LPS - Laboratoire de physique statistique de l'ENS

Rapport Hcéres

Research evaluation

REPORT ON THE RESEARCH UNIT:

Laboratoire de Physique Statistique de l'École Normale Supérieure

LPS-ENS

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

École Normale Supérieure

Université Pierre et Marie Curie

Université Paris Diderot

Centre National de la Recherche Scientifique - CNRS

EVALUATION CAMPAIGN 2017-2018

GROUP D

In the name of Hcéres[1] :

Michel Cosnard, President

In the name of the experts committee[2] :

Thierry Dauxois, Chairman of the committee

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

[1] The president of HCERES "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

[2] 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

Unit name:	Laboratoire de Physique Statistique de l'École Normale Supérieure
Unit acronym:	LPS-ENS
Requested label:	UMR
Application type:	Renewal
Current number:	UMR 8550
Head of the unit (2017-2018):	Mr Jorge KURCHAN
Project leader (2019-2023):	To be determined
Number of teams:	8

COMMITTEE MEMBERS

Chair: Mr Thierry Dauxois, CNRS

Experts:

Ms Nathalie BALABAN, The Hebrew University, Israel

Mr Peter HOLDSWORTH, ENS de Lyon

Mr Michael LE BARS, CNRS

Mr Thierry ONDARÇUHU, CNRS

Mr Massimo VERGASSOLA, university of California, USA

HCERES scientific officer:

Mr Philippe GOUDEAU

Representatives of supervising institutions and bodies:

Mr Yves LASZLO, École Normale Supérieure

Ms Sylvie ROUSSET, université Paris Diderot

Mr Bart van TIGGELEN, CNRS

Mr Pascal VINCENT, université Pierre et Marie Curie

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The "Laboratoire de Physique Statistique" founded 30 years ago is roughly equally divided between experiment and theory. Its extremely diverse activities reflect the extension, in the last decades, of Statistical Physics from a discipline in itself into an education and a tool. Researchers started out in fundamental physics but many evolved to fields where their strategies for attacking problems could make a unique contribution, most notably in biophysics (both at theoretical and experimental levels), which involves about a half of the permanent faculty.

The laboratory is located in the fifth arrondissement (administrative district) of Paris, in the building of the ENS physics department.

MANAGEMENT TEAM

The laboratory director, Mr Jorge KURCHAN, manages alone the laboratory. The LPS has a scientific council with fifteen members: the Director, the representatives of each research team, a representative of ITA, a representative of students (all these elected), plus four members designated by the Director. The council meets at least once a year to discuss general or specific problems relative to the life of the LPS (hiring, contribution to the budget of direction, etc.).

HCERES NOMENCLATURE

ST2 Physique ; ST2_3 Matériaux, structure et physique solide

SCIENTIFIC DOMAIN

The non-biological research involves fields as diverse as nonlinear science, in particular hydrodynamics and magneto-hydrodynamics; nano and micro fluidics, quantum and classical many-body theory; out of equilibrium thermodynamics; several forms of soft-condensed matter physics including wetting, complex interfaces, metamaterials; interfaces with data and social sciences.

The biophysical activity is also diverse: biological membranes, single-molecule and single-cell biophysics at the experimental level; quantitative biology and neuroscience at the theoretical one.

UNIT WORKFORCE

Unit workforce	Number 30/06/2017	Number 01/01/2019
Permanent staff		
Full professors and similar positions	7	
Assistant professors and similar positions	6	
Full time research directors (Directeurs de recherche) and similar positions	11	
Full time research associates (Chargés de recherche) and similar positions	8	
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	
High school teachers	0	
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	10	
TOTAL permanent staff	**42**	
Non-permanent staff		
Non-permanent professors and associate professors, including emeritus	5	
Non-permanent full time scientists, including emeritus, post-docs	57	
Non-permanent supporting personnel	2	
PhD Students	37	
TOTAL non-permanent staff	**101**	
TOTAL unit	**143**	

GLOBAL ASSESSMENT OF THE UNIT

During the period under evaluation the Laboratoire de Physique Statistique (LPS) has developed research projects of an extremely high standard, covering a broad range of topics in statistical mechanics. The LPS can count among its members unquestioned world leaders in many of these subjects. The laboratory is well balanced between nonlinear and statistical physics on one hand and biophysics on the other, and between experimentalists and theoreticians. This equilibrium is a great asset for the laboratory, providing an excellent environment for training by research for PhD students and postdocs, who are able to develop or apply tools of statistical physics to a vast array of problems.

In view of the proposed unification of laboratories within the ENS, the creation of scientific policy and of dynamics at a more coarse-grained level appears to be an essential development. This is necessary to assure the emergence of an efficient structure at an intermediate scale in the new laboratory. In such a reorganisation an effort must be made to preserve the efficiency and proximity of the technical and administrative staff, which is one of the present lab's great assets.

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

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