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## Fédération de recherche lasers et plasmas

### Rapport Hcéres

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# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

HCERES report on the federation:

Fédération de Recherche Lasers et Plasmas

Under the supervision of the following  
institutions and research bodies:

Université de Bordeaux

Université Paris-Sud

Aix-Marseille Université – AMU

Université Pierre et Marie Curie – UPMC

Université de Lorraine

Université de Poitiers

École Polytechnique

École Nationale Supérieure de Techniques Avancées –

ENSTA Paristech

Observatoire de Paris

Institut d'Optique Graduate School

École Normale Supérieure de Lyon – ENS Lyon  
Arts et Métiers Paristech - École Nationale Supérieure  
des Arts et Métiers  
Centre National de la Recherche Scientifique – CNRS  
Commissariat à l'Énergie Atomique et aux Énergies  
Alternatives – CEA

# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

*In the name of HCERES,<sup>1</sup>*

Didier HOUSSIN, president

*In the name of the experts committee,<sup>2</sup>*

Alberto BRAMATI, chairman of the committee

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Under the decree No.2014-1365 dated 14 november 2014,

<sup>1</sup> The president of HCERES "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5)

<sup>2</sup> The evaluation reports "are signed by the chairman of the expert committee". (Article 11, paragraph 2)

## Federation

Name of the federation: Fédération de Recherche Lasers et Plasmas

Acronym of the federation: FLP

Requested label FR

Current n°: FR 2707

Name of the director  
(2014-2015) : Mr Patrick MORA

Nom du porteur de projet  
(2016-2020) : Mr Patrick MORA

## Expert committee members

President: Mr Alberto BRAMATI, Université Pierre et Marie Curie

Experts: Mr Alain DUBOIS, Université Pierre et Marie Curie

Scientific delegate representing the HCERES:

Ms Sylvie MAGNIER

Representative of the unit supervising institutions and bodies:

Ms Pascale ROUBIN, CNRS

## 1 • Introduction

### History and geographical location of the unit

The french community of High Power-High Energy Lasers and Plasmas is structured around the “Institut Lasers et Plasmas” (ILP), which is in charge of defining a coherent scientific policy in this field. ILP is constituted by two operative structures: the « Fédération Laser et Plasmas » (FLP), created in 2003 and the “Association Laser et Plasmas” (APL). FLP has the aim to coordinate and promote the scientific exchanges among the french laboratories working in the field of high energy, high power lasers and plasmas generated by these lasers. On the other hand APL is in charge of the management of the CEA laser facilities (LMJ and PETAL).

The three structures are strongly interacting and they work coherently in a fruitful collaborative way, facilitated by the fact that ILP and FLP have the same director and that the co-director of ILP is also the president of APL.

FLP presents an internal organization, divided in two poles: the “HDE” focused on the activities dealing with high energy lasers (relatively long pulses of hundreds of picoseconds, nanoseconds), and the “UHI”, devoted to the high intensity laser, with ultra short pulses (femtoseconds up to tens of picoseconds).

The FLP regroups teams from nineteen different departments with a large spectrum of research activities, both experimental and theoretical. The number of researchers associated to the federation, with a variable degree of involvement, ranges from 250 to 300 people.

### Management team

The FPL is headed by Mr Patrick MORA (CPHT, École Polytechnique), assisted by Mr Dimitri BATANI (CELIA, Université de Bordeaux), responsible of HDE pole and by Mr Philippe MARTIN (IRAMIS/LIDyL, CEA), responsible of UHI pole.

### Personnel

None.

## 2 • Assessment of the federation

### Global assessment

The FLP plays a central role in the coordination, scientific animation and support of the research activities of the french community in the field of intense lasers and plasmas.

The main activity of the federation consists in the organization of a regular conference (the Forum ILP) every 18 months (on one week), attended by a large number of members of the federation (typically one third of them). These meetings, in which the main french actors in the field are represented, constitute a precious opportunity to boost the scientific exchanges and to highlight the recent relevant achievements inside the french community. It is worth to note that during these meetings a significant number of talks (about 40%) are given by PhD students and post-docs; this is certainly an important contribution to the training of young researchers and to the improvement of their communication skills.

The FLP also organises thematic workshops (on average three per year) and provides financial support for conferences co-organised by members of the federation and for visits and short stays in laboratories of the federation or even abroad.

Another important instrument for the scientific communication inside the FLP is the publication, quarterly, of an information letter containing all the relevant news concerning the domain of activities covered by the federation.

Fédération Lasers et Plasmas, FLP, U Bordeaux, U Paris 11, U Aix-Marseille, U Paris 6, U Lorraine, U Poitiers, EC Polytechnique, ENSTA Paris, OBS Paris, INST Optique, ENS Lyon, ENSAM, CNRS, CEA, Mr Patrick MORA

The FLP organises the calls for the access to the CEA/CESTA facilities and is in charge of the selection process, insured by a specifically nominated scientific advisory committee.

Finally the FLP plays a central role of expertise at the national level, with delivery of (i) scientific documents guiding the future users of the new french laser facilities and (ii) prospective reports defining the long-term requirements of experimental developments for the communities of intense lasers and plasmas physics.

In summary FLP is a dynamic light structure, with an efficient management, performing important federative activities for the scientific community involved in laser and plasmas physics. This task of expertise, melting and communication deserves to be supported and encouraged.

### Strengths and opportunities

The variety of the topics addressed by the laboratories of the federation is extremely wide and its coordination action is of great importance to insure a global vision and coherence among the different activities.

The interactions and collaborative works between members are facilitated in the framework of the federation.

This management appears also useful to define the strategic axes for the future development in the field.

The links and collaborations with the international community are well established and contribute to further increase the visibility of the french activities, which is of major importance in this very competitive field.

### Weaknesses and threats

The federation carries out its activities with an annual budget that is quite low (40 k€), mainly provided by CNRS (75%) and École Polytechnique (25%). Note that it will suffer of a reduction of about 30% for the next year. With these limited resources it could become a very challenging task to maintain and reinforce the role of animation and organisation of the scientific community, especially taking into account the strong involvement that the federation is expected to play in the new facilities (LMJ, PETAL, APOLLON) that will be operative in a near future.

### Recommendations

It is important to pursue and reinforce the present effort of coordination and organization of the laser and plasmas scientific community.

A further increase of the collaborations and interactions between the different laboratories would be beneficial to the whole community. This could be obtained incrementing the support provided by the federation to the circulation of researchers among the different associated laboratories.

To reinforce the international links, it would be helpful to promote the participation of foreign scientist to the ILP Forum, for example by inviting some eminent scientist who could deliver invited talks highlighting the major results obtained worldwide.

The committee must finally stress the importance of preserving and possibly increasing the budget to maintain the key-role of FLP at its present level. To strengthen its federative role in a complex financial context, a viable strategy could be to gather (modest) contributions from each FLP partner to support collaborative projects between teams of different departments.