

## FINAL SUMMARY OF THE EVALUATION ON THE RESEARCH UNIT:

Laboratory of Annecy-le-Vieux of  
Theoretical Physics (LAPTH)

## UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Centre National de la Recherche  
Scientifique – CNRS

Université Savoie Mont Blanc

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**EVALUATION CAMPAIGN 2019-2020**  
GROUP A



In the name of Hcéres<sup>1</sup>:

Nelly Dupin, acting  
President

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

Constantin Bachas, 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 experts committees and signed by their chairman." (Article 8, paragraph 5);

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

Tables in this document were filled with data submitted by the supervising body on behalf the unit.

## UNIT PRESENTATION

<b>Unit name:</b>	Laboratory of Annecy-le-Vieux of Theoretical Physics
<b>Unit acronym:</b>	LAPTH
<b>Current label and N°:</b>	UMR 5108
<b>ID RNSR:</b>	199111793M
<b>Application type:</b>	Renewal
<b>Head of the unit (2019-2020):</b>	Mr Luc Frappat
<b>Project leader (2021-2025):</b>	Mr Luc Frappat
<b>Number of teams and/or themes:</b>	3 themes

## EXPERTS COMMITTEE MEMBERS

<b>Chair:</b>	Mr Constantin Bachas, CNRS, Paris
	Mr Matteo Cacciari, Université Paris Diderot, Paris
<b>Experts:</b>	Mr Julien Serreau, Université Paris Diderot, Paris (representative of CNU)
	Ms Géraldine Servant, University of Hamburg, Germany
	Ms Véronique Terras, CNRS, Orsay (representative of CoNRS)

## HCÉRES REPRESENTATIVE

Mr Philippe Goudeau

## REPRESENTATIVES OF SUPERVISING BODIES

M. Roman Kossakowski, USMB

M. Philippe Lecheminant, CNRS

# INTRODUCTION

## HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

LAPTh grew out of an initiative of theorists belonging to the high-energy-physics laboratory LAPP. This group first created a joint bilocal laboratory with ENS Lyon (ENSLAPP) in 1991, before founding in 1999 the LAPTh -- a mixed unit of the Université Savoie Mont Blanc (USMB) and of the Institute of Physics (INP) of the CNRS. LAPTh and LAPP share the same building in Annecy, a CNRS property. Annecy is about 50 km from CERN and from the USMB campus at Chambéry, and about 150 km from two other major University centers, Grenoble and Lyon.

LAPTh is part of the Labex ENIGMASS (together with the "Laboratoire d'Annecy de Physique des Particules" - LAPP, the "Laboratoire de physique subatomique et de cosmologie" - LPSC in Grenoble and the "Laboratoire souterrain de Modane" - LSM which is now part of the LPSC) and has been instrumental in developing the PAGE (Particle Physics, Astrophysics, Geosciences and Environment) and the PEM (Physics, Engineering, Mechanics) scientific clusters of the ComUE Université Grenoble Alpes (UGA). This latter has obtained the IDEX label in 2016. However, USMB is only an external partner of the IDEX, and as a result LAPTh has only limited access to its resources.

The laboratory maintains strong scientific ties with theorists and experimentalists in LAPP, Grenoble, CERN and Lyon. It participates in teaching in Chambéry, Grenoble and Lyon (both ENS and UCB) and is part of the École Doctorale de Physique de Grenoble (EDPHY, ED47) as well as the federative structure Center for Theoretical Physics Grenoble-Alpes (CPTGA, FR 3620).

## MANAGEMENT TEAM

Director: Luc Frappat

Deputy Director: Jean-Philippe Guillet

Head of administration: Dominique Turc-Poencier

## HCÉRES NOMENCLATURE

ST2 - Physique.

## THEMATICS

The laboratory is composed of three teams with partially-overlapping scientific interests:

- (1) **Mathematical physics**, with topics of interest to both high- and low-energy physics (integrability, supersymmetric gauge theories and string theory, topological field theory, out of equilibrium statistical mechanics, general relativity).
- (2) **Particle physics**, which covers: the development of tools and methods for multiloop calculations in QCD, in the electroweak theory and in extensions of the Standard Model; precision Higgs physics; flavor physics; and collider tests of dark matter models.
- (3) **Astroparticle physics and Cosmology**, with particular focus on cosmic ray propagation, gamma rays, dark matter signals in astrophysics and in cosmology, and stellar physics.

## UNIT WORKFORCE

<b>Laboratory of Annecy-le-Vieux of Theoretical Physics</b>		
<b>Active staff</b>	<b>Number 06/30/2019</b>	<b>Number 01/01/2021</b>
Full professors and similar positions	4	
Assistant professors and similar positions	2	
Full time research directors (Directeurs de recherche) and similar positions	4	
Full time research associates (Chargés de recherche) and similar positions	7	
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	
High school teachers	0	
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	5	
<b>Permanent staff</b>	<b>22</b>	<b>0</b>
Non-permanent professors and associate professors, including emeritus	1	NA
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	27	NA
PhD Students		NA
Non-permanent supporting personnel	27	NA
<b>Non-permanent staff</b>	<b>55</b>	<b>NA</b>
<b>Total</b>	<b>77</b>	<b>0</b>

## GLOBAL ASSESSMENT OF THE UNIT

LAPTh is an excellent unit with a range and quality of scientific activities which is remarkable given its small size. Most of its scientific production enjoys great international visibility and is at the forefront of the respective fields of research.

The unit is also involved in numerous actions of dissemination of fundamental science to the general public. Despite its relative geographic isolation, its implication in teaching and training activities is substantial and of the highest international standards.

Access to funding for PhD students and postdocs is not easy, and the possible loss of access to the resources of the IDEX of university of Grenoble Alpes - UGA will make it harder. The fairly-high average age of its permanent members is also a threat for the future of the unit.

The LAPTh enjoys an exceptionally friendly and collegial atmosphere, both within and across all three teams, that helps create consensus for long-term strategic decisions. One particular, and particularly relevant, such strategic choice is the decision to seek the addition of UGA to the supervising bodies of the unit. The committee shares the view that such a move, implying guaranteed access to IDEX resources, is crucial for the future of LAPTh.

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