



agence d'évaluation de la recherche
et de l'enseignement supérieur

Section des Unités de recherche

Rapport de l'AERES sur la structure fédérative :

Fédération de Recherche Laser Plasma - FR2707

sous tutelle des
établissements et organismes :

Université Bordeaux 1

CNRS

CEA

Ecole Polytechnique

Ecole Nationale Supérieure de Techniques Avancées

Université Paris 11

Observatoire De Paris

Institut Optique Graduate School

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Le Président
de l'AERES

Jean-François Dhainaut

Section des unités
de recherche

Le Directeur

Pierre Glorieux

Mai 2010



Fédération

Nom de la fédération : Fédération de Recherche Laser Plasma

Label demandé : FR

N° si renouvellement : 2707

Nom du directeur : M. Patrick MORA

Membres du comité d'experts

Président :

M. Francesco PEGORARO (U-Pisa Italie)

Experts :

M. Xavier GARBET (CEA Cadarache)

M. Lamri ADOUI (U-Caen et représentant le CoNRS)

Représentants présents lors de la visite

Délégué scientifique représentant de l'AERES :

M. Philippe RONCIN

Représentant(s) des établissements et organismes tutelles :

M. Christian CHARDONNET (Directeur Scientifique Adjoint au CNRS)

M. Jean-Rodolphe PUIGGALI (Vice Président Recherche U. Bordeaux 1).

1 • Introduction

The FLP was presented by its Director Patrick Mora at the laser laboratory CELIA, located in Bordeaux and hosting several members of this federative structure. The presentation was given in front of an international panel of researchers working in laser plasma interactions.

The “Fédération Lasers et Plasmas” (FLP, originally named ILP-Recherche) was created in 2003 to gather together the French scientific community working in the domain of high power lasers and laser created plasmas. Patrick Mora was appointed as new director in April 2008.

The number of researchers involved in the Federation varies from about 150 to about 300 persons, depending on their real role (the first figure corresponds to the typical number of participants at the biennial meeting of the Federation, the Forum-ILP, while the second figure corresponds to the number of researchers receiving the quarterly letter of the Federation).

FLP is located in Bordeaux in close proximity of the military Laser center CEA/CESTA hosting the MegaJoule project and the Petal project which will open access to academic members. This academic participation is organised by the present FLP structure but the present members of FLP work in more than 20 different laboratories all over France. The scientific organisation of FLP in different “poles” and themes covers both very “hot” topics as well as prospective activities.

Equipe de Direction : Mr Patrick Mora.

2 • Evaluation of the federal structure

- Overall opinion :

The FLP plays an important and effective role in the coordination of the research activity of the French groups involved in the experimental and theoretical investigation of the interaction between high-energy\high-power laser pulses and plasmas.

The FLP’s focal activity consists in organising and financially supporting scientific meetings (the ILP Forum) of its working groups. These meetings occur on a regular basis (twice yearly), are widely attended and involve the great majority of the French groups in the laser-plasma field. These meetings appear to be very useful as they provide an open and extended (one week) platform for the exchange of scientific information between these groups.

Also of importance is the “Letter of the Federation” activity that was resumed in 2008. These Letters make available essential information on the activities of other groups to the groups participating in the FLP on calls for proposals at laser facilities and provide reports on short meetings.

Overall the FLP appears to be a small scale, low cost, activity that is well managed, that performs a well defined and useful activity and that deserves to be funded.



- **Strengths and opportunities :**

The groups appear to be very dynamic and work in very active and competitive fields. The diversity of subjects addressed is really impressive. The progressive opening of the LIL facility and the PETAL project should trigger enhanced experimental collaboration, as suggested by the group devoted to the design of future diagnostics.

- **Weaknesses and Threats :**

There seems to be a relatively weak coupling between the HED (High energy Density) and UHI (Ultra High Intensity) "poles". From the document provided by FLP, this situation seems to be evolving positively. Transverse structures such as FLP can play a coordination role effectively and should therefore be reinforced.

Care should be taken not to multiply the number of research subjects but to continue to structure and link the different topics. As an example the "AstroDyn" activity is developed under six different consortia, not always clearly related to Laser Plasma.

- **Recommandations :**

It seems important to continue the present effort in structuring and coordinating this lively field.

There are only very limited results from the LIL facility, improving this aspect should be among the future priorities. A special budget would probably boost the collaboration in charge of preparing future experiments.

Strong links with European institutions (such as Laserlab-Europe) should be developed and in particular with the community preparing for the Hiper project for which Petal is seen as a forerunner.

It would be advisable for the Forum meetings, while keeping their French character and scope, to aim at a wider audience from interested foreign scientists and in particular from scientists directly involved in French research activities in Laser Plasma interactions.

3 • Detailed Appreciation

- **Review of scientific activity arising from the synergy in the federal structure :**

The impression is very good; the scientific production is excellent and of high quality. More important here, all publications in the document seem to involve several laboratories. It seems that the new director has boosted the networking activity.

- **Reality and quality of the scientific animation: the FLP activities comprise :**

- 1) The organisation and funding of the Forum meetings (110 attendants in 2009 among which 20 PhD students).
- 2) Financial support for the participation of (young) French Researchers at national and international conferences, in particular in relation to the HiPER and ELI projects.
- 3) The running of the quarterly "Letter of the Federation" activity.



All these activities are of high scientific quality, have a high impact (in particular when evaluated against the limited funds involved) on the French laser plasma community and are well managed.

In addition the meetings of the Forum, which are held in French and in a French environment, allow young researchers and in particular PhD students to present their results to a wide audience under less stressful conditions than at a fully international conference.

4 • Conclusions

It is extremely important that in coming years the FLP be assigned sufficient financial support so as to keep its scientific and organisational activity at a significant level and still capable of having a real impact on the French laser Plasma community. This coordination activity is particularly important at a time when research opportunities in the laser plasma field are expected to expand rapidly due to the construction of new facilities, both national and international.