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## LERMA - Laboratoire d'étude du rayonnement et de la matière en astrophysique et atmosphères

Rapport Hcéres

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REPORT ON THE RESEARCH UNIT:  
Laboratory for Radiation and Matter Studies in  
Astrophysics and Atmospheres (LERMA)

UNDER THE SUPERVISION OF THE  
FOLLOWING INSTITUTIONS AND  
RESEARCH BODIES:

L'Observatoire de Paris

Université Pierre et Marie Curie

École Normale Supérieure – ENS

Université de Cergy-Pontoise - UCP

Centre National de la Recherche Scientifique -  
CNRS

**ÉVALUATION CAMPAIGN 2017-2018**  
**GROUP D**



In the name of Hcéres<sup>1</sup>:

Michel Cosnard, President

In the name of the expert committee<sup>2</sup>:

Olivier Le Fèvre, Chairman of the committee

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

<sup>1</sup> The president of Hcéres "countersigns the evaluation reports set up by the expert 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).

This report is the sole result of the unit's evaluation by the expert committee, the composition of which is specified below. The assessments contained herein are the expression of an independent and collegial reviewing by the committee.

## UNIT PRESENTATION

<b>Unit name:</b>	Laboratory for Radiation and Matter Studies in Astrophysics and Atmospheres
<b>Unit acronym:</b>	LERMA
<b>Requested label:</b>	UMR
<b>Application type:</b>	Renewal
<b>Current number:</b>	8112
<b>Head of the unit (2017-2018):</b>	Mr Dariusz C. Lis
<b>Project leader (2019-2023):</b>	Mr Dariusz C. Lis

**Number of teams or themes:** 4

## COMMITTEE MEMBERS

**Chair:** Mr Olivier LE FEVRE, Aix-Marseille université

**Experts:** Ms Aurore BACMANN, université de Grenoble (for representative of the National Committee for Scientific Research, CoNRS)

Ms Chantal CLAUD, CNRS

Mr Gilles KACZMAREK, CNRS (supporting personnel)

Mr Stephan SCHLEMMER, Köln university, Allemagne

Mr Karl SCHUSTER, Institut de Radio Astronomie Millimétrique

Ms Annie ZAVAGNO, Aix-Marseille université (for representative of the Board of French Universities, CNU)

**HCERES scientific officer:**

Mr Michel MARCELIN

**Representatives of supervising institutions and bodies:**

Mr Claude CATALA, L'Observatoire de Paris

Mr Yves LASZLO, École normale supérieure

Mr Guy PERRIN, CNRS-INSU

Mr Stéphane REGNIER, université Pierre et Marie Curie

Mr Pascal VINCENT, université Pierre et Marie Curie

Mr Dan VODISLAV, université de Cergy-Pontoise

## INTRODUCTION

### HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

LERMA is a department of L'Observatoire de Paris. It is located at 5 separate locations, two at L'Observatoire de Paris premises, one at UMPC, one at university Cergy-Pontoise, and one at ENS (Ulm). The Laboratoire de Physique Moléculaire pour l'Atmosphère et l'Astrophysique merged with LERMA in 2014.

### MANAGEMENT TEAM

LERMA director Mr Dariusz Lis has set a management team with Mr Jean-Hugues FILLION and Mr Franck LE PETIT as deputy directors, Mr Jean-Michel KRIEG as technical director, Mrs Valérie AUDON for HR aspects and Mr Laurent GIROT (replaced by Mrs Murielle CHEVRIER in October of 2017) for financial aspects.

### HCERES NOMENCLATURE

ST3: Earth and Space Science.

### SCIENTIFIC DOMAIN

LERMA addresses topics in key areas of astrophysics, physics, and earth science. There are three main areas of activity: studying cosmology and the formation and evolution of galaxies, interstellar medium and plasma physics, and molecules in different environments in the universe. In addition, LERMA conducts technical developments of instrumentation, including remote sensing.

### UNIT WORKFORCE

Unit workforce	Number 30/06/2017	Number 01/01/2019
<b>Permanent staff</b>		
Full professors and similar positions	10	12
Assistant professors and similar positions	24	24
Full time research directors (Directeurs de recherche) and similar positions	9	13
Full time research associates (Chargés de recherche) and similar positions	5	5
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	1	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	34	35
<b>TOTAL permanent staff</b>	<b>83</b>	<b>89</b>
<b>Non-permanent staff</b>		
Non-permanent professors and associate professors, including emeritus	7	

Non-permanent full time scientists, including emeritus, post-docs	7	
Non-permanent supporting personnel	12	
PhD Students	40	
<b>TOTAL non-permanent staff</b>	<b>66</b>	
<b>TOTAL unit</b>	<b>149</b>	

## GLOBAL ASSESSMENT OF THE UNIT

The LERMA is conducting front-end research in four areas, covering galaxies and cosmology, interstellar medium and plasma, molecules in the universe, heterodyne instrumentation and the development of innovative methodologies to retrieve key astrophysics and Earth variables from satellite and ground-based observations.

The scientific production of the past period is of very high quality, with an impressive list of papers in refereed journals. A number of key results have high scientific standing in the international community.

The research staff has been maintained approximately constant over the period, with new people joining and compensating retiring personnel. There is a concern expressed for the future as the wave of retirements will continue, and ways to recruit new staff will have to be found to maintain LERMA standing.

The LERMA is strongly involved in teaching activities, including a high rate of PhD defended during the period.

The LERMA is spread over several disjoint sites, which is a clear difficulty to maintain a cohesive set of activities. However, the LERMA seems to cope quite well with this difficulty. Following the recommendations of the previous visiting committee, the previous management team prepared a restructuration resting on scientific poles rather than per site, following extensive consultations with the staff ahead of the merger with LPMAA (Laboratoire de Physique Moléculaire pour l'Atmosphère et l'Astrophysique). This new structure has been fully implemented by the current management team and is perceived as very positive.

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2 rue Albert Einstein  
75013 Paris, France  
T. 33 (0)1 55 55 60 10

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