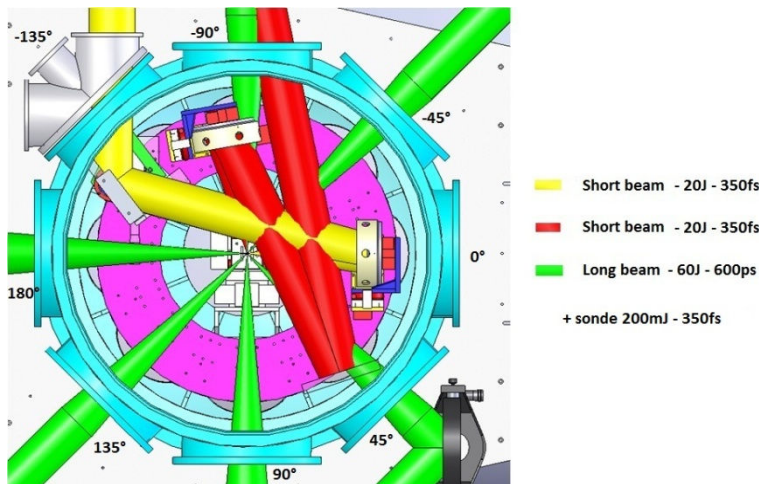


Call for Access to the LULI laser facilities

Application for beam time on the LULI laser facilities will soon be open
for the period May 2013 – April 2014.
The closing date will be the **3rd of October, 2012**.

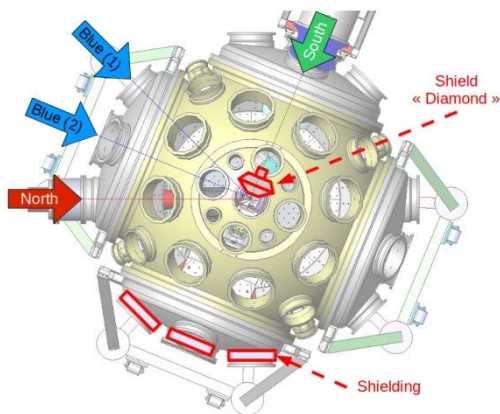
BRIEF DESCRIPTION OF THE LULI LASER FACILITIES AVAILABLE IN 2013

ELFIE is a highly versatile and manageable facility coupling a fully-equipped experimental room with a Ti:Sa/mixed glass laser system based on the chirped pulse amplification (CPA) technique. Two ultra-intense vacuum-compressed beams ($\sim 15\text{J}$ in typically 0.35ps at ω or $1.06\text{ }\mu\text{m}$ - 2ω available) are optically synchronized with a $\sim 60\text{J}$ / 600ps uncompressed chirped pulse. A 100mJ short (0.3ps) frequency-converted (from ω to 4ω) probe beam is also available. Shot-to-shot reliability (at a repetition rate of 1 shot every 20 minutes) and good focused beam quality is ensured through an adaptive-optics closed-loop system. Reduced flexibility in terms of angles between the various laser beams is offered (see graph below).

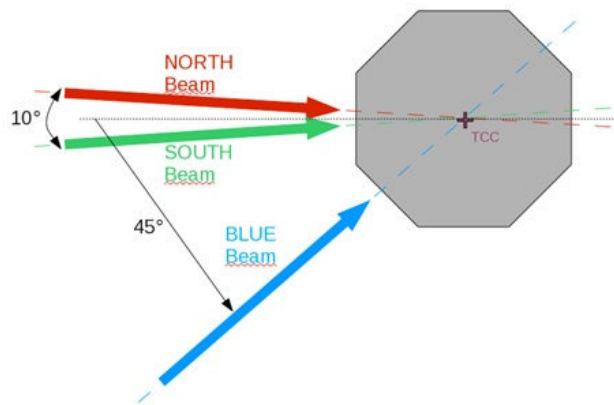


LULI2000 is one of the most energetic laser facilities in Europe: it consists of two experimental areas and a laser hall (below) containing 2 high-power single pulse neodymium glass laser chains. Each beam can deliver up to 1kJ at ω in 1.5ns square pulses (*nano2000* configuration). Pulse duration [from 0.5 to 5ns - rise time $\sim 150\text{ps}$, pulse shaping available], beam delay [$\pm 10\text{ns}$] and angle can be readily adjusted. 2ω is available (3ω upon request). The repetition rate is limited to 1 shot every 90 minutes (4-5 full-energy shots per day), but a 10Hz laser beam allows fast diagnostics alignment. Implementation of the chirped pulsed amplification technique on one of the 2kJ laser chains, the *South* beam (*pico2000* configuration), authorizes operation in the ps regime.

This unique combination of high-energy and high-power laser pulses then opens the route to innovative physics. However, in order to avoid any grating damage, *pico2000* will only be allowed to deliver pulses on target up to $\sim 70\text{J}$ in 1ps at ω or $\sim 35\text{J}$ at 2ω . Finally, one additional moderately energetic beam (up to 80J in the ns regime, temporal profile identical to the *North* one), the *blue* beam, is available to increase the laser-based diagnostic (Thomson scattering, off-axis/on-axis radiography ...) capabilities of the facility. Reduced flexibility in terms of angles between the various laser beams is offered on the two experimental areas (see graphs below).



pico2000 configuration (experimental area #1)



nano2000 configuration (experimental area #2)

Instructions on how to apply are given below. Please follow them in order to provide the selection panel with all the required elements for evaluation.

Furthermore, prior to this evaluation, the technical and radiological feasibility of your proposed experimental campaign will be checked. Careful and detailed writing is then recommended; any lack of required information on the experimental set-up could lead to rejection. Please note that your proposals will be handled in strict confidence.

STANDARD ACCESS

Proposals, written in English, must be sent, by e-mail, to access.luli@polytechnique.fr. They will be evaluated before the end of November, 2012, and notification of the final decision will occur before the 1st of December, 2012. Available access will be granted on the basis of scientific merit and appropriateness to the targeted facility.

However, the applicant is strongly encouraged to contact LULI researchers (according to the investigated thematic) before writing the final version of the proposal. By doing so, he will be able to determine whether the experiment can be efficiently carried out at the targeted facility. He will also be familiarized with operation procedures and diagnostics provided if his proposal be selected. A list of the contact persons is given at the end of this document.

SPECIAL ACCESS

European Transnational Access

A few weeks on the LULI laser facilities will be funded by the European Commission. To apply to these weeks, users must satisfy nationality criteria. If eligible, they will be allocated facility access free of charge; adequate scientific, technical & logistic support will be provided and travel & living expenses will be covered. Researchers from LASERLAB-Europe access providers will not be eligible. You can find more information on <http://www.laserlab-europe.net/transnational-access>.

Pay attention to the fact that proposal submission is, in that case, done twice, first according to the standard access rules (described above) and second using the I3 LASERLAB-EUROPE Electronic Proposal Management System (please connect to the above-mentioned page and follow instructions: complete the online form and attach our application form, and not the LASERLAB one).

French pluri-annual access

LULI2000 is open to pluri-annual experimental campaigns proposed by French users. One new slot will be attributed this year, i.e. 2 weeks per year, for a period of 3 years (if positively evaluated *each year* by the program committee). Please clearly explain in your proposal the whole program, i.e. for the 3 consecutive years, including a detailed work programme.

HiPER access

In the context of the European project HiPER, preferential access time could be allocated to experimental projects gathering European groups with complementary expertise and addressing the physics of laser inertial fusion. If laser beamtime available, one project will be selected by the HiPER WP10 work group, led by D. Batani. Please clearly mention in the application form that you want to apply to this preferential access. Your proposal will be then transferred to WP10.

CONTACT PERSONS

Particle acceleration with lasers / Ultra-fast plasmas

J. Fuchs – julien.fuchs@polytechnique.fr

Underdense plasma - laser interaction / Alternative fusion schemes

S. Baton - sophie.baton@polytechnique.fr

Hydrodynamics / EOS / Laboratory astrophysics & geophysics

A. Benuzzi-Mounaix – alessandra.benuzzi-mounaix@polytechnique.fr

Atomic physics & x-ray spectroscopy of laser-produced hot plasmas

S. Bastiani-Ceccotti - serena.bastiani@polytechnique.fr

Atomic physics in ultra-dense plasmas

F. Rosmej - frank.rosmej@upmc.fr

Laser-plasma interaction

C. Labaune - christine.labaune@polytechnique.fr

Laser-induced shocks for material processing

L. Berthe - lberthe@gmail.com

INSTRUCTIONS TO WRITE YOUR PROPOSAL

Write your proposal according to the joint application form (following all the guidelines that are there included!) and send both of them to access.luli@polytechnique.fr.

Do not hesitate to contact access.luli@polytechnique.fr for any further information.