

ELI Beamlines high-energy beam pillar of Extreme Light Infrastructure

International context

Science program

Impact



Facility layout

Laser Building

Support Rooms
First Floor

L1 100 mJ / 1kHz

L2 >3 J >20 Hz <20 fs

Cryogenic systems, power supply
cooling,auxiliary systems

L3 PW / 30 J / 10 Hz

L4 10 PW / 1.5 kJ

Lasers
Ground Floor

E1 Material & Bio-
molecular Applications

E2 X-ray Sources

E3 Plasma Physics

L4c Compressor

E4 ELIMAIA
Ion Acceleration

Experimental Halls
Basement

E5 Electron Acceleration &
Laser Undulator X-ray Source

Offer to our Users



L1 ALLEGRA



L3 HAPLS



L4 ATON



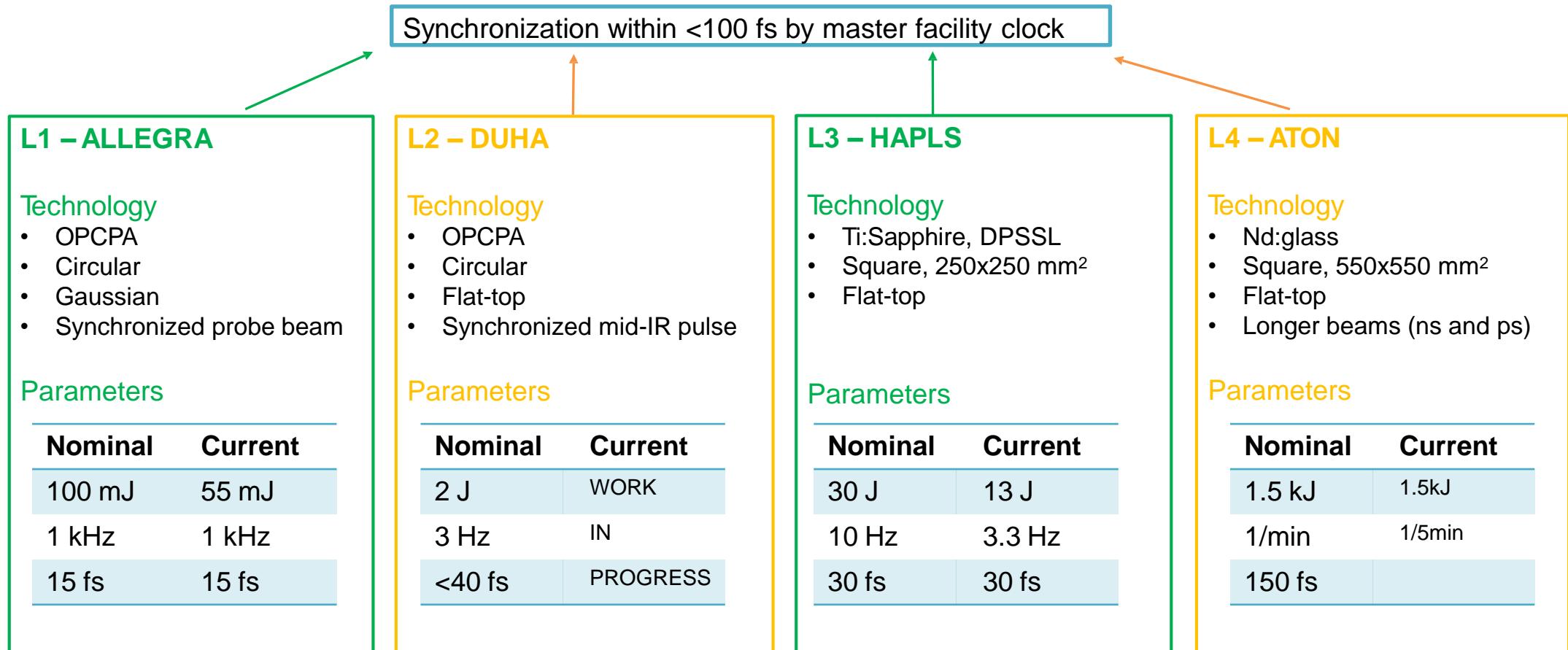
E1 - MAC, TREX, ELIps, SRS,
HHG



E3 - Plasma Physics Platform

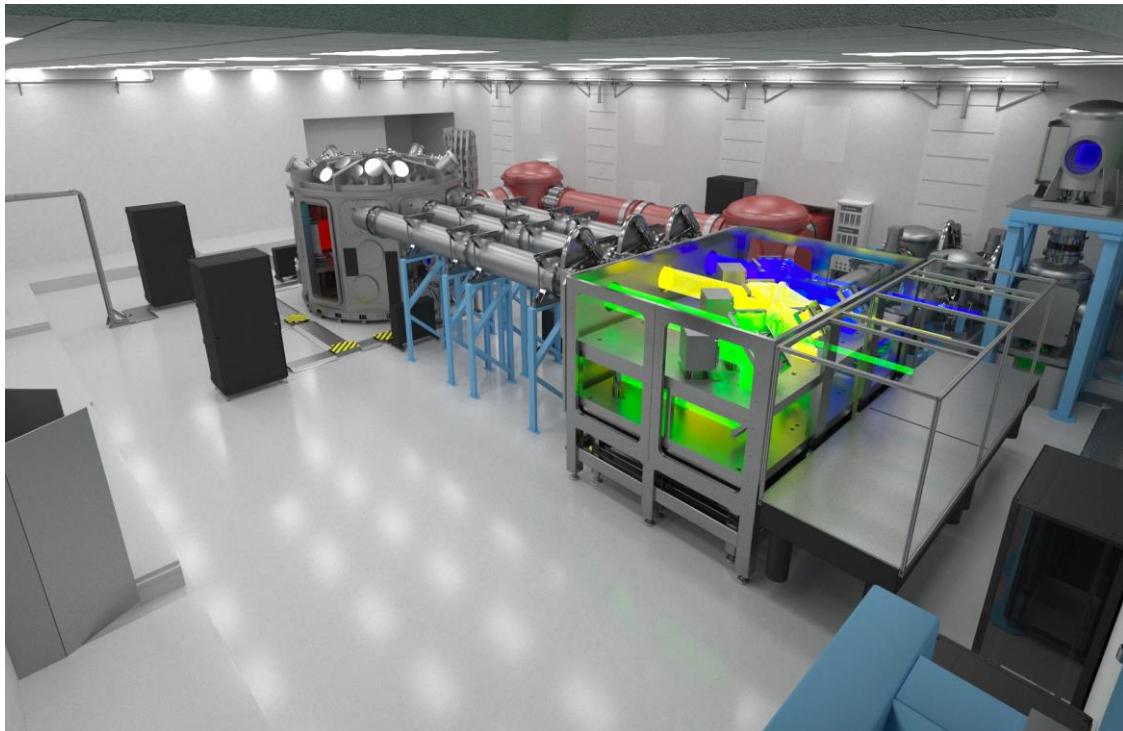


E4 - ELIMAIA - ELIMED



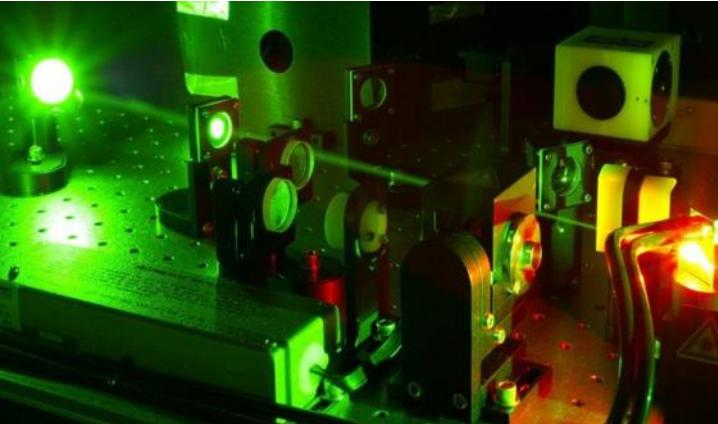
User experimental platform and beamlines

E3 - Plasma Physics Platform

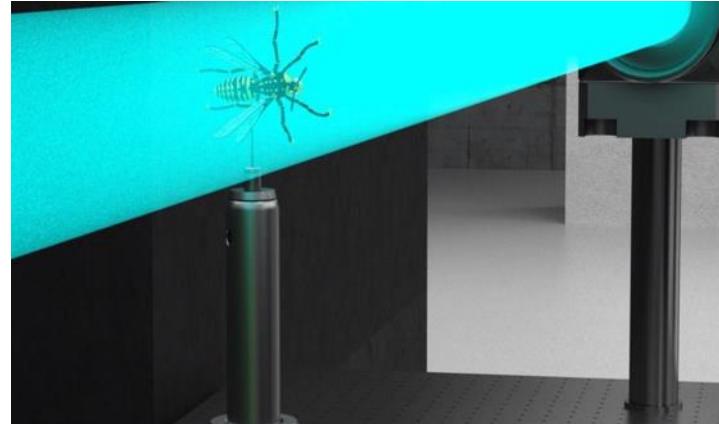


E4 - ELIMAIA - ELIMED

ELI Beamlines Science Case



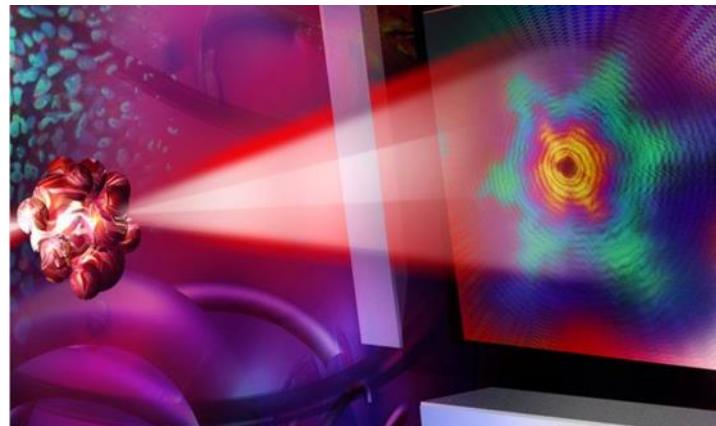
Laser Systems



Radiation Physics and Electron Acceleration



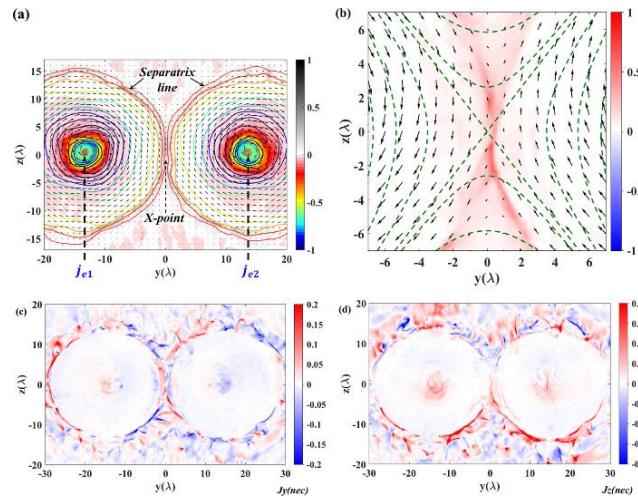
Ion Acceleration and Applications of High-energy particles



Structural Dynamics

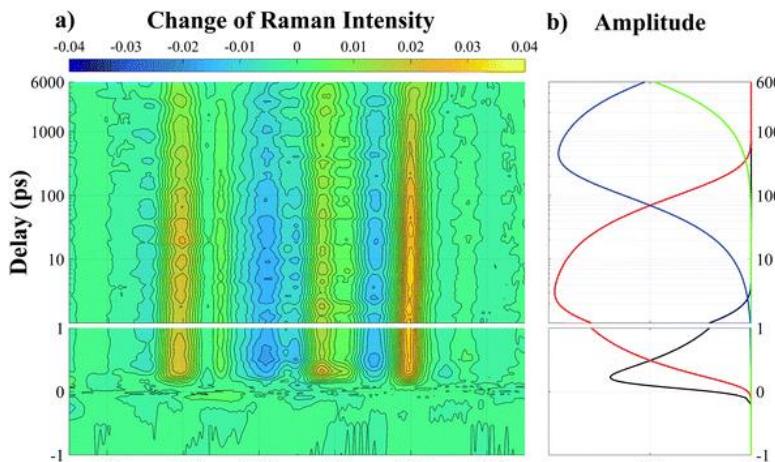


Plasma Physics and UHI Interactions



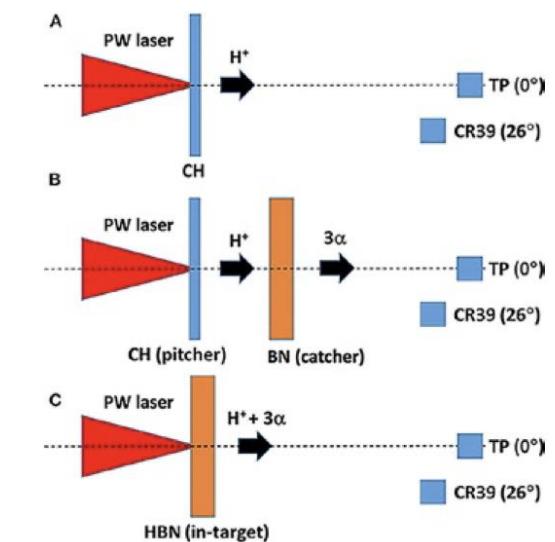
Gu, Y.J., Pegoraro, F., Sasorov, P.V. et al. Electromagnetic Burst Generation during Annihilation of Magnetic Field in Relativistic Laser-Plasma Interaction. *Sci Rep* 9, 19462 (2019)

Laboratory relativistic astrophysics



PC Andrikopoulos, Y Liu, A Picchiotti, N Lenngren, M Kloz, AS Chaudhari, et al. Femtosecond-to-nanosecond dynamics of flavin mononucleotide monitored by stimulated Raman spectroscopy and simulations, *Physical Chemistry Chemical Physics* 22 (12), 6538-6552 (2020)

New ways to study structural dynamics



Daniele Margarone et al. Generation of alpha-Particle Beams With a Multi-kJ, Peta-Watt Class Laser System. *Front. Phys.* 8 (2020) 343.

Understanding laser fusion



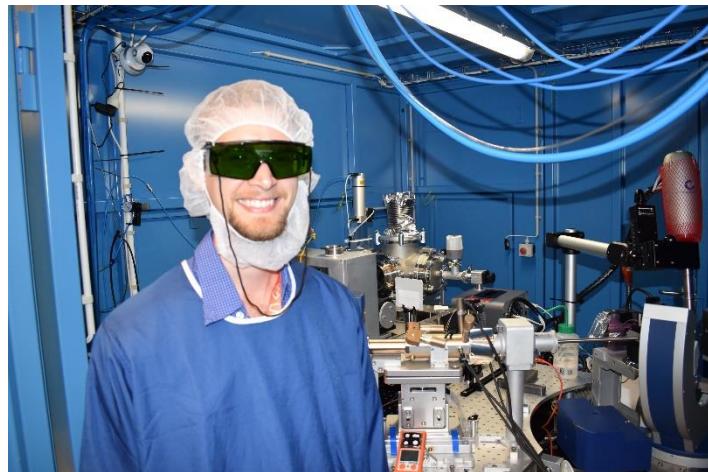
Partnership



QVSILASER



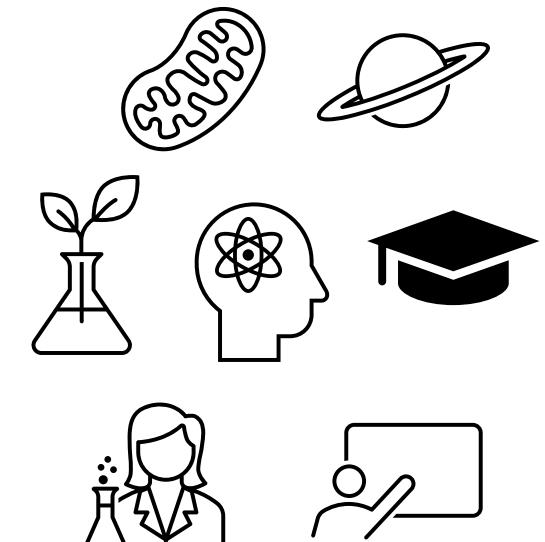
Strategy 2030+



Scaling user program
500 user per year



Technology
leadership
Average Power



Master & PhD
program

The best place for Scientists, Students,
Start-ups