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ISIS - Institut de science et d'ingénierie supramoléculaires

Rapport Hcéres

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HCERES

High Council for the Evaluation of Research
and Higher Education

Department of Research Evaluation

report on research unit:

Institut de Science et d'Ingénierie Supramoléculaires

ISIS

Under the supervision of
the following institutions
and research bodies:

Université de Strasbourg

Centre National de la Recherche Scientifique - CNRS

Evaluation Campaign 2016-2017 (Group C)

HCERES

High Council for the Evaluation of Research
and Higher Education

Department of Research Evaluation

In the name of HCERES,¹

Michel Cosnard, president

In the name of the experts committee,²

Ehud Keinan, 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)

Evaluation report

This report is the sole result of 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 name:	Institut de Science et d'Ingénierie Supramoléculaires
Unit acronym:	ISIS
Label requested:	UMR
Current number:	7006
Name of Director (2016-2017):	Mr Paolo SAMORI
Name of Project Leader (2018-2022):	Mr Paolo SAMORI

Expert committee members

Chair:	Mr Ehud KEINAN, Technion, Israel
Experts:	Mr Valentine ANANIKOV, Zelinsky Institute, Russian Academy of Sciences, Moscow, Russia
	Ms Chantal ANDRAUD, CNRS, ENS Lyon (representative of the CoCNRS)
	Mr Davide BONIFAZI, University of Cardiff, UK
	Mr Cyril BOURGOGNE, CNRS, Montpellier (representative of supporting personnel)
	Ms Katharina FROMM, University of Fribourg, Switzerland
	Mr Lutz GADE, University of Heidelberg, Germany
	Ms Isabelle LAMPRE, Université de Paris Sud (representative of the CNU)
	Mr Christof WOELL, Karlsruhe Institute of Technology, Germany

Scientific delegate representing the HCERES:

Mr Georges MASSIOT

Representatives of supervising institutions and bodies:

Ms Christine BRUNEL, CNRS

Mr Bruno BUJOLI, CNRS

Ms Catherine FLORENTZ, Université de Strasbourg

Mr Jacques MADDALUNO, CNRS

Heads of Doctoral Schools:

Ms Véronique BULACH, ED n° 222, "Sciences Chimiques"

Mr Jean-Serge REMY, ED n° 222, "Sciences Chimiques"

1 • Introduction

History and geographical location of the unit

The ISIS institute, located on the Esplanade Campus in Strasbourg, is one of the leading, if not the best, research institutes of France and has its place at the interface between CNRS and the University of Strasbourg. Founded in 2002 by Nobel Prize Laureate Mr Jean-Marie LEHN, it focuses on developing and promoting top level multidisciplinary research at the interface between Chemistry, Physics and Biology, in particular supramolecular approaches to the understanding of complex matter.

Management team

The institute director is Mr Paolo SAMORI.

HCERES nomenclature

ST4 Chimie (principal)

ST2 Physique (secondary)

SVE2 Biologie Cellulaire, Imagerie, Biologie Moléculaire, Biochimie, Génomique, Biologie Systémique, Développement, Biologie Structurale (secondary)

Scientific domains

ISIS is based on international and highly interdisciplinary research groups at the interface of Chemistry, Physics and Biology. Each team contributes to understanding matter at high levels of complexity, focusing on supramolecular chemistry and beyond. The breadth of interests of the multidisciplinary research groups allow to tackle these scientific questions at a top level.

Unit workforce

Unit workforce	Number on 30/06/2016	Number on 01/01/2018
N1: Permanent professors and similar positions	9	13
N2: Permanent researchers from Institutions and similar positions	3	6
N3: Other permanent staff (technicians and administrative personnel)	17	15
N4: Other researchers (Postdoctoral students, visitors, etc.)	39	
N5: Emeritus	4	
N6: Other contractual staff (technicians and administrative personnel)	4	
N7: PhD students	40	
TOTAL N1 to N7	116	
Qualified research supervisors (HDR) or similar positions	11	

Unit record	From 01/01/2011 to 30/06/2016
PhD theses defended	46
Postdoctoral scientists having spent at least 12 months in the unit	59
Number of Research Supervisor Qualifications (HDR) obtained during the period	11

2 • Assessment of the unit

Global assessment of the unit

The level of research at ISIS is outstanding at any scale. This institute represents a gemstone not only in the French landscape, but also on of the arena of international science. Indeed, it is an international entity, comparable to only few high-profile research institutes, such as the Medical Research Council Centre Cambridge (MRC) and The Scripps Research Institute (TSRI) in California. We all know that such institutions become powerhouses not only in terms of science but also in terms of economy and society. All research groups at ISIS are very creative, productive, driven by outstanding imagination, courageous hypotheses and exploitation of unexpected discoveries. The productivity is incredible in terms of both quality and quantity, in short, it is the *Crème de la Crème*.

These findings lead to important conclusions and decisions to be made on the national level because ISIS represents a strong national interest of the République Française:

1. ISIS enjoys a glorious past and should secure an even brighter future. The past and current achievements should be leveraged to achieve higher goals. From this respect, ISIS is not different from any business enterprise. One consequence of this strategy is the need to preserve its successful faculty members and keep them satisfied and happy, particularly with respect to the funding situation. Science is a very competitive international enterprise and excellent scientists are constantly being approached with attractive offers made by the competitors. Thus, it is a strong interest of ISIS to prevent departure of its scientists to other research centers. It is important to maintain the stability, reputation and moral environment within the ISIS family because satisfied researchers are highly innovative and productive;
2. it is a strong national interest to establish additional research institutes using ISIS as a model, simply because this is probably the best possible investment in science, which provides the best possible returns. Centers like ISIS benefit the national economy by creating high-quality jobs and boosting economic growth. More importantly, such investments create more human capital, more talents, more start-up companies, and inspire the younger generation to choose careers in science and technology. In Israel, for example, academic innovation has created many patents, technological activity, many start-up companies and attracted huge foreign investments. This strategy is very different from the old paradigm of people going to universities in order to fit into an existing job market. Graduates of institutes like ISIS create new jobs on the basis of their new technologies;
3. ISIS is underfunded by the French authorities. It is quite disturbing that most of the funding comes from outside France, mainly from the European Community. This paradigm should be corrected. Locally, the IDEX and Labex funding does not seem to properly solve the needs of all research groups, certainly not the most successful ones. We feel that ANR-funding is dramatically underrepresented among the funding sources of ISIS;
4. it is a strong national interest to saturate all research labs at ISIS with the highest possible number of Ph.D. students. The current situation of understaffed labs in terms of graduate students should be corrected. It seems that the current situation reflects both administrative hurdles and insufficient funding. No matter what are the reasons for this situation, the national and local research authorities should maximize the number of students in all labs because this would create human capital for the benefit of the entire country. Every student who could be trained in ISIS would become a national asset;
5. the lab space seems appropriate for the current number of research groups and it is expected to grow with the establishment of the new building;
6. technical support by permanent staff of engineers and technicians should be increased to satisfy the needs of graduate students and postdoctoral fellows, in particular in view of the increasing capacity with the new building in terms of space and personnel;
7. the language difficulties might be alleviated by providing all materials and courses also in English;
8. it is not clear how ISIS plans to repair, renovate and replace aging equipment. Again, it is a budget problem and these tasks cannot be easily done by individual laboratories. The problem should be solved on the institutional level;

9. as we know, in the USA and Israel much infrastructure and most buildings, as well as specific research and fellowship programs are funded by philanthropic donations. Although ISIS is part of the University of Strasbourg, the university may consider awarding ISIS some independence in philanthropic fundraising. We feel that leveraging the outstanding public stature of ISIS as an international hub of innovative science and home of Nobel Prize Laureates could attract substantial gifts from the private sector.