Research evaluation

FINAL RESUME ON THE RESEARCH UNIT:
Institute of research into the fundamental laws of the Universe (IRFU)

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:
Commissariat à l'énergie atomique et aux énergies alternatives - CEA

EVALUATION CAMPAIGN 2018-2019
GROUP E

Report published on April, 23 2019

High Council for evaluation of research and higher education

In the name of Hcéres[1]:

Michel Cosnard, President

In the name of the experts committee[2]:

Sergio Bertolucci, Chair of the committee

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

[1] The president of Hcéres "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 experts committee". (Article 11, paragraph 2).

Tables in this document were filled with data provided by laboratories and supervising bodies in the unit's application and in the Excel files "Données du contrat en cours" and "Données du prochain contrat".

UNIT PRESENTATION

Unit name:	Institute of research into the fundamental laws of the Universe
Unit acronym:	IRFU
Requested label:	UP/EA
Application type:	Renewal
Current number:	
Head of the unit (2018-2019):	Ms Anne-Isabelle ETIENVRE
Project leader (2020-2024):	Ms Anne-Isabelle ETIENVRE
Number of teams and/or themes:	12 themes

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Sergio BERTOLUCCI, University of Bologna, Italy
Vice-Chair:	Mr Éric KAJFASZ, CNRS, Marseille
Experts:	Mr Luca BOTTURA, European Organization for Nuclear Research, Switzerland
	Mr Remi CORNAT, CNRS, Paris (supporting personnel)
	Mr Jorgen D'HONDT, Vrije Universiteit Brussel, Belgium
	Mr Adriano FONTANA, INAF-Osservatorio Astronomico di Roma, Italy
	Ms Maria José GARCIA BORGE, Instituto de Estructura de la Materia, CSIC, Madrid
	Mr Martin GIARD, CNRS, Toulouse
	Mr José Miguel JIMENEZ, European Organization for Nuclear Research, Switzerland
	Mr Manel MARTINEZ, Institut de Fisica d'Altes Energies, Spain
	Mr Marco PALLAVICINI, Sapienza Università di Roma, Italy
	Ms Natalie ROE, Lawrence Berkeley National Laboratory, United States
	Ms Johanna STACHEL, Heidelberg University, Germany

HCÉRES REPRESENTATIVE

Mr Yannis KARYOTAKIS

REPRESENTATIVE OF SUPERVISING INSTITUTIONS AND BODIES

Mr Vincent BERGER, CEA

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The institute was created in 1992 through a merger between the research and technology units of the high-energy physics (DPhPE), nuclear physics (DPhN) and astrophysics (SAp) departments. These three departments, located in the CEA centre in Saclay, were merged owing to a pioneering vision at that time of the underlying interconnection between the scientific subjects covered, the methodologies employed and the instrument technologies used. The institute was given its present name in 2008 and, in January 2017, it was supplemented by the CEA part of GANIL, the national large heavy ion accelerator, a research infrastructure dedicated to nuclear physics located in Caen and jointly operated with CNRS.

MANAGEMENT TEAM

Director: M^me^ Anne-Isabelle ETIENVRE.

Deputy Director: M. Philippe REBOURGEARD.

HCÉRES NOMENCLATURE

ST2 – Physique.

SCIENTIFIC DOMAIN

The goal of IRFU is to answer the main questions concerning the four fundamental interactions, at different scales, from the very smallest (building blocks of matter, nuclear matter) to the largest (energy content and structure of the Universe). This leads to the institute's technological position that consists in developing the instruments needed for this research (accelerators, magnets, detectors, electronics, and engineering systems). This research also requires the processing of large volumes of data, as well as expertise in the use of complex simulation tools. These developments, carried out in close conjunction with industry, go well beyond the scientific community of the physics of the two infinites, with the institute being called on for its technologies by other scientific communities, at the heart of CEA. It also aims to exploit its instrumental developments for various societal applications.

UNIT WORKFORCE

	Unit workforce	
	Institute of research into the fundamental laws of the Universe	
Active staff	**Number 31/12/2017**	**Number 01/01/2020**
Full professors and similar positions	2	2
Assistant professors and similar positions	6	6
Full time research directors (Directeurs de recherche) and similar positions	8	8
Full time research associates (Chargés de recherche) and similar positions	14	14

Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	492	488
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	303	299
Permanent staff	**825**	**817**
Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs	171	
PhD Students	108	
Non-permanent supporting personnel	109	
Non-permanent staff	**280**	
Total	**1 105**	**817**

GLOBAL ASSESSMENT OF THE UNIT

The committee finds that overall IRFU is an outstanding research organization with world-class capabilities and a rich scientific output spanning a broad range of fundamental science. The IRFU Director and Management should be commended for their achievements in structuring and organizing the unit in a way that is well accepted by its personnel and that makes it run efficiently In the past five years, they have produced many remarkable results and a large number of publications (~900/year), with a citation rate that is well above the average. The matrixed structure between the technical and scientific departments provides a strong foundation to design, fabricate and operate major instrumentation and accelerator projects. IRFU benefits from a very strong scientific and engineering staff, a highly skilled technical staff and top-level technological infrastructures. IRFU staff has been recognized with 40 prizes and awards during this period, and many invitations to speak at international conferences. The unit has been very successful in obtaining grants with an impressive success rate of 25% and nine prestigious ERC awards during this period. IRFU staff makes strong educational contributions, with 135 theses defended during this period and over 3500 hours of teaching per year. In terms of their contributions beyond academia, IRFU staff has strong connections to industry and have filed twenty-three patents, participated in a number of industrial and R&D subcontracts, and contribute to technologies for medical imaging, energy production and other societal applications.

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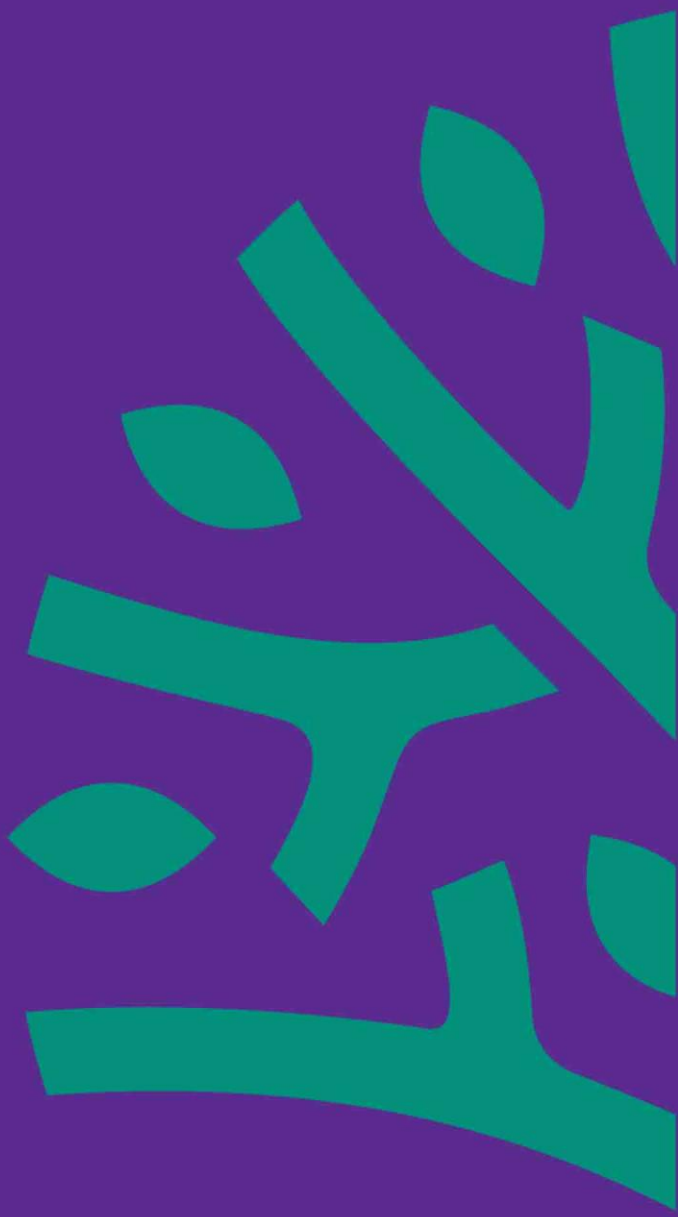
Evaluation of clusters of higher education and research institutions
Evaluation of higher education and research institutions
Evaluation of research
Evaluation of doctoral schools
Evaluation of programmes
International evaluation and accreditation



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