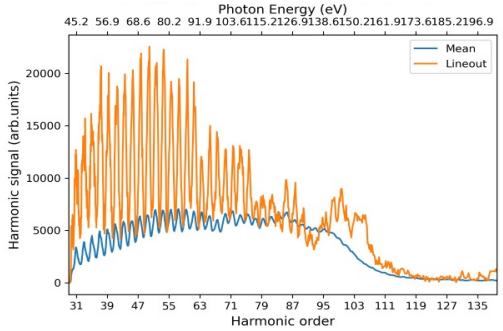
XUV spectrum

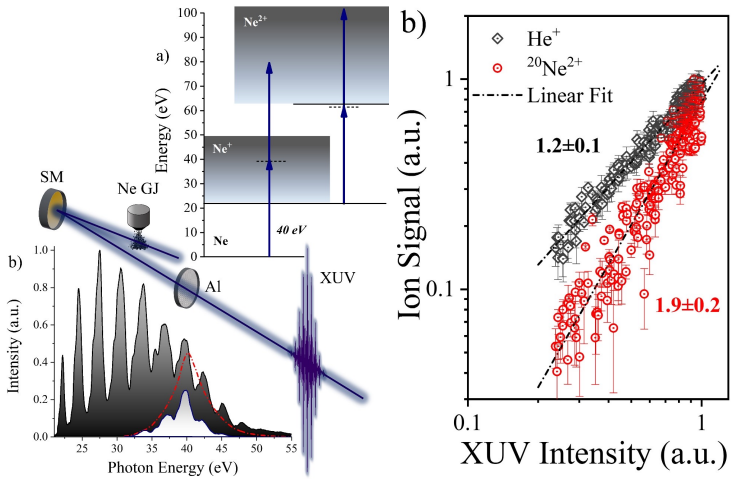


Entire spectrum

- estimated **1 μJ** at generation

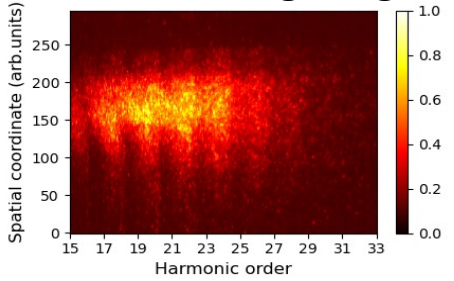
XUV spectrum of **Neon**: cutoff at 150 eV



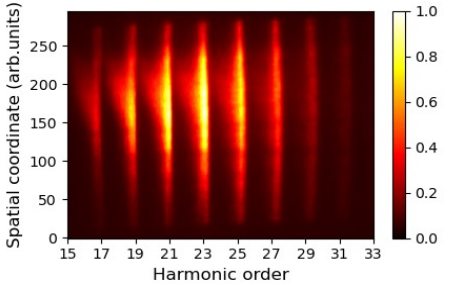


- I. Orfanos et al. PRA **106**, 043117 (2022)
- Kühn, et al., J. Phys. B **50**, 132002 (2017)

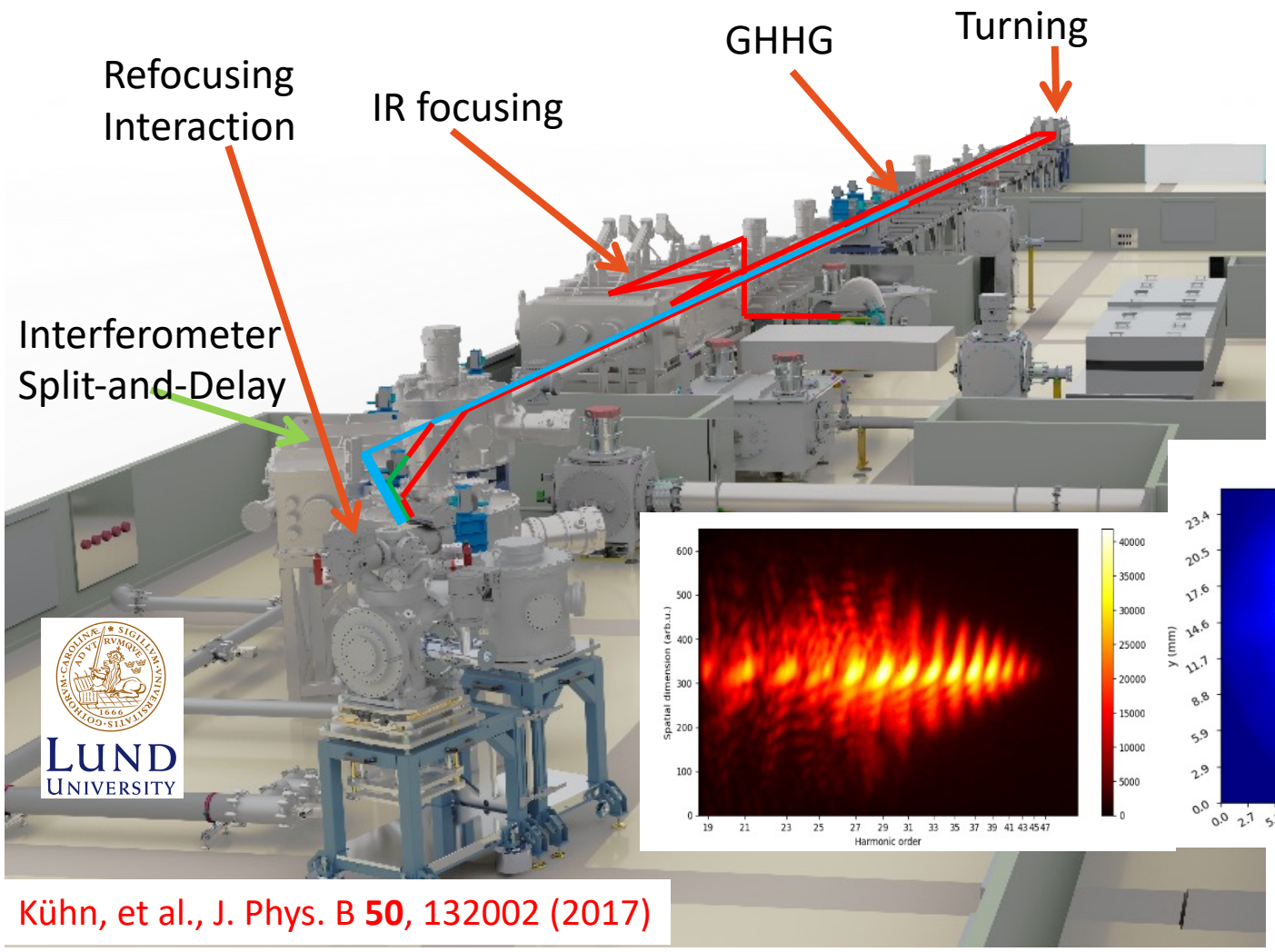
Polarization gating



No polarization gating

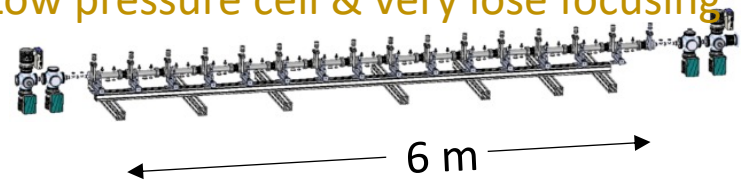


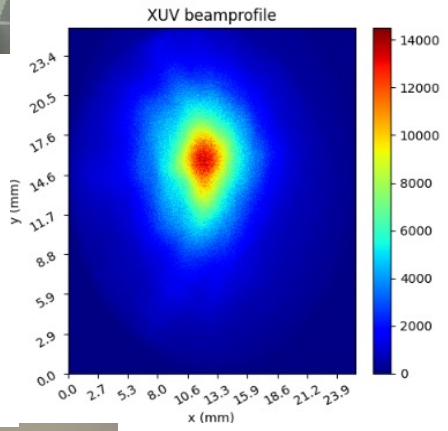
SYLOS long GHHG

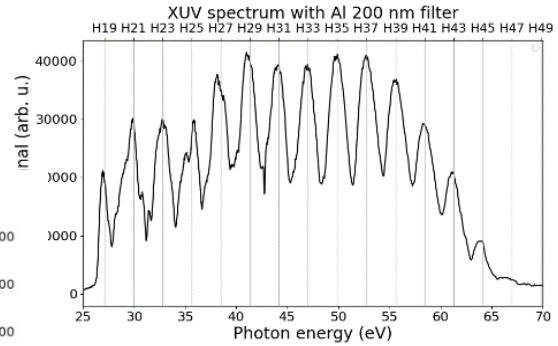


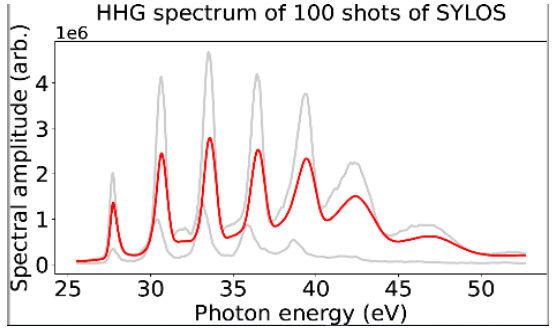
Kühn, et al., J. Phys. B **50**, 132002 (2017)

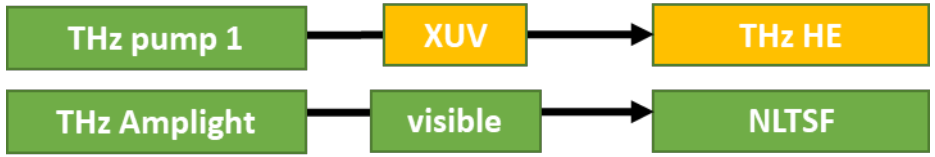
Phasematching regime:
Low pressure cell & very lose focusing







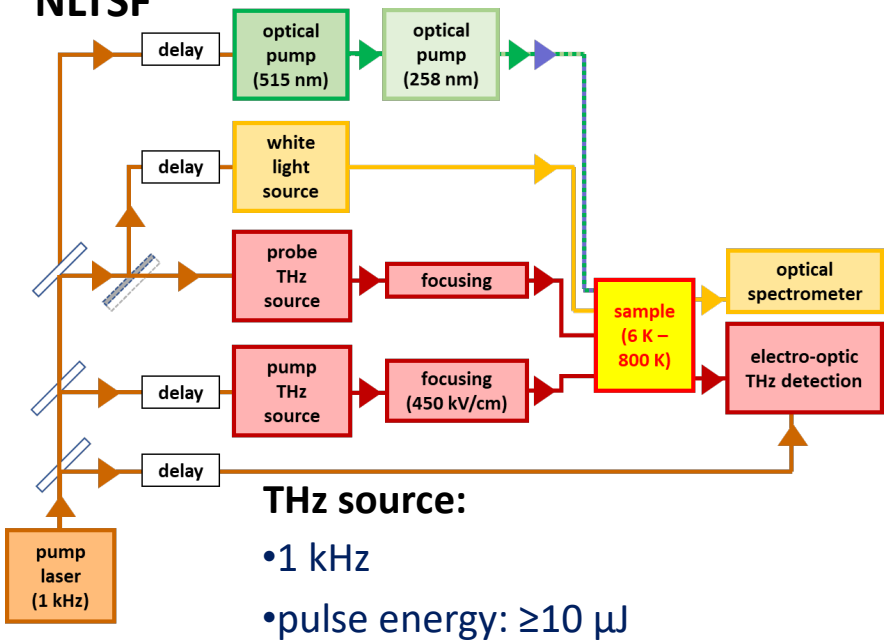




THz activities

Project	Features of the equipment for ERIC Users
NLTSF	multi-mJ femtosecond pump laser, THz pump—THz probe up to 450 kV/cm, from 6 K to 800 K sample temperatures at 1 kHz repetition rate. Optical spectroscopy and electrooptical sampling is available.
THz High Energy	(THz) pulses in the 0.1 – 1 THz frequency range at 50 Hz rep rate. The electric-field waveform of the THz pulses is fully characterised by electro-optic sampling.

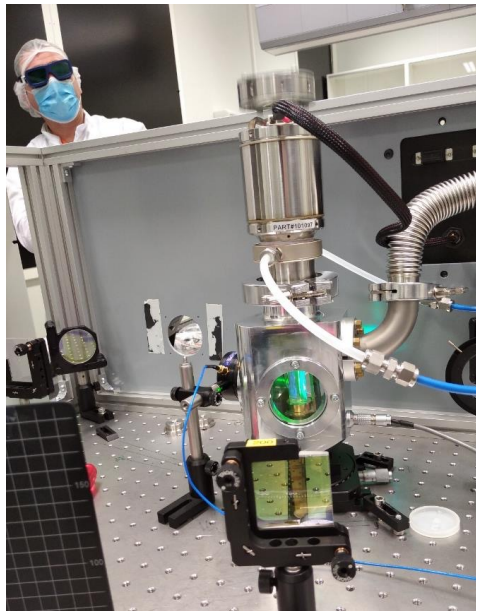
NLTSF



THz source:

- 1 kHz
- pulse energy: ≥10 µJ
- peak THz field at the sample: ≥200 kV/cm

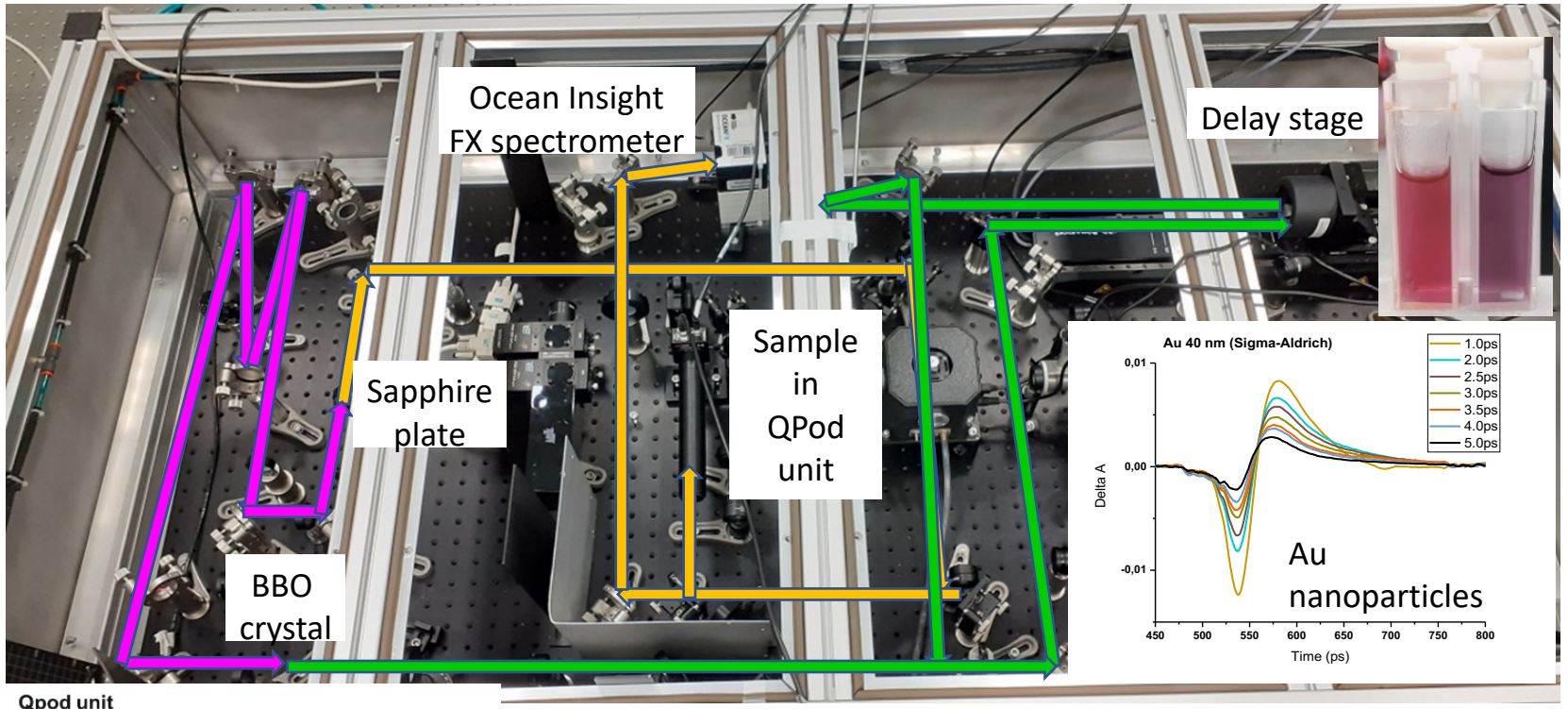
THz High Energy

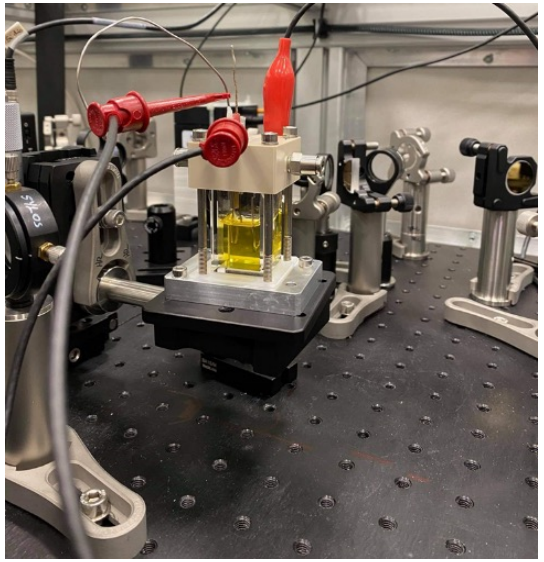


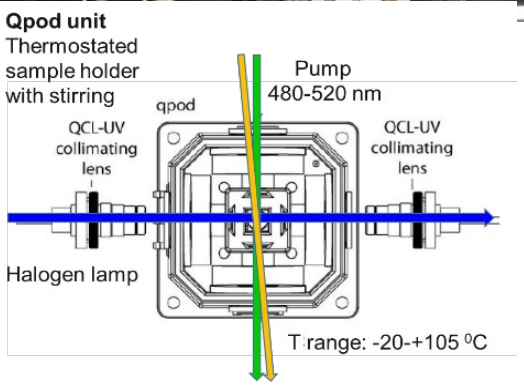
Site-acceptance test (SAT) Parameters:

- pulse energy: > 1 mJ
- 50 Hz
- single cycle
- 0.1 – 1 THz (peak @ 0.25 THz)
- Synchronized short-pulse output:
- 0.8 µm | 100 fs | 1 mJ | 1 kHz

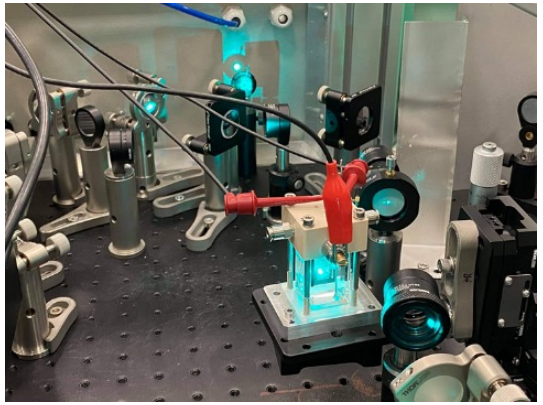
Transient Absorption Spectrometer (TAS) setup







White light (probe beam) generation with sapphire plate
Green or UVC light (pump beam, SH) generation with BBO crystals (~25-40 fs, 100 kHz)
Optical chopper used at 6 kHz for Lock-in measurements and 2 kHz for measuring the spectra



Nanoscience activities

NanoFabrication: FIB, EBL

fs time resolved ellipsometry

fs time resolved SNOM

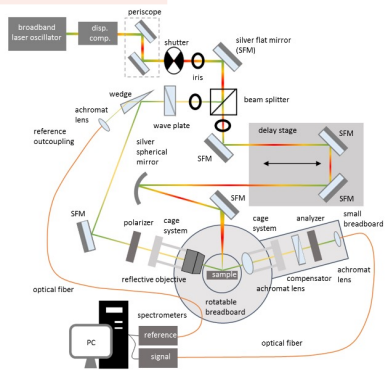
Project	Features of the equipment for ERIC Users
Nanofabrication	**Electron beam litography and focused ion beam for producing nano-samples**
Nanoscience – tr ellipsometry	Femtosecond time resolved ellipsometry
Nanoscience – tr SNOM	SNOM with cw or femtosecond driver

Scanning Near-field Optical Microscope

Parameters	
Wavelengths	1550nm, 633nm, 533nm
CW-power	20mW, 10mW, 10mW
Measurement configuration	Reflection and transmission
Lateral scanning range	min. 90x90µm
Vertical scanning range	min. 2µm
Lateral scanning resolution	better than 0.5nm
Vertical scanning resolution	better than 0.2nm
Sample size:	min. 9 mm x 9 mm x 1 mm

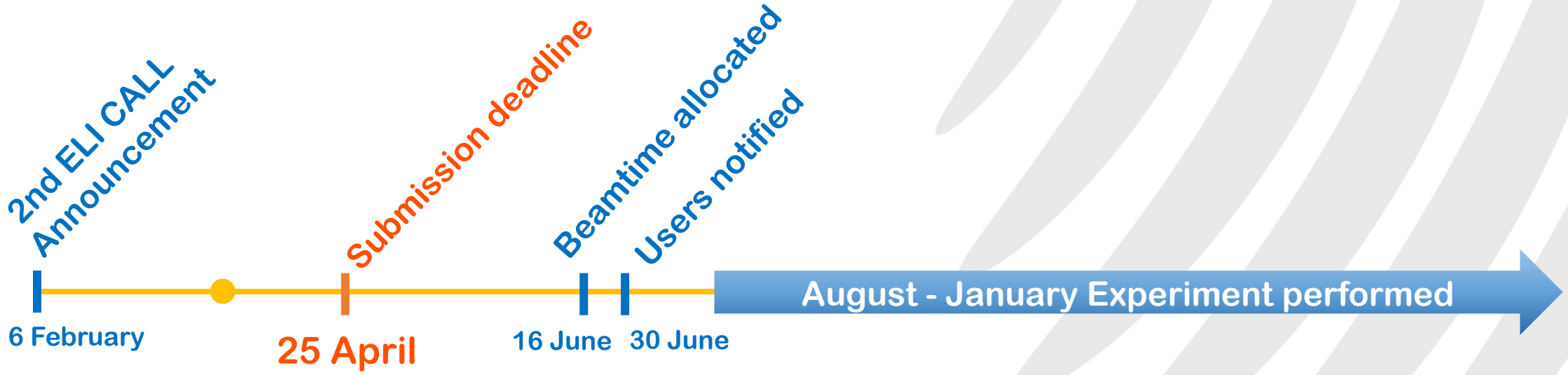
Ultrafast Ellipsometry Setup

Parameters	
Wavelengths of pump beam:	800 nm central wavelength
Spectral range of probe:	700nm -900 nm
Probe spot size at the sample:	< 200 um
Time range:	0-0.3 ns
Time resolution:	< 50 fs
Spectral bandwidth:	approx. 7nm
Dynamic range of spectrometer:	85000:1
Pulse characteristic of the laser:	>8 fs, 80 MHz rep.rate.
Angle of incidence:	65° (later might be variable)
Sample size:	> 5 mm
Roughness	< 50 nm



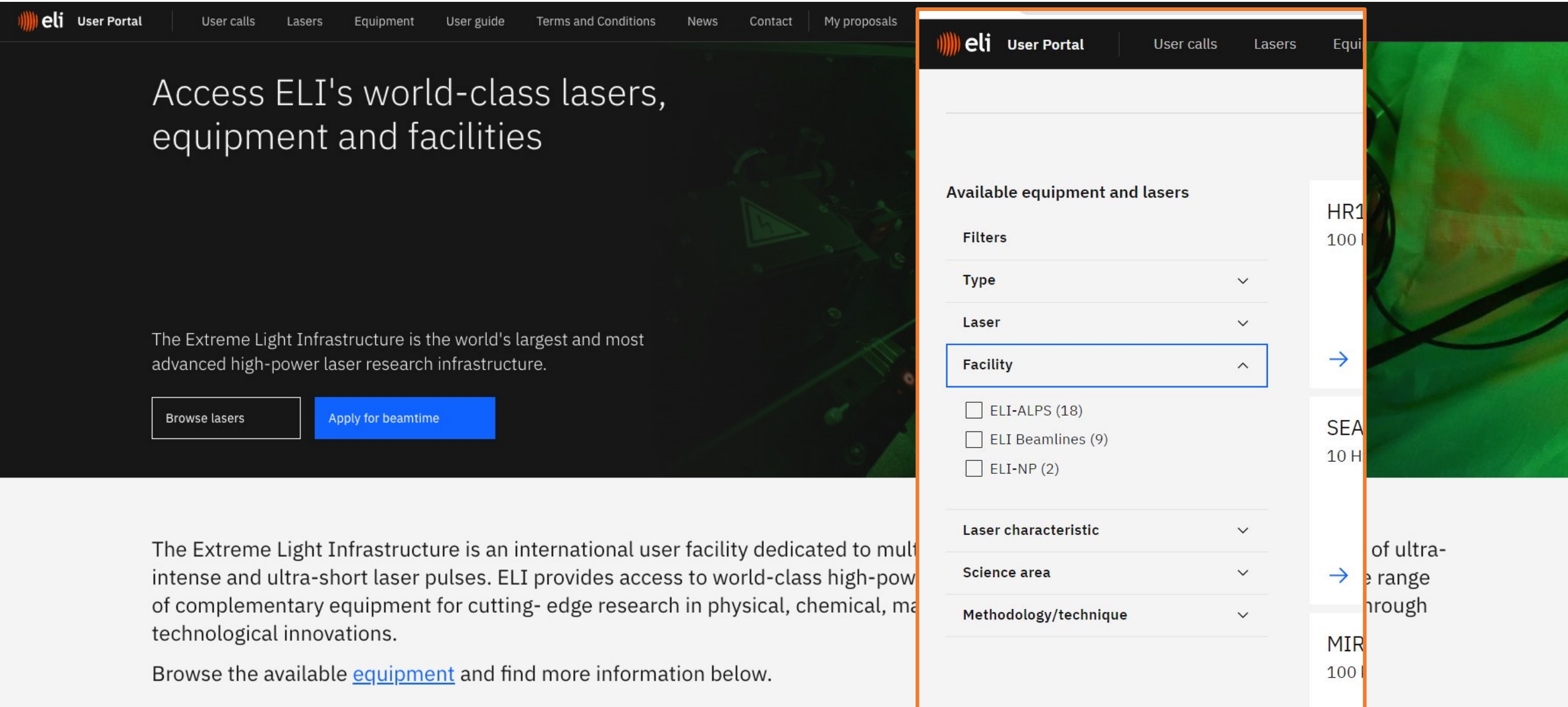
User Portal and Application Process

- User Portal
- Proposal Submission
- Review Process



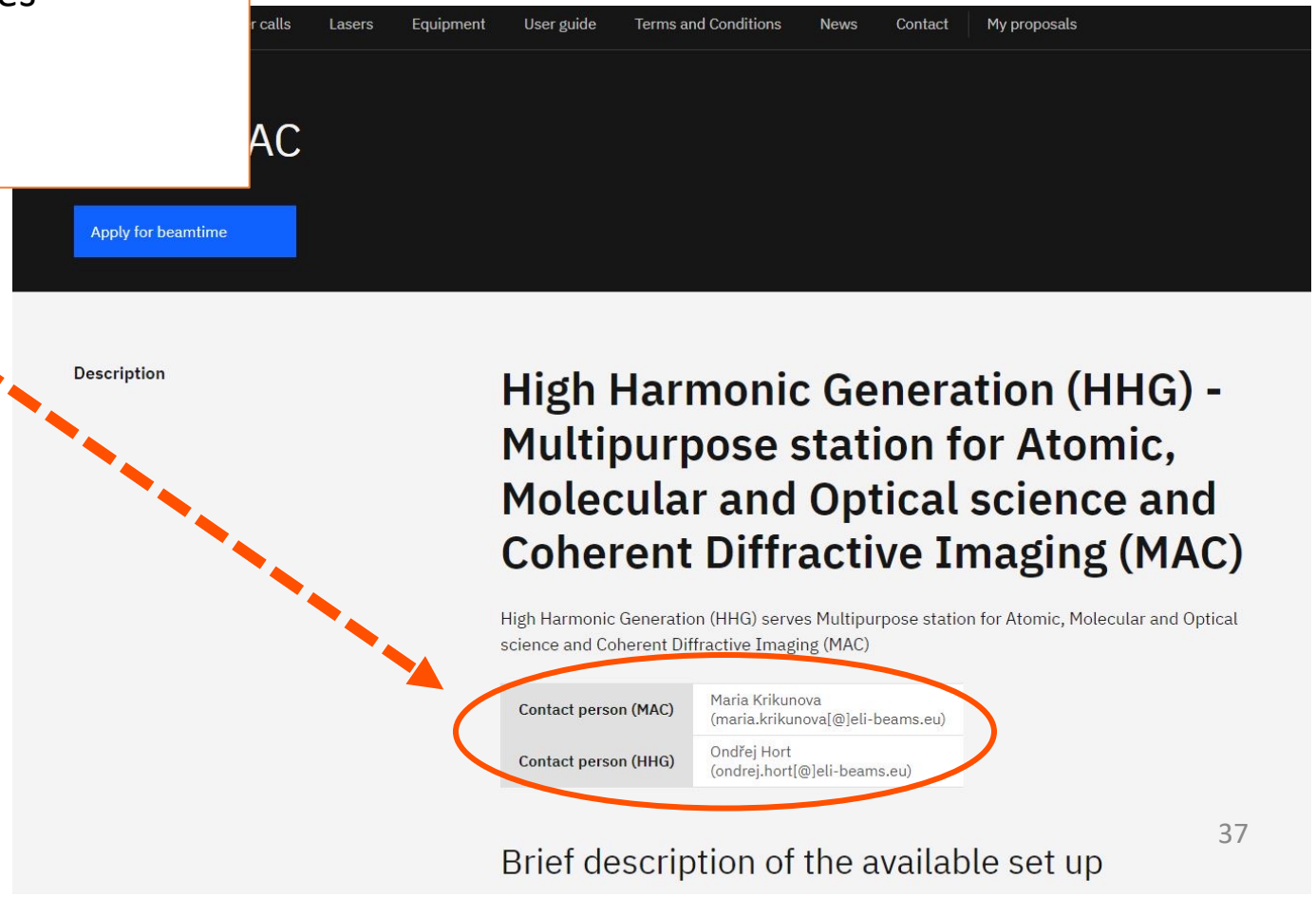
User Portal

https://up.eli-laser.eu



User Portal *Overview*

- basic information for each available equipment
  - Available set up (including schematics table of performances) and experimental geometries
  - Available target systems and metrology
  - Responsible contact person



Submission Process

- Before submitting a proposal, a user has to **create an account** on the ELI ERIC User Portal registration page. Access to the User Portal is granted once the account is set up following the instructions in the confirmation email.

- The Principal Investigator (PI) **submitting a proposal** shall fill in the Online Proposal Form, describing the scientific and technical content of the proposed experiment.

- Before submitting the proposal, the PI shall **accept the Terms and Conditions and GDPR Information Notice** and confirm that those have been shared with the other team members on behalf of which the proposal is made.

Proposal submission

https://up.eli-laser.eu/user-guide/proposal-submission

Guide

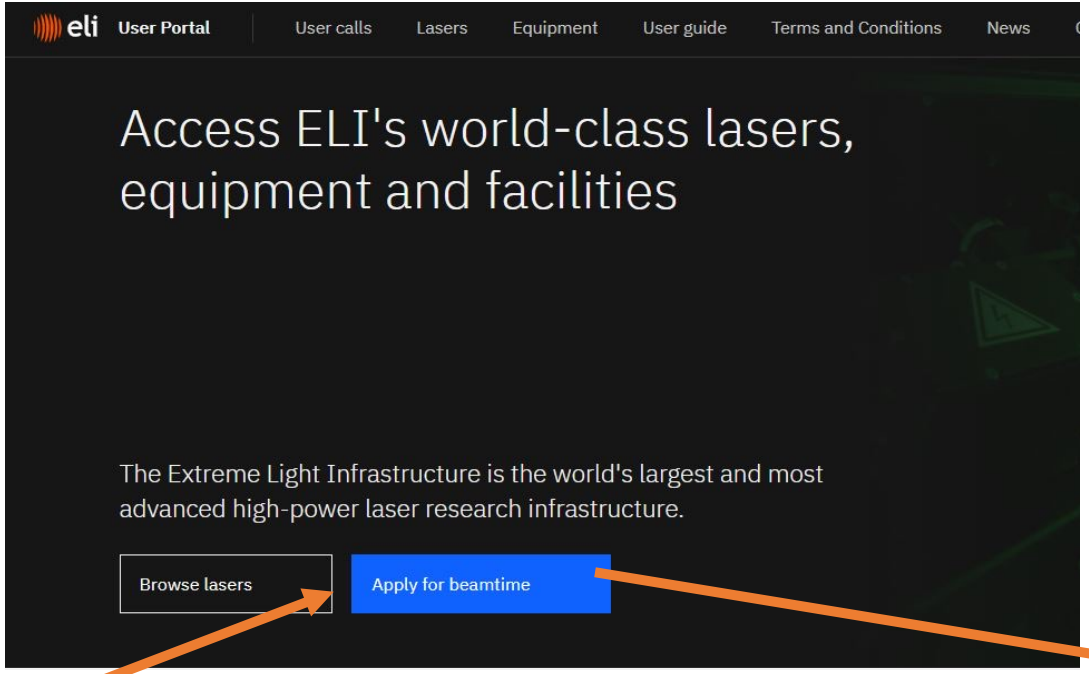
Before you start

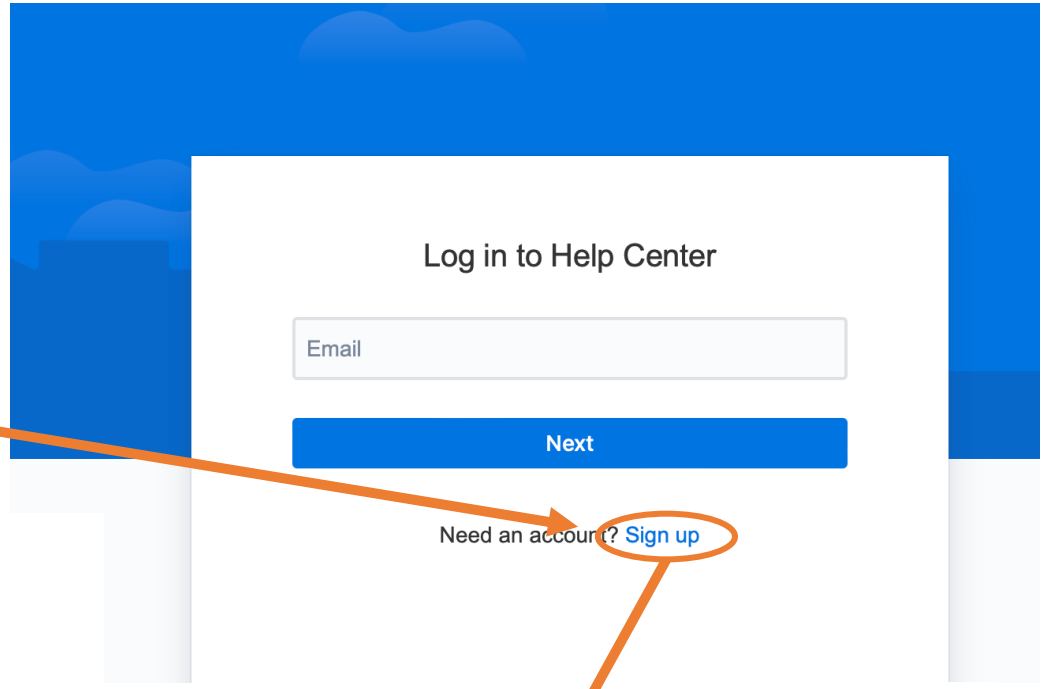
Proposal Submission portal is set to "self-registration" mode, in which anyone with the LINK can get the access and submit the proposal.

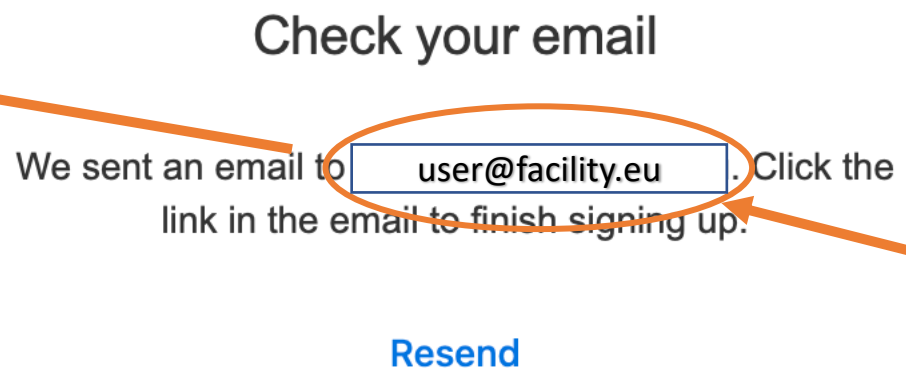
The address of Proposal submission portal is: https://eli-eric.atlassian.net/servicedesk/customer/portal/16

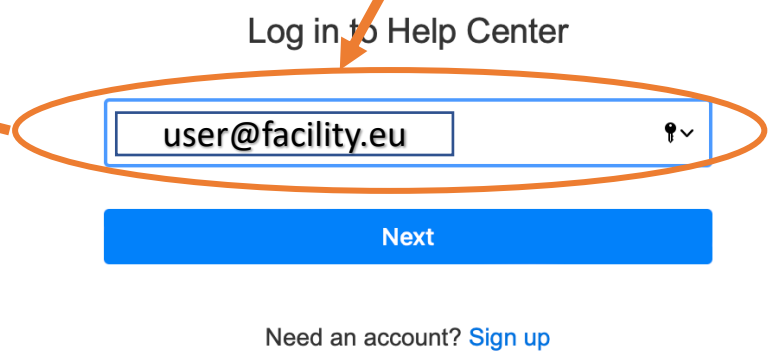
Please, save or bookmark portal address as it will serve as an access point to your submited proposal.

Account creation









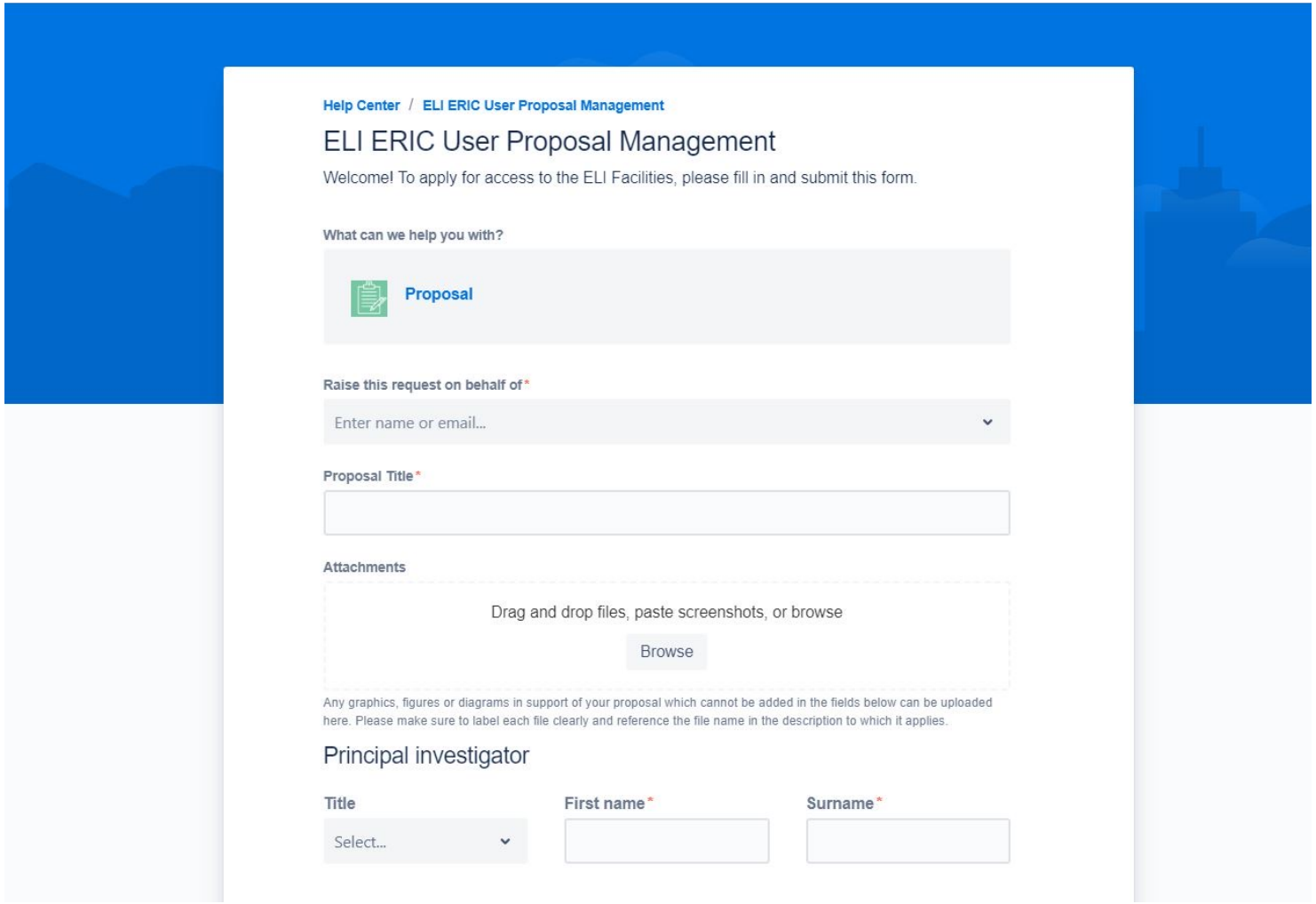
Prerequisites

- A valid email account has to be used for registration and proposal submission
- In case the registration confirmation email does not get to your inbox, check also Spam Folder / notify us at user-office@eli-laser.eu

Proposal Preparation

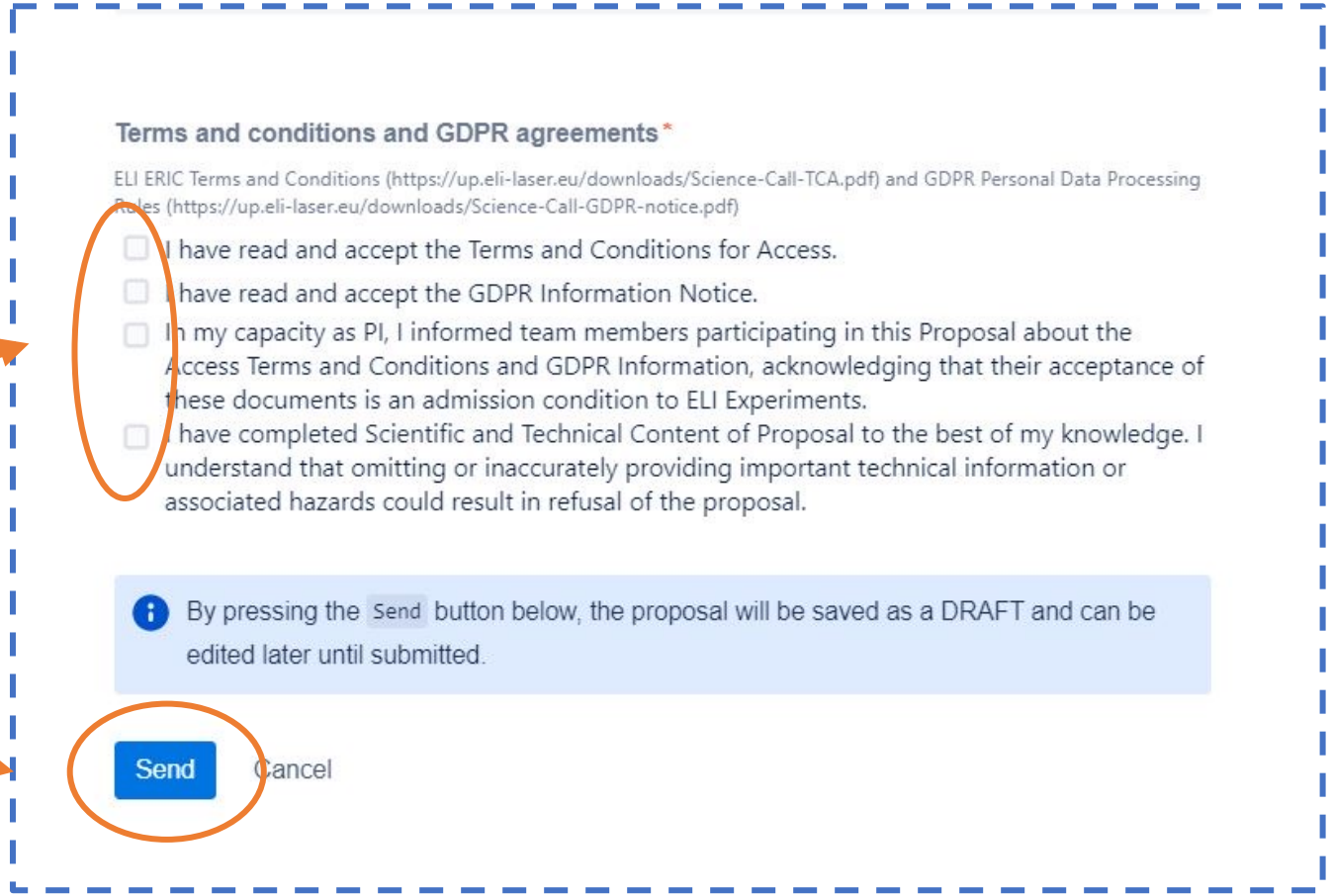
Proposal requirements

- Personal information
- Scientific and Technical content
  - Experiment information
  - Laser / beam requirements
  - Facility requirements
  - Diagnostics
  - Target specifications
- Other questions
  - Safety requirements
  - Material information



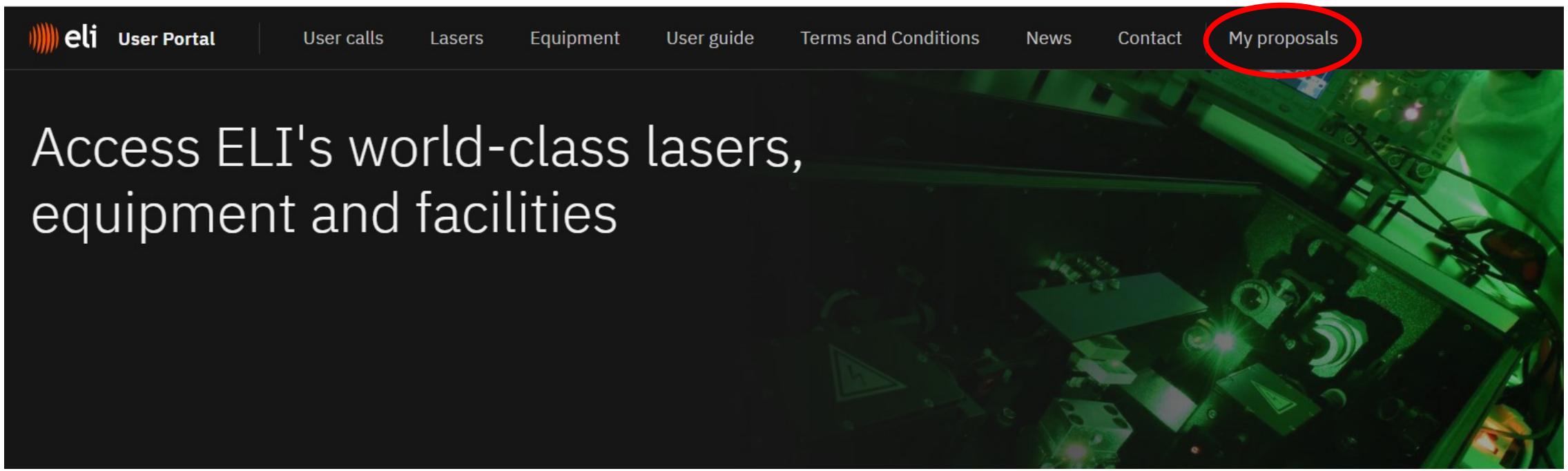
Proposal Preparation

- Please check all mandatory sections, marked with "*"
- Acknowledge Terms and Conditions and Data Processing Rules
- Save the proposal (this stage is saving the proposal)

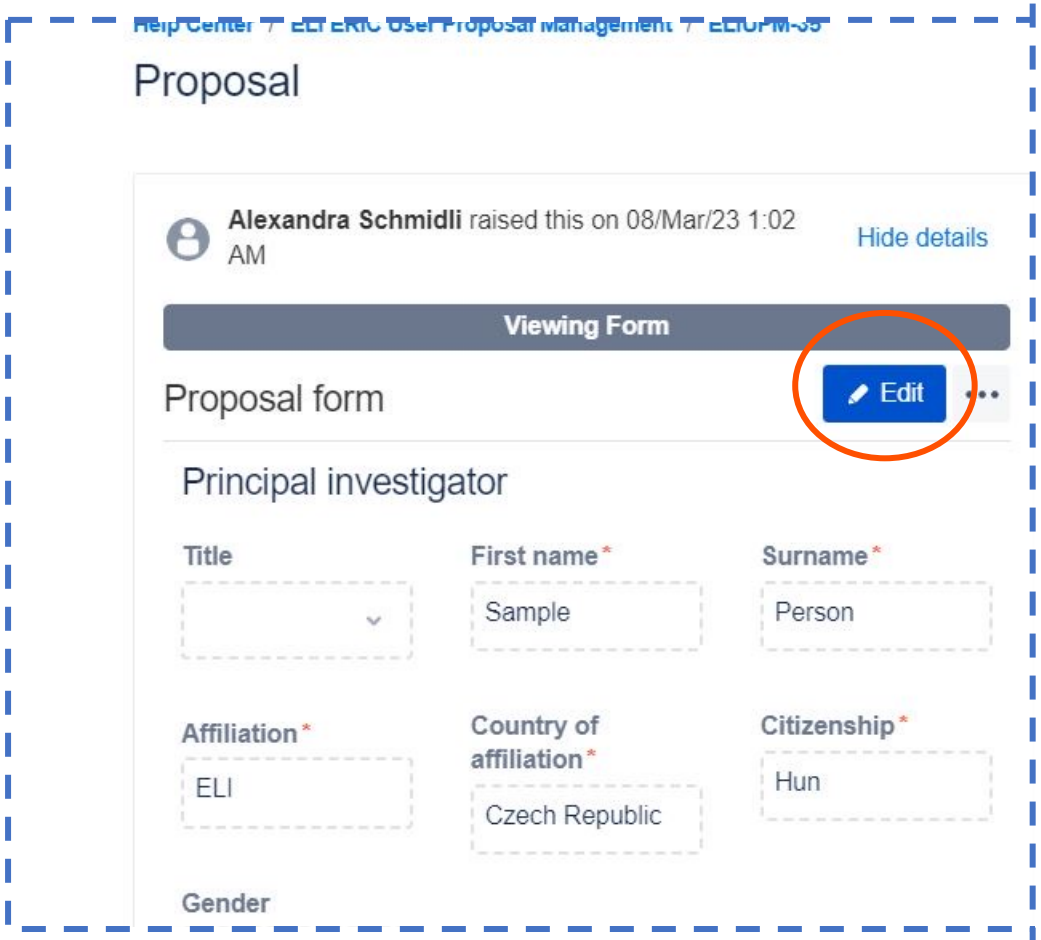


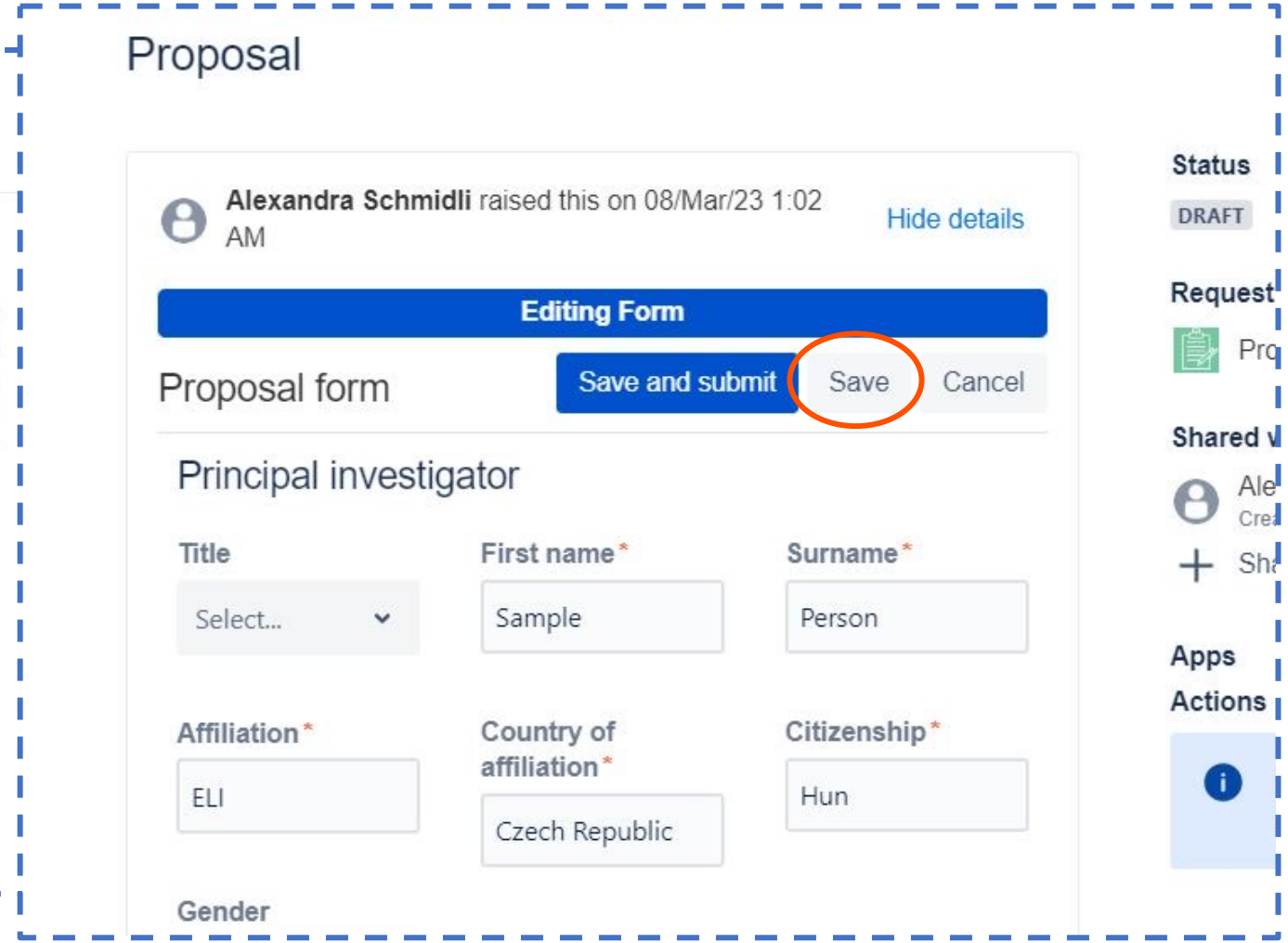
Proposal Editing

- User guide
- Access the account or go to My proposals



Proposal Editing

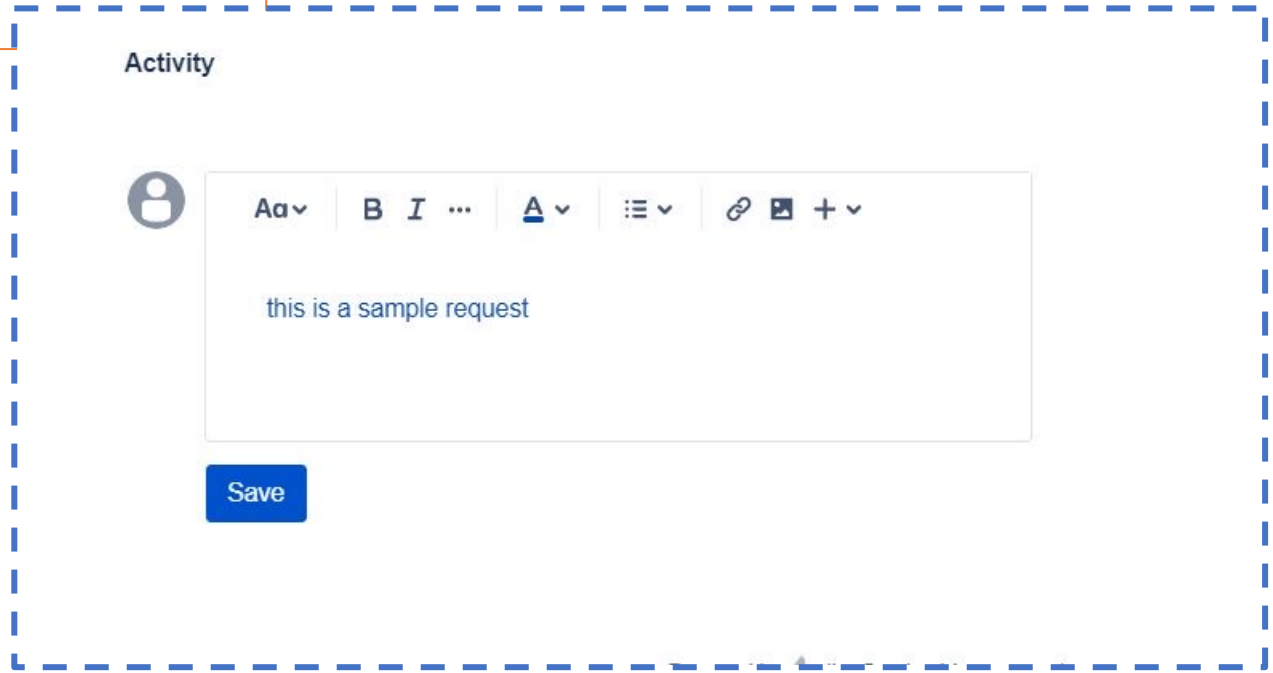




Proposal Submission

To submit the proposal, the PI should:

- Access the account or go to “My Proposals”
- Select the proposals and submit for review
- Comments section is open for communication
- After submission, the proposal becomes read-only for the PI Team



Proposal Review

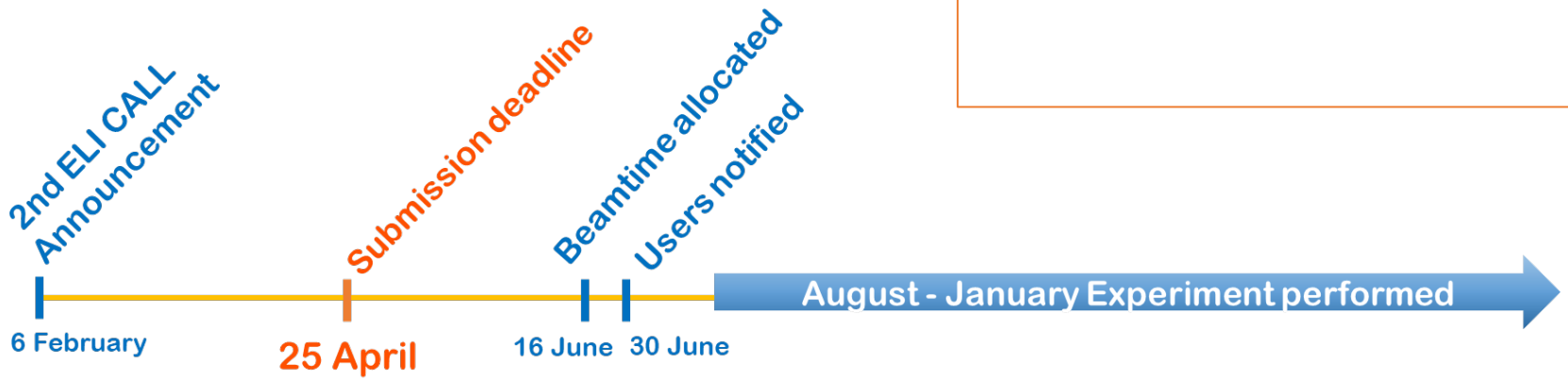
Feasibility Assessment: proposals, once submitted, are assessed by authorised ELI Staff to confirm their technical and safety feasibility. **Users are strongly encouraged to contact the ELI Staff indicated as contact persons for each instrument ahead of submission to assess feasibility.**

Peer-review: the scientific merit of Proposals is assessed by the ELI Peer Review Panel, which consists of independent scientific experts. The PRP provides advice to the ELI management by assigning a score and a rank to the Proposals.

Scheduling, Preparation and Experiments

- Final approval of proposals by ELI ERIC Director General / ELI-NP Director based on assessment of Peer Review Panel

- Scheduling and preparations are managed and coordinated by the Facilities, the equipment scientist and local user offices



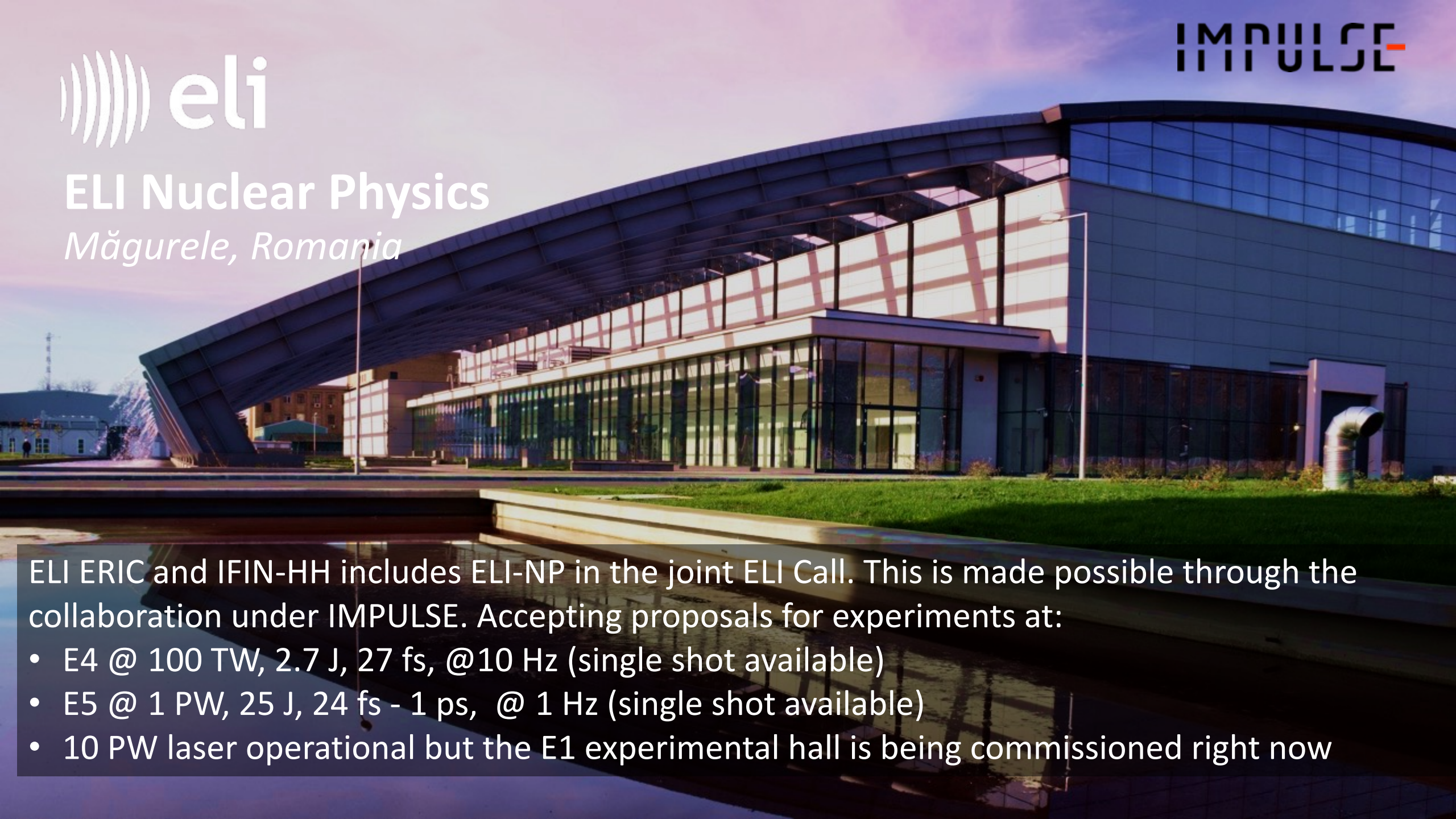
Contacts

For general enquiries on conditions of access and submission of proposals:

user-office@eli-laser.eu

or

use your account in the user portal



ELI Nuclear Physics

Măgurele, Romania

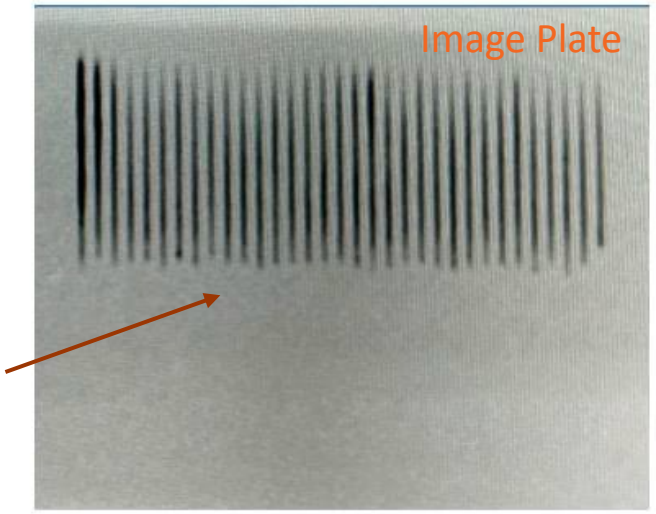
ELI ERIC and IFIN-HH includes ELI-NP in the joint ELI Call. This is made possible through the collaboration under IMPULSE. Accepting proposals for experiments at:

- E4 @ 100 TW, 2.7 J, 27 fs, @10 Hz (single shot available)
- E5 @ 1 PW, 25 J, 24 fs - 1 ps, @ 1 Hz (single shot available)
- 10 PW laser operational but the E1 experimental hall is being commissioned right now

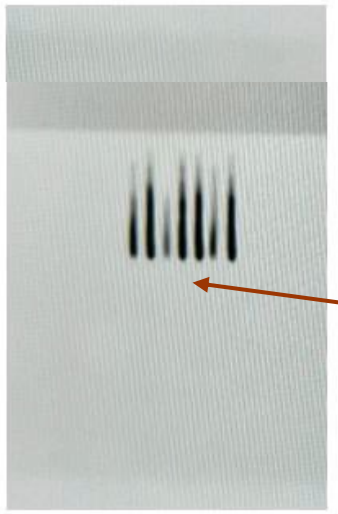
1 PW at 1 Hz: TNSA proton beam at high repetition rate

Tape target system developed by RAL UKRI within the H2020 IMPULSE project tested at ELI-NP in collaboration with ELI Beamlines and STFC

proton cut-off energy of about 7 MeV with a shot-to-shot energy variation of ±5%

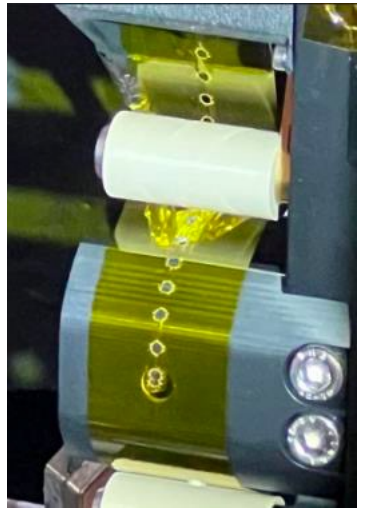


proton traces of 33 consecutive shots at 2 J laser energy delivered at 1 Hz



proton traces of 7 consecutive shots at 20 J delivered at 1 Hz

proton cut-off energy of about 25 MeV with a shot-to-shot energy variation of ±10%

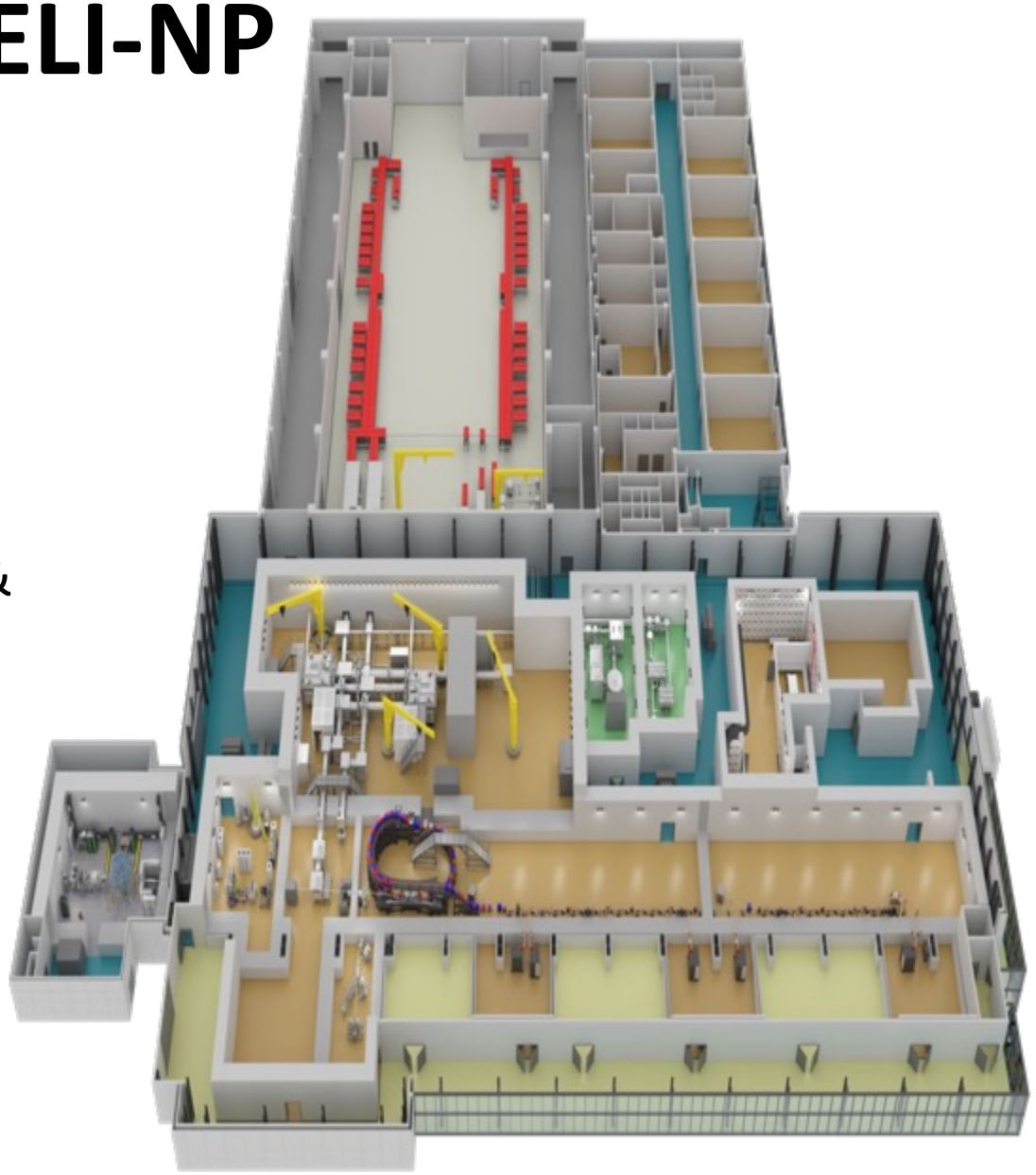


13 µm thick Kapton ribbon running at 11 mm/s

Call for Users at ELI-NP

- 2nd Call for Users – proposal deadline **March 24, 2023**
  - Experiments for the period of Aug 2023 - Mar 2024
  - Independent Review Process: TAC-> PAC & PI presentations

- Contact Us (users@eli-np.ro)
  - Experimental setup, design, etc.
  - Long-term development (diagnostics, extended capabilities, etc.)



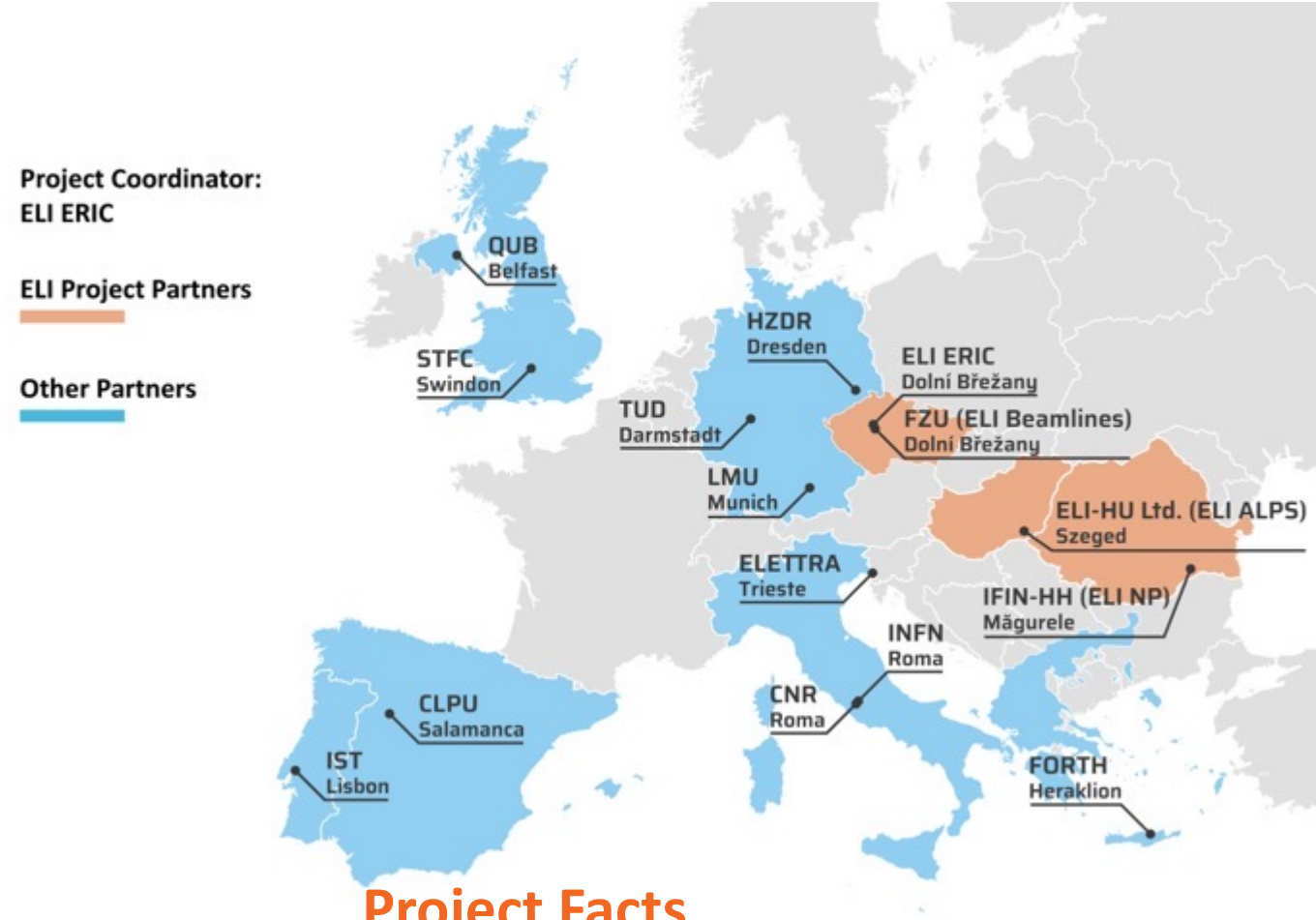
Integrating ELI's Facilities Requires Resources and a Plan.

Project Objectives

IMPULSE focuses on **achieving quick and effective transition of ELI ERIC from construction into sustainable operations** by **uniting the ELI facilities** and making them **accessible for users through one single, high-quality access point**.

IMPULSE addresses the **key scientific, technical, organisational,** and **management requirements** of this **integration**, **building user communities** and **expanding the ELI member consortium.**

https://impulse-project.eu/



Project Facts

- **14 Partners**
- **9 Countries**
- **42 Months**
- **€19.9 Million**

IMPULSE is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 871161

ELISS2023

Extreme Light Infrastructure Summer School

SAVE THE DATE

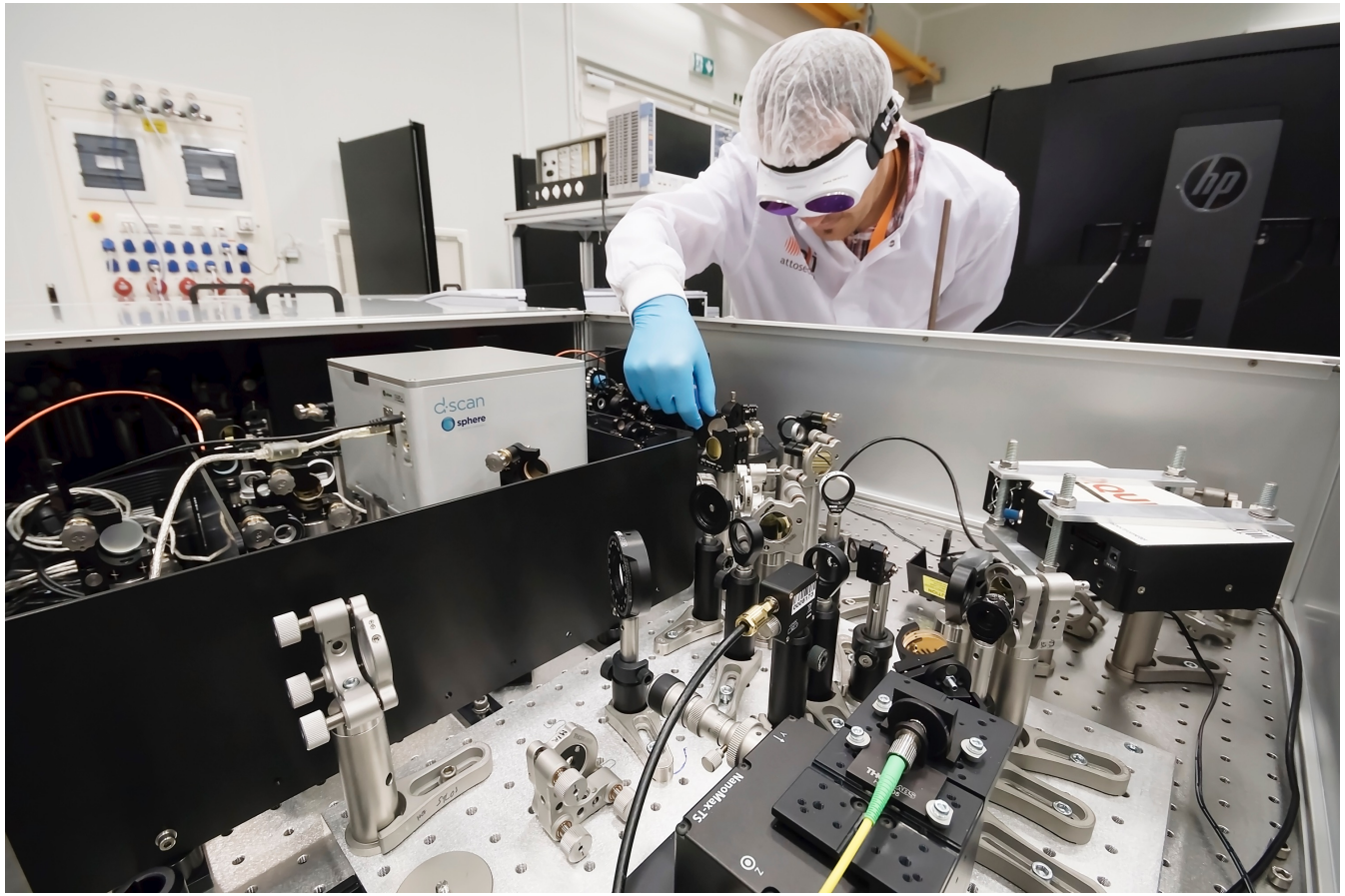
29 Aug – 1 Sep 2023 | ELI Beamlines Facility Dolní Břežany, Czech Republic

The 8th edition of the Extreme Light Infrastructure (ELI) Summer School series aims to provide young scientists with a comprehensive overview of the generation and application of intense laser pulses and laser-driven particle and radiation sources.

eli IMPULSE

More information available: https: //indico.eli-laser.eu/e/ELISS2023

Contact



ELI ERIC

Za Radnicí 835

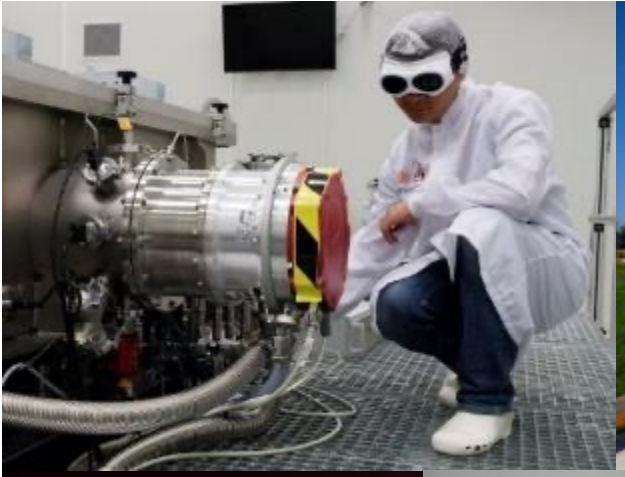
Dolní Břežany, 252 41

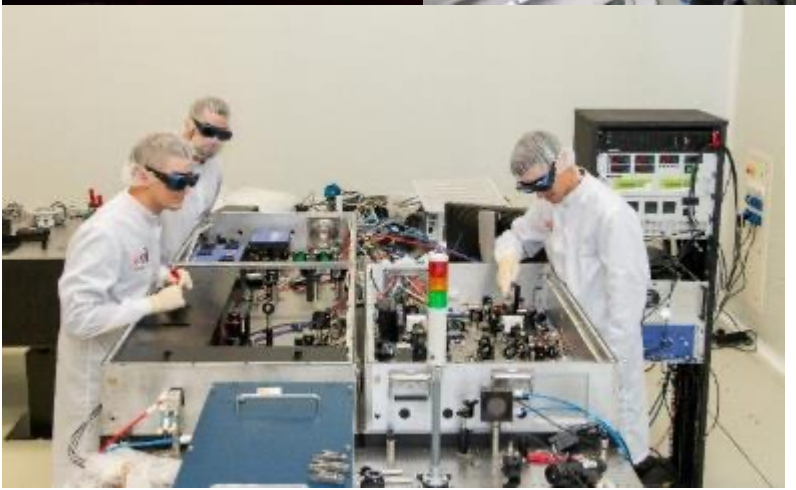
Czech Republic

user-office[@]eli-laser.eu

Questions ?

Questions can be **posted** in the **Q&A** and will be addressed by the moderators and speakers.





eli