



## HiPER – ELI – Laserlab Europe - ILP Memorandum of Understanding

### Preamble:

The “Extreme Light Infrastructure” (ELI), based on an exawatt ( $10^{18}$  Watt) laser, would be the first infrastructure dedicated to the fundamental study of laser-matter interaction in the ultra-relativistic intensity regime ( $I_L > 10^{25}$  W/cm<sup>2</sup>), and possibly to the regime of non-linear quantum electro-dynamic (QED). ELI will open a unique research platform where basic as well as applied research studies will be conducted, in Physics, Chemistry, Biology, Life and Material Science, in a regime of laser intensity that was otherwise inaccessible.

**HiPER** for European **H**igh **P**ower laser **E**nergy **R**esearch facility is dedicated to demonstrating the feasibility of laser-driven fusion as a **future energy source**. HiPER is being designed to enable a broad array of new science including extreme material studies, astrophysics in the laboratory, and a wide range of fundamental physics research.

**PETAL** for **P**ETawatt **A**quitaine **L**aser will act as a demonstrator of physics performance and laser technology for HiPER. The petawatt laser is built by the “Region Aquitaine” in collaboration with the **I**nstitute **L**asers and **P**lasmas (**ILP**) which coordinates lasers and plasmas research in France.

**LASERLAB-Europe** Integrated Infrastructure Initiative will continue to provide the natural framework where newly-acquired scientific and technical knowledge will be shared, and where the laser community will be aggregated around major new developments. In this capacity it will also be of strategic importance for the 21st Century major Infrastructures that are HiPER and ELI.

### Purpose of the Memorandum of Understanding.

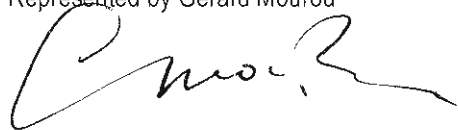
By signing this Memorandum of Understanding, the Parties agree to jointly work on Technical, Support actions (legal, finance, etc) and Networking issues necessary to carry out the ELI and HiPER Preparatory Phases through to a successful conclusion.

The Parties understand that by combining their efforts during their respective Preparatory Phase, some critical issues may be solved more efficiently leading to significant cost reductions of some expensive elements.

I hereby do agree to promote and create the ELI - HiPER network aiming to strengthen our respective Preparatory Phase.

Signed on 6 of April 2007, in Palaiseau

Extreme Light Infrastructure  
Represented by Gérard Mourou



High-Power laser Energy Research  
Represented by Mike Dunne



LASERLAB-Europe  
Represented by Wolfgang Sandner.



PETAL / Institut Laser-Plasma  
Represented by Christine Labaune

