



## FNR ANNUAL REPORT

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*The Luxembourg National Research Fund (FNR) is the main funder of research activities in Luxembourg. The FNR invests public funds and private donations into research projects in various branches of science and the humanities, with an emphasis on selected core strategic areas. Furthermore, the FNR supports and coordinates activities to strengthen the link between science and society and to raise awareness for research. It also advises the Luxembourg government on research policy and strategy.*



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REPORT  
LUXEMBOURG  
NATIONAL  
RESEARCH  
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## LET US CONTINUE TO ENSURE AND PROMOTE EXCELLENCE IN RESEARCH AND TO BUILD BRIDGES TO SOCIETY

### Dear Reader,

2019 was the year we celebrated the 20th anniversary of the Luxembourg National Research Fund (FNR). Since its creation back in 1999, the FNR has played an essential and leading role in the development of this vibrant research ecosystem that Luxembourg can now call its own, driving the national strategy and keeping high the standards of excellence in research.

Twenty years is not a long time when it comes to research - some projects can take half that time from conception to completion. But if we consider the development of the FNR since its humble beginnings in 1999, we can agree that all those associated with the FNR can be satisfied with the progress of quality research in Luxembourg over the past two decades. The FNR has also significantly contributed to build bridges between the Luxembourg research system and the private sector as well as with the international scientific community.

In these twenty years, the FNR has committed some 710 million Euros to 3870 research projects. This represents a considerable amount of work, requiring expertise, commitment and determination. The FNR has been able to gain the trust of its partners and beneficiaries, thanks certainly to the qualities just mentioned. This recognition is the fruit of the work of the dedicated FNR team, and we would like to take advantage of this column to thank each one of them and congratulate them on the work accomplished. The curious Reader may jump to page 43 to see our whole team.

In these twenty years, the FNR has also achieved a leadership position in Luxembourg for the promotion of science to the public, as the organizer of science fairs,

educational programmes, as co-producer of a popular science shows on the national TV channel and as creator and coordinator of the science.lu website.

There are still many challenges ahead. Research can be one of the driving forces behind the future development of our society. At the time we are writing these lines, we are amidst a major pandemic, and research has quite suddenly been put into the spotlights. This global sanitary crisis has shown the valuable contribution that science can bring to society. In an unprecedented way, scientists from all over the world have been, and continue to collaborate in order to understand the novel Coronavirus, to find treatments and – hopefully – a vaccine. Scientists share their expertise and knowledge with the broader public and they communicate with political decision makers to help them making evidence-informed decisions. This also illustrates another important mission of the FNR, that of promoting an open dialogue between the science community and decision-makers.

Let us continue to ensure and promote excellence in research and to build bridges to society - the FNR has succeeded in both over the last twenty years and I am sure that we will continue to work with determination and success on the application of both over the next twenty years.

*Marc Schiltz, Executive Head*  
*Véronique Hoffeld, Chair of the Board*  
*Martine Reicherts, Chair of the Board*  
*Thierry Wolter, Vice-Chair of the Board*



1



2



3



4

1. Marc Schiltz
2. Véronique Hoffeld
3. Martine Reicherts
4. Thierry Wolter

# OBJECTIVES STRATEGY, POLICY

02



# OBJECTIVES, STRATEGY, POLICY

*Luxembourg National Research Fund*  
*Research with impact*

## WHAT WE DO

The Luxembourg National Research Fund (FNR) is the main funder of research activities in Luxembourg. The FNR invests public funds and private donations into research projects in various branches of science and the humanities, with an emphasis on selected core strategic areas. Furthermore, the FNR supports and coordinates activities to strengthen the link between science and society and to raise public awareness for research. It also advises the Luxembourg government on research policy and strategy.

## OUR VISION

To establish Luxembourg as a leading knowledge-based society through science, research and innovation, thereby contributing to the country's economic diversification and future prosperity.

## OUR MISSION

To set up a sustainable world-class research system in Luxembourg that will generate societal and economic impact in key strategic areas.

## OUR STRATEGIC PRIORITIES

The FNR aims to be a driving force for Luxembourg's innovation capabilities and focuses on the three following strategic objectives to foster research with impact:

- Attaining scientific leadership in key areas**  
 By setting the highest quality standards, the FNR contributes to establishing international research excellence in Luxembourg. By attracting and training the most talented scientists, the FNR helps to build critical mass in key research areas, thereby supporting economic development and societal progress.
- Turning public research into a competitive advantage for Luxembourg**  
 The FNR supports the advancement of Luxembourg's knowledge-based economy by supporting industry-informed research, by reinforcing co-operation between public research and innovative industries and by facilitating the commercial exploitation of research results.

- Anchoring Science and Research in Society**

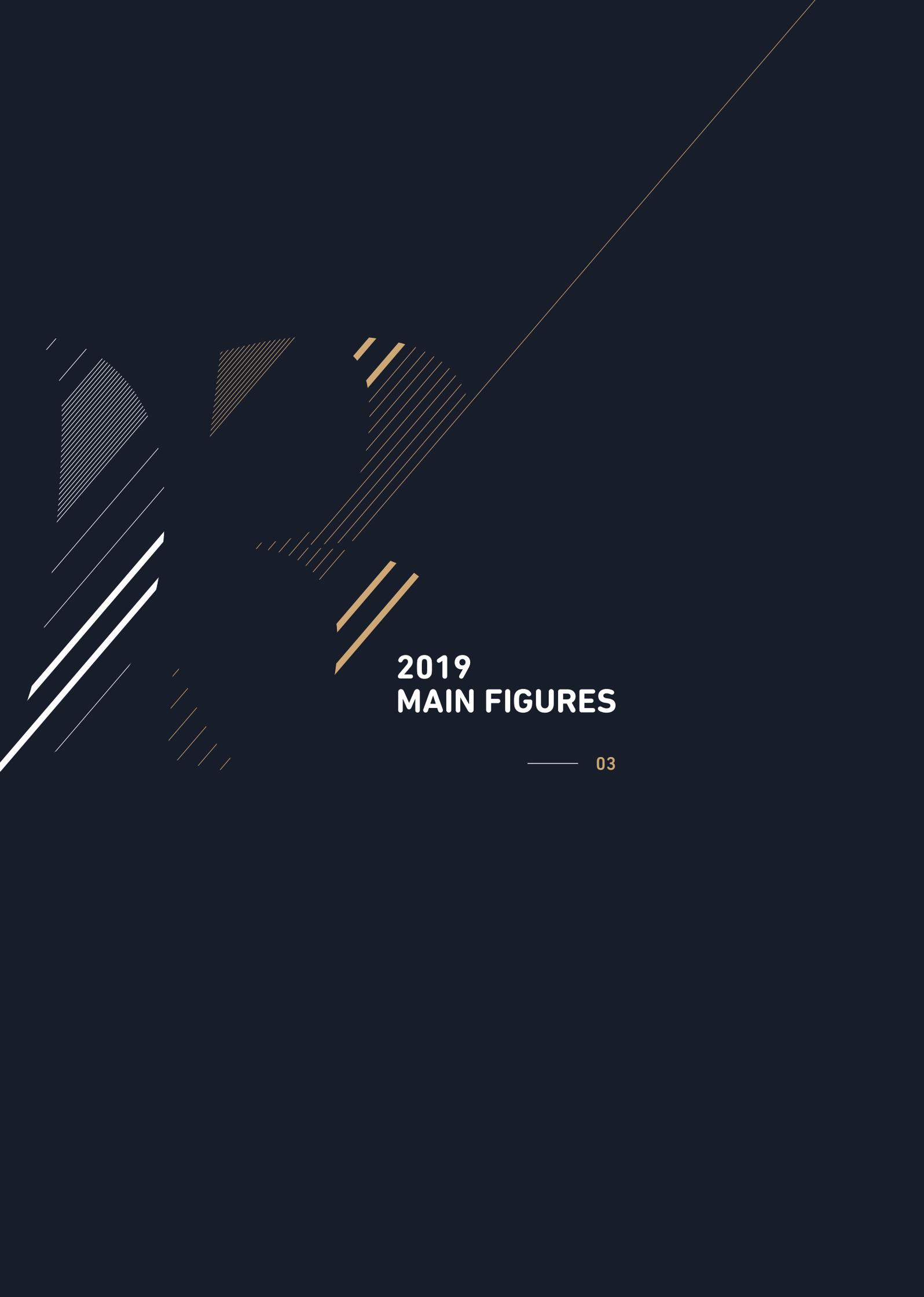
The FNR promotes the active involvement of researchers and scientists in addressing current and future societal challenges. To ensure that research is established sustainably in the public consciousness as an important pillar of Luxembourg's knowledge society, the FNR supports an active exchange between scientists and the public at large.

## HOW WE WORK

Our most highly valued criteria are excellence and quality in research. In order to identify the most promising and most excellent projects and researchers, we systematically submit funding requests to an assessment by independent international experts. The FNR implements the "Principles of Scientific Merit Review", which embody the highest international standards of expert assessment, transparency, impartiality, confidentiality and integrity.

## OUR CORE VALUES

- Towards researchers and research institutions**  
 We implement a fair and transparent process in our decision taking and nurture an open dialogue with the scientific community.
- Towards the government, tax-payers and donors**  
 We are accountable for the usage of funds that we are entrusted with and we strive for efficiency in our operations.
- Towards the general public**  
 We care for the long-term interest of the country and consider engagement with society as a constitutive part of science.
- Towards our collaborators**  
 We aim to stimulate talent-development and competence building of our staff, who translate the FNR's vision, mission and core values into action.



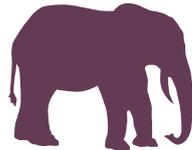
# 2019 MAIN FIGURES

03

## 2019 MAIN FIGURES



YEARS FNR



40

NEW  
CORE  
PROJECTS

18

INTERNATIONAL BILATERAL  
COOPERATION AGREEMENTS  
RUNNING IN 12 COUNTRIES  
WORLDWIDE IN 2019

671

PROJECTS EVALUATED

217

FUNDED PROJECTS

1,097

REALISED EXPERTISES

209

FINISHED PROJECTS

580

RUNNING PROJECTS  
(\*31.12.2019)



1

NEW ATTRACT FELLOW



1

NEW FNR PEARL CHAIR



EARLY CAREER GRANTS

21.86

MEUR COMMITTED TO  
INTERNATIONAL PROJECTS



32

NEW INDUSTRIAL  
FELLOWSHIP  
& BRIDGES GRANTS



30

NEW PSP -  
PROMOTING SCIENCE  
TO THE PUBLIC PROJECTS



12

RESCOM  
CONFERENCES,  
WORKSHOPS  
& LECTURE  
SERIES FUNDED

12,000

visitors @ Science Festival

61.64

MEUR NEW  
COMMITTED



**2019**  
**ACTIVITY REPORT**

— 04

# 2019 ACTIVITY REPORT

*In 2019, the FNR celebrated its 20<sup>th</sup> anniversary of creation.  
A number of events and activities took place under that label.*

## I. MAJOR PROJECTS

The FNR finalised the “Revision of national priorities for public research”<sup>1</sup> report in close consultation with Ministry for Higher Education and Research. After discussions with international experts, researchers, research institutions and national stakeholders, the FNR’s proposal for new priorities was sent to the Ministry in April. Further consultations took place with other Ministries. The final National Research Priorities<sup>2</sup> are part of the “National Research and Innovation Strategy for Luxembourg”<sup>3</sup>, which approved by the Government in December 2019. The new set of national priorities will be incorporated into FNR’s calls for projects from 2020 onwards.

Over the past two years, the FNR CEO had set up regular meetings (4 times per year) with the CEOs of all research institutions (University, LIH, LIST, LISER) to coordinate strategic actions on a national level and to exchange on strategic and policy issues. This group was formalized as part of the National Research and Innovation Strategy for Luxembourg into a *Strategic Steering Group (SSG)*, now chaired by the Ministry. The initiative « Research Luxembourg » has been set up as a joint endeavour to promote Luxembourg research at the an international level. Similarly, a joint Workig Group has been set up to define a national action plan for promoting gender equality in research.

In an effort to achieve an increase in the number of women in leadership roles in the academic and research

sector, the FNR had introduced the condition that at least 40% of submissions for the ATTRACT programme come from female applicants for the period 2017-2021 (30% for PEARL). After three calls, this condition remains a long way from being fulfilled. Hence, for the ATTRACT 2020 and subsequent calls, the FNR has introduced the requirement of gender parity (by the institution) for the submission of dossiers.

In July, the FNR and the C<sup>2</sup>DH announced the recruitment of Professor Dr Sean Takats, an internationally renowned expert on digital history, backed by an FNR PEARL Chair. Professor Takats’ PEARL project aims to transform historical research practises to meet the demands of the digital age and establish Luxembourg as one of the global leaders in digital history research and development. The project named DHARPA (Digital History Advanced Research Projects Accelerator) will assess the impact of technology on historical research, and it will experiment with how technology can reshape the methodological underpinnings of history as a scientific discipline.

In October, Professor Gilbert Fridgen has been appointed the inaugural PayPal-FNR PEARL Chair in Digital Financial Services which will allow him to conduct scientific research at the digital transformation of financial services and the intersection of finance and technology. This unique funding through PayPal and the FNR PEARL programme has an initial duration of five years.

<sup>1</sup> <https://www.fnr.lu/prio-fnr-propositions-government/>

<sup>2</sup> <https://www.fnr.lu/national-research-priorities-for-luxembourg-approved/>

<sup>3</sup> [http://www.mesr.public.lu/presse/communiqués/2020/FEVRIER-2020/Presentation-de-la-strategie-nationale-de-la-recherche-et-de-l\\_innovation1/09711\\_MESR\\_SnRI\\_Broch\\_en\\_WEB\\_002\\_.pdf](http://www.mesr.public.lu/presse/communiqués/2020/FEVRIER-2020/Presentation-de-la-strategie-nationale-de-la-recherche-et-de-l_innovation1/09711_MESR_SnRI_Broch_en_WEB_002_.pdf)

It is jointly supported by PayPal and the Luxembourg National Research Fund (FNR) and hosted at the Interdisciplinary Centre for Security, Reliability and Trust (SnT) of the University of Luxembourg. Gilbert Fridgen is a renowned expert in blockchain, systems engineering and information technology platform development, with extensive and very successful experience with private-public partnerships. He is founder and co-director of the Fraunhofer Blockchain Lab.

The FNR published the results of the opinion poll on the perception of science and scientific research, the detailed results of which are available at [fnr.lu](http://fnr.lu). The survey observed a steady rise of interest in science and scientific research. Approximately 61% of the population say they are interested in science and research in Luxembourg. This overall score has risen by 18 percentage points compared with 2013. The population has a very positive view (68%) of research that raises knowledge, even if it does not have an immediate impact. A clear majority (77%) believe that even a small country like Luxembourg should carry out scientific research.

Since 2013, the recognition level of the FNR has risen by nine percentage points up to 70%.

The second edition of "Pairing scheme - Politics meets Research" project, initiated in 2016, was organised in 2019. It has been carried out in close cooperation with Parliament (*Chambre des députés*). Following a call for candidates, 13 'couples' were formed - each comprising a researcher and a Member of Parliament. The 'pairs' meet at least twice in their respective professional environments. The objective was to establish sustainable links between the world of politics and research. Tracy Brown, director of the NGO Sense about Science was invited to the closing ceremony of this second edition at the Parliament, to give a keynote speech on why evidence matters in political decision making.

In December, the FNR co-organised the 12<sup>th</sup> edition of the Science Festival, a four days festival taking place in the Neumünster Abbey and the Natural History Museum in Luxembourg City. During four days scientists, researchers, science communicators and the audience had the opportunity to communicate with each other and to experiment. With 56 experimental workshops, 7 interactive shows and 2 exhibitions, the Science Festival invited young and old to participate in the experiments and presentations actively. Some 12.000 people participated in this 12<sup>th</sup> edition.

The FNR continues to be a very active organisation on the European and international level, through its engagement with partner research funding agencies and its participation in international associations, and its contribution to international research policy networks. On 27<sup>th</sup> November, the FNR CEO Marc Schiltz was re-elected for a second 2-year term as President of Science Europe, the European association representing the main national research funding and performing organisations. He was also re-elected on the Governing Board of the Global Research Council, which comprises the Heads of research funding bodies from around the world.

In May, the auditor recommended maintaining the ISO 9001: 2015 certification (No. 9108637133, [www.tuv.com](http://www.tuv.com)) for quality management systems.



## II. FNR GOVERNANCE

### Board of Directors

The Board of Directors held five meetings in 2019, chaired by Ms. Véronique Hoffeld.

The *Chairmanship* (Ms. Véronique Hoffeld, Mr. Thierry Wolter and Mr. Marc Schiltz) met five times during 2019.

The *Audit and Finance Committee* of the Board of Directors (comprising Ms. Andrée Billon and Mr. Roger Assacker) held four working sessions, three of which by written procedure.

The *Appointments and Remuneration Committee* of the Board (comprising Ms. Véronique Hoffeld, Mr. Thierry Wolter and Ms. Christiane Hoffmann) met twice in 2019.

Mr. Romain Martin succeeded to Mr. Robert Kerger as *Government Commissioner for the FNR* on 1<sup>st</sup> July 2019. The Government Commissioner attends all meetings of the Board of Directors in an advisory role.

On March 29<sup>th</sup>, the Board of Directors and the Scientific Council held a joint meeting to discuss the final FNR recommendation for the National Research Priorities document that the FNR sent to the Ministry of Higher Education and Research in April 2019.

A new Board of Directors was appointed as of 1<sup>st</sup> December 2019. Ms. Martine Reicherts was appointed Chair of the Board and Mr. Thierry Wolter was renewed for a second term as Vice-chair. The new Board members are:

- Martine Reicherts (Chair), former Director General at the European Commission;
- Thierry Wolter (Vice-chair), Member of the Executive Committee, Ceratizit, Luxembourg.
- Tania Brugoni, Director, 1535° Creative Hub, Luxembourg;
- Stéphanie Damgé, Director, Jonk Entrepreneuren Luxembourg ASBL;

- Jean-Marc Fandel, expert advisor, scale up, Luxembourg;
- Yves Fromes, doctor and research director, Laboratoire de RMN CEA-Institut de Myologie, France;
- Anouk Hilger, Director of Renewable Energy, Enovos, Luxembourg;
- Isabelle Schlessler, Director, ADEM, Luxembourg;
- Richard Sedrani, Director, Novartis, Switzerland;

### Scientific Council

The FNR's Scientific Council met twice in 2019, chaired by Mr Yves Fromes. In addition, a joint meeting with the Board of Directors was held on March 29<sup>th</sup>.

### General Management

The Executive Management Team holds fortnightly meetings under the leadership of Mr. Marc Schiltz. A total of 14 Decision-making sessions took place in 2019.

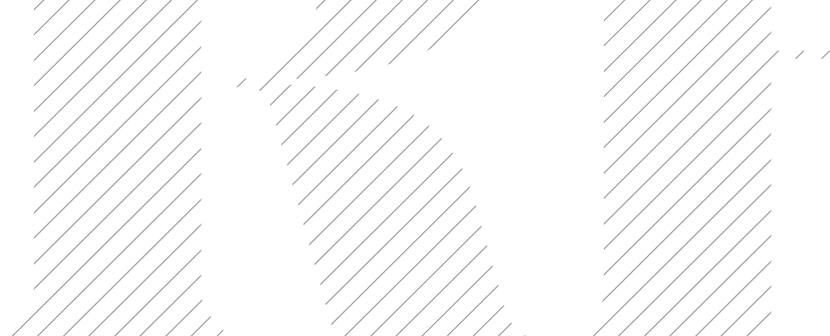
## III. PROGRAMMES<sup>4</sup> AND PRIORITY ACTIONS

The activities carried out during the year for the strategic objectives laid down in the multi-annual agreement are summarised as follows:

### STRATEGIC OBJECTIVE 1: Strengthening the foundations

- Focus on research priorities and ensure strategic alignment
- Attract and nurture talents
- Foster international cooperation

<sup>4</sup> In-depth information on the FNR's different financing instruments (CORE, OPEN, INTER, etc.) is available on the [www.fnr.lu](http://www.fnr.lu) website.



The report on the Assessment of the National Quality framework for Doctoral Training was finalized and presented in the Board. The FNR implemented key recommendations for Doctoral training Units in the 2019 PRIDE Call.

The FNR co-organized the National PhD Welcome Day on 21<sup>st</sup> November 2019. This annual event, brings together all newly hired PhD students in Luxembourg.

The FNR provided grants for young researchers to participate in the 2019 Lindau Nobel Laureate Meeting and in the STS Forum Young Leaders' Program in Kyoto.

#### **CORE**

The FNR received 131 proposals, 123 of which were eligible. After evaluation by independent international experts, the FNR selected 40 projects for funding (including 17 "CORE Junior" proposals and 4 proposals within the framework of bilateral international cooperation), amounting to EUR 22.6 million. The five international selection panels confirmed that the selection process is being implemented according to the highest international standards.

#### **OPEN**

The FNR received 12 proposals, all of which were eligible. After an assessment by international experts, the FNR selected 4 projects, which were given a total of EUR 2.3 million in funding.

#### **INTER**

The FNR assessed 188 proposals and granted funding to 19 projects (13 bilateral, 6 multilateral) for a total of EUR 7.1 million. There was no project selected as part of the AAL and EUROSTARS programmes.

Furthermore, the FNR evaluated 16 INTER-Mobility proposals, of which 7 were selected for a total of EUR 500,000.

As part of the Fulbright programme, 2 projects were granted funding amounting to EUR 30,000.

Within the framework of international cooperation, 6 bilateral collaborations have been renewed (EMBL, ANR, RIKEN, FNRS, FWO and NCBR). A first call from ERANet CORE-ORGANIC (Susfood) was launched in autumn 2019.

In July, the "RIKEN Outpost Labs" in Luxembourg were inaugurated. RIKEN is the largest Japanese Research organisation and the FNR has been supporting the collaboration with Luxembourg since 2015, through the funding of several PhD positions at LCSB and LIH as well as through funding of exchange stays in Japan and Luxembourg of several scientists.

The FNR participated in the 2019 Annual Meeting of the Global Research Council that took place on 1–3 May 2019 in São Paulo, Brazil, with a focus on 'Addressing Expectations of Societal and Economic Impact'. Over 150 delegates attended the Annual Meeting with over 60 Heads of Research Councils participating from around 50 countries to share good practices and discuss research funding policy issues.



**RESCOM**

The FNR assessed 16 proposals, 12 of which were retained for a total budget of EUR 400,000.

**OPEN ACCESS**

The FNR evaluated and retained 2 proposals for a total budget of EUR 14,000.

**AFR**

The panel of experts assessed a total of 119 eligible proposals, 30 of which were retained for a total budget of EUR 5.6 million.

**PEARL**

As part of the 2018 PEARL call for projects, three PEARL projects were submitted, one of which was selected and received EUR 3.1 million in funding in 2019: Dr Sean Takats' project (University of Luxembourg/C<sup>2</sup>DH). The recruitment process for the "PayPal-FNR PEARL Chair in Digital Financial Services" was finalised in 2019 with the arrival of Professor Gilbert Fridgen (University of Luxembourg), who will start in January 2020.

**ATTRACT**

In 2019, four (male) candidates applied for the ATTRACT programme. The FNR selected one candidate, Dr Thomas Cauvin (University of Luxembourg/C<sup>2</sup>DH) for a financial contribution of EUR 2 million. In mid-2019, the 2020 call was launched (incorporating the conditions of gender parity and co-financing). At the end of 2019, five preliminary projects were received (three submitted by men, two by women), of which four were invited to submit a developed project. The evaluation process will continue until spring 2020.

**PRIDE**

In summer 2019, the third PRIDE call was launched. Based on the final report of the external evaluation of the implementation of the "National Quality Framework for Doctoral Training", a number of recommendations, concerning doctoral training and supervision, have been incorporated into the new guidelines. At the end of 2019, nine proposals were submitted by Doctoral Training Units (DTU). The evaluation process will continue until spring 2020.

**NCER-PD - National Centre of Excellence in Parkinson Disease Research**

At its meeting in January 2019, the steering committee confirmed the very positive progress of the research competence centre "NCER-PD", and approved the funding of the second phase for an amount of EUR 6 million. Please note that the steering committee will be changed to a "Scientific Advisory Board".

## **STRATEGIC OBJECTIVE 2:** **Shaping a shift in Luxembourg**

- Stimulate knowledge transfer and entrepreneurship through cooperation with economic and societal actors
- Anchor Science in Society

### **JUMP (Proof of Concept (PoC), Pathfinder)**

The FNR assessed 20 Pathfinder proposals and granted funding to 13 projects, totalling EUR 500,000.

The FNR evaluated 14 Proof of Concept proposals and granted funding to eight projects, totalling EUR 1.7 million.

### **Knowledge & Innovation Transfer Support (KITS)**

As part of the KITS programme, a project was evaluated and retained for an amount of EUR 300,000.

### **BRIDGES and Industrial Fellowships**

A total of 27 BRIDGES projects and 24 Industrial Fellowship projects were evaluated. 17 BRIDGES projects, receiving EUR 5.7 million in funding, and 15 Industrial Fellowships projects, receiving EUR 2.7 million in funding, were selected after evaluation.

### **IPBG**

As part of the "Industrial Partnership Block Grant" (IPBG) programme, launched in 2016, a request was made by the SNT and SES, the evaluation of which took place at the end of the year. The financing of this project is budgeted for 2020.

### **Public2**

There was no programme call in 2019. Various discussions have been held with the Ministry of Agriculture and the Ministry of Defence with a view to launch joint calls for co-financing research projects.

## **INITIATE**

As part of the INITIATE pilot programme, launched at the end of 2019, a request in the field of digital health (CLINOVA) was assessed and received EUR 300,000 in financing.

## **PSP**

PSP-Classic: the FNR evaluated 38 project proposals and granted funding to 30 projects for a sum of EUR 700,000.

PSP-Flagship: a new call was closed in September 2019. Three projects have been submitted and are under evaluation.

## **Science in Society**

To strengthen the exchange between researchers and society, the FNR has taken the following steps:

**Events:** In collaboration with the National Museum of Natural History (MNHN), the FNR co-organised the 12<sup>th</sup> Science Festival at the Neumünster Abbey with 56 workshops, 7 shows, 2 exhibitions - the event attracted around 12,000 visitors. As part of the "Chercheurs à l'école" initiative, 101 researchers visited 56 classes in 30 high-schools in Luxembourg. The "Pairing Scheme" took place for a second time, with 13 researcher-politician couples. The FNR also launched the "Evidence Matters" project with the NGO Sense about Science and the Irish Science Foundation. In May 2019, the FNR invited the famous German YouTuber and moderator Mai-Thi Nguyen-Kim for a speech (160 participants) and training (27 participants) as part of the cooperation between the FNR and Wissenschaft im Dialog for the FastForward Science competition. Finally, the FNR organised a second "Science Communicator Networking Event" which brings together all stakeholders in the field of scientific communication in Luxembourg; 60 participants took part.

**Media:** In 2019, the FNR renewed its existing "Mr Science" media partnerships with RTL Télé Lëtzebuerg, RTL Radio and Eldorado. The science.lu website continues to attract and retain readers. Since its launch, it has gained

more than 2,500,000 views and 1,300,000 unique visitors to the website; it also has almost 24,000 Facebook fans, 1,100,000 views on YouTube, 1,200 followers on Twitter and 1,500 on Instagram. In 2019, the “science.lu” media partnership with Radio 100.7 was renewed and three new partnerships with RTL Today, RTL 5 minutes and the Lëtzebuerger Journal were launched.

**Training:** The FNR offered 14 training courses (for researchers, teachers, educators) in the field of scientific communication and popularisation, including a new training course for primary school teachers which was set up in cooperation with SCRIPT on the basis of a new section - science.lu “Ideas for teaching science at basic school”. The latter is now offered through IFEN.

#### **FNR AWARDS 2019**

For the eleventh consecutive year, the research and innovation community met in the Halle des poches à fontes in Belval to reward the best researchers and scientific mediators in the country, as well as their respective institutions. During this 11th FNR Awards, the Fonds National de la Recherche (FNR) awarded six prizes for excellence. These prizes were awarded in the categories “Outstanding Scientific Publication”, “Outstanding PhD Thesis” and “Outstanding Promotion of Science to the Public”; each winner received EUR 5,000.

#### **Promotion of FNR activities**

The FNR regularly communicates via its website [fnr.lu](http://fnr.lu) as well as via its digital channels (LinkedIn, Twitter, Facebook and FNRInfo), to inform the scientific community and the general public about its activities, as well as the results of Luxembourg research. By way of example, the miniseries “Spotlight on Young Researchers” displays portrait-interviews on [fnr.lu](http://fnr.lu) that highlight early-career researchers across the globe, with a connection to Luxembourg. In November, the FNR organised its first hybrid event, mixing science and theatre (The House of Frankenstein). This event brought together citizens and researchers in order to encourage dialogue between these two groups.

The FNR actively supports the project to create a common brand for Luxembourg public research « Research Luxembourg », a project initiated by public research stakeholders with the aim of promoting the project at international level.

#### **STRATEGIC OBJECTIVE 3: Promoting Innovation in Strategic Research Management**

- Become an innovative Agency

An strategic plan on Innovation within the FNR has been developed and will be presented to the Board in 2020.

We have started to build up in-house competences in the field of Science of Science and Innovation Policy. Dr. Cindy Lopes-Bento has a joint appointment at FNR and at KU Leuven university. She is an expert on quantitative assessment of science and innovation strategies and policies. At FNR, she will set-up the infrastructure and analytical tools to perform more rigorous monitoring and assessment of the outcomes and impact of Luxembourg research efforts.

FNR has started a collaboration with the Swiss publisher Frontiers to use advanced AI tools for the selection of Experts and reviewers.

Various upgrades of our information systems have started and will continue over the next two years.

The background features a dark blue gradient with abstract geometric patterns. These patterns consist of various line styles: thin white lines forming a grid-like structure on the left, and thicker gold lines forming diagonal stripes and clusters on the right. The overall aesthetic is modern and technical.

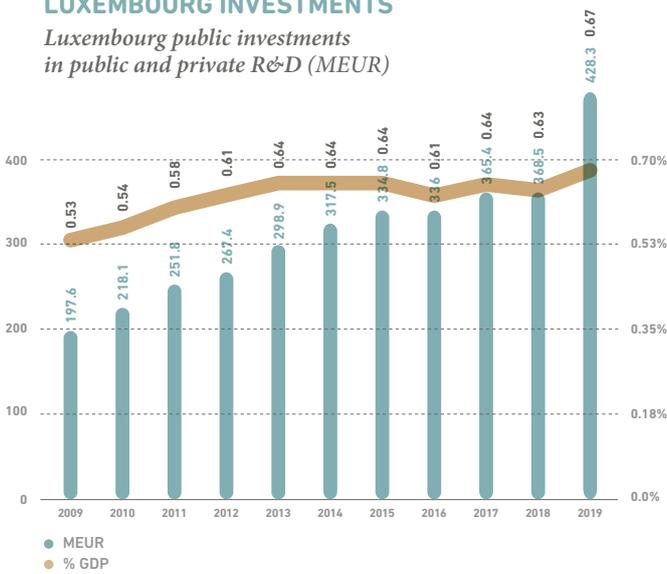
# STATISTICS

— 05

# STATISTICS

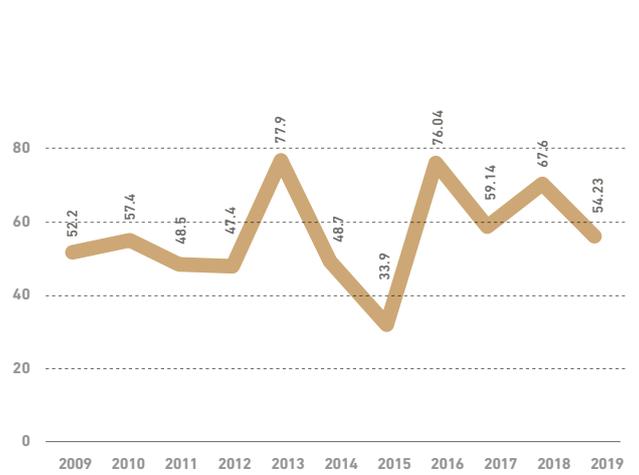
## LUXEMBOURG INVESTMENTS

Luxembourg public investments in public and private R&D (MEUR)



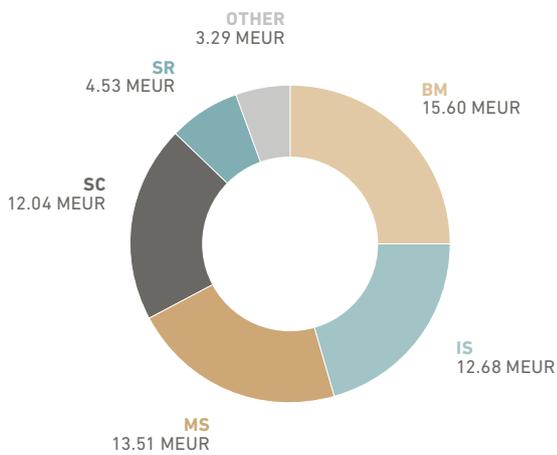
## FNR FUNDING

FNR: Annual funding commitments (MEUR)



## FNR COMMITTED 2019:

per domain



**MS** New Functional and Intelligent Materials and Surfaces and New Sensing Applications

**BM** Biomedical Sciences/Regulation of Chronic, Degenerative and Infectious Diseases

**SR** Sustainable Resource Management in Luxembourg

**IS** Innovation in Services

**SC** Societal Challenges (LM+ID)

## FNR NEW COMMITTED 2019

<b>108 FNR-funded projects</b>	<b>51.626 (MEUR)</b>
<b>40 CORE Projects</b>	<b>22.636</b>
<b>1 PEARL Project</b>	<b>3.086</b>
<b>1 ATTRACT Project</b>	<b>2.000</b>
<b>1 NCER Project</b>	<b>6.000</b>
<b>19 INTER Projects</b>	<b>7.064</b>
<b>8 JUMP (POC) Projects</b>	<b>1.676</b>
<b>13 JUMP (Pathfinder) Projects</b>	<b>0.515</b>
<b>1 KITS Project</b>	<b>0.349</b>
<b>1 INITIATE Project</b>	<b>0.250</b>
<b>4 OPEN Projects</b>	<b>2.298</b>
<b>2 OPEN ACCESS Project</b>	<b>0.014</b>
<b>17 BRIDGES (CORE PPP) Projects</b>	<b>5.738</b>
<b>0 IPBG Projects</b>	<b>0.00</b>
<b>0 PUBLIC2 Projects</b>	<b>0.00</b>

<b>30 PSP   7 INTER MOBILITY   12 RESCOM   6 AWARDS   9 ART 3.5</b>	<b>1.738 (MEUR)</b>
<b>30 PSP Classic</b>	<b>0.681</b>
<b>0 PSP Flagship</b>	<b>0.00</b>
<b>7 INTER-MOBILITY</b>	<b>0.524</b>
<b>6 AWARDS</b>	<b>0.030</b>
<b>9 ART 3.5</b>	<b>0.071</b>
<b>12 RESCOM</b>	<b>0.432</b>

<b>45 Early Career Grants</b>	<b>8.277 (MEUR)</b>
<b>30 AFR PhD Grants</b>	<b>5.16</b>
<b>15 INDUSTRIAL FELLOWSHIP</b>	<b>1.841</b>
9 AFR-PPP	
6 AFR-PDR-PPP	<b>0.861</b>
<b>0 AFR Bilateral</b>	<b>0.00</b>
<b>0 PRIDE</b>	<b>0.00</b>

## FNR NEW COMMITTED 2014-2019

<b>499 FNR-funded projects</b>	<b>254.45 (MEUR)</b>
<b>209 CORE Projects</b>	<b>121.66</b>
<b>5 PEARL Project</b>	<b>19.72</b>
<b>10 ATTRACT Project</b>	<b>18.04</b>
<b>1 NCER Project</b>	<b>6.00</b>
<b>118 INTER Projects</b>	<b>44.83</b>
<b>43 JUMP (POC) Projects</b>	<b>11.28</b>
<b>33 JUMP (Pathfinder) Projects</b>	<b>1.32</b>
<b>9 KITS Project</b>	<b>2.92</b>
<b>1 INITIATE Project</b>	<b>0.25</b>
<b>14 OPEN Projects</b>	<b>7.13</b>
<b>3 OPEN ACCESS Project</b>	<b>0.0155</b>
<b>49 BRIDGES (CORE PPP) Projects</b>	<b>17.61</b>
<b>1 IPBG Projects</b>	<b>2.68</b>
<b>3 PUBLIC2 Projects</b>	<b>1.01</b>

<b>248 PSP   65 INTER MOBILITY   105 RESCOM   12 AWARDS   21 ART 3.5</b>	<b>14.30 (MEUR)</b>
<b>248 PSP Classic</b>	<b>3.74</b>
<b>7 PSP Flagship</b>	<b>2.70</b>
<b>65 INTER-MOBILITY</b>	<b>4.88</b>
<b>6 AWARDS</b>	<b>0.06</b>
<b>21 ART 3.5</b>	<b>0.21</b>
<b>105 RESCOM</b>	<b>2.70</b>

<b>412 Early Career Grants</b>	<b>104.96 (MEUR)</b>
<b>236 AFR PhD Grants</b>	<b>5.16</b>
<b>54 AFR Postdoc Grants</b>	<b>6.35</b>
<b>92 INDUSTRIAL FELLOWSHIP</b>	<b>11.27</b>
57 AFR-PPP	
35 AFR-PDR-PPP	<b>4.72</b>
<b>13 AFR Bilateral</b>	<b>3.69</b>
<b>17 PRIDE</b>	<b>39.87</b>

## FUNDING AND PROJECTS FIGURES 2019

**197.7**

TOTAL AMOUNT REQUESTED  
IN MEUR

**532**

PROJECTS SUBMITTED IN 2019

**61.64**

NEW COMMITTED BY FNR -  
TOTAL AMOUNT IN MEUR

**201**

PROJECTS FUNDED IN 2019\*

\*WITHOUT ART. 3.5 AND AWARDS

**31.18%**

OVERALL FUNDING  
SUCCESS RATE

**37.8%**

OVERALL PROJECT SUCCESS RATE\*

\*WITHOUT FNR AWARDS & ART. 3.5.

## PUBLIC-PRIVATE PARTERSHIPS



BRIDGES*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
National private partners	5	4	4	3	5	7	2	1	6	9	9	15	70
International private partners	5	4	2	1	2	3	2	2	0	1	7	2	31
<b>TOTAL</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>10</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>10</b>	<b>16</b>	<b>17</b>	<b>101</b>

\*BRIDGES (former CORE-PPP)

IF*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
PhD	1	12	1	10	13	9	7	9	9	15	15	9	110
Postdoc	1	1	0	2	1	1	3	4	7	9	9	6	44
<b>TOTAL</b>	<b>2</b>	<b>13</b>	<b>1</b>	<b>12</b>	<b>14</b>	<b>10</b>	<b>10</b>	<b>13</b>	<b>16</b>	<b>24</b>	<b>24</b>	<b>15</b>	<b>154</b>

\*Industrial Fellowship (former AFR-PPP)

## FUNDING INSTRUMENTS 2006-2019

(Statistics of ongoing instruments)

Launch date	Programme title	number of submitted proposals	number of FNR funded projects	number of finished projects	committed (MEUR)
2006	 <b>ATTRACT</b> Opportunities for Outstanding Young Researchers in Luxembourg	78	19	10	30.10
2006	 <b>INTER</b> Promotion of International Cooperation	1341	203	106	72.18
2008	 <b>CORE</b> Multi-annual Thematic Research Programme	1373	412	233	226.07
2008	 <b>AFR PhD Grants + BFR-AFR Transitions</b>	2165	1100	939	124.94
2008	 <b>AFR Postdoc Grants</b>	756	346	258	31.49
2009	 <b>PEARL</b> Excellence Programme for Research in Luxembourg	27	11	5	46.99
2012	 <b>INTER Mobility</b> Promotion of International Scientific Exchange	186	81	60	4.0814
2012	 <b>RESCOM</b>	263	151	102	3.37
2012	 <b>RESCOM</b> International Scientific Conferences	70	44	21	0.65
2012	 <b>RESCOM</b> Exploratory Workshops	37	15	9	0.16
2012	 <b>RESCOM</b> Lecture Series	32	40	11	0.17
2012	 <b>RESCOM</b> Summer Schools	5	2	0	0.07
2012	 <b>RESCOM</b> Scientific Monographs	65	24	22	0.07
2012	 <b>PSP</b> Promoting Science to the Public	416	337	291	5.06
2012	 <b>JUMP (POC)</b> Proof of Concept	68	45	21	12.86
2013	 <b>OPEN</b> Multi-annual Research Programme	44	16	5	8.13
2015	<b>KITS</b> Knowledge & Innovation Transfer	10	9	2	2.92
2016	 <b>PRIDE</b> Research Intensive Doctoral Education	95	17	0	39.87
2016	 <b>AFR Bilateral</b>	31	13	8	3.69
2016	<b>IPBG</b> Industrial Partnership Block Grant	3	1	0	2.68
2016	 <b>PSP-Flagship</b>	16	6	1	2.33
2016	 <b>BRIDGES (CORE PPP)</b>	75	49	2	17.61
2016	<b>INDUSTRIAL FELLOWSHIP (AFR PhD PPP)</b>	110	48	1	9.57
2016	<b>INDUSTRIAL FELLOWSHIP (AFR PDR PPP)</b>	39	31	0	4.26
2017	<b>PUBLIC<sup>2</sup></b>	7	3	0	1.01
2018	 <b>OPEN ACCESS</b>	3	1	1	0.01
2018	<b>FNR AWARDS</b>	52	6	0	0.06
2018	<b>ART. 3.5</b>	12	12	0	0.21
2018	 <b>JUMP (Pathfinder)</b>	42	20	10	1.33
2019	<b>NCER</b>	1	1	0	6
2019	<b>INITIATE</b>	1	1	0	0.25
<b>TOTAL</b>		<b>7,423</b>	<b>3,064</b>	<b>2,118</b>	<b>651.94</b>

**CORE**

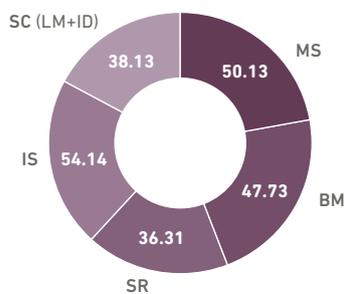
Sum of Committed Funding (in MEUR) / Domain

DOMAIN	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
MS_New Functional and Intelligent Materials and Surfaces and New Sensing Applications	3.40	3.40	4.50	2.90	2.00	6.90	3.32	3.92	4.60	6.17	4.10	4.92	50.13
BM_Biomedical Sciences/Regulation of Chronic, Degenerative and Infectious Diseases	3.20	1.90	5.40	2.80	6.60	3.40	3.42	3.99	4.12	4.50	3.71	4.69	47.73
SR_Sustainable Resource Management in Luxembourg	2.50	4.20	3.00	3.10	4.20	3.50	3.40	2.09	1.90	4.13	1.98	2.31	36.31
IS_Innovation in Services	2.40	3.30	2.70	3.80	3.80	3.80	3.86	5.69	3.82	7.11	6.88	6.98	54.14
SC_Societal Challenges (LM+ID)	2.60	1.40	3.80	2.90	4.20	3.10	2.98	2.10	3.91	2.47	4.94	3.74	38.13
<b>TOTAL</b>	<b>14.10</b>	<b>14.20</b>	<b>19.40</b>	<b>15.50</b>	<b>20.80</b>	<b>20.70</b>	<b>16.98</b>	<b>17.78</b>	<b>18.35</b>	<b>24.38</b>	<b>21.61</b>	<b>22.64</b>	<b>226.44</b>

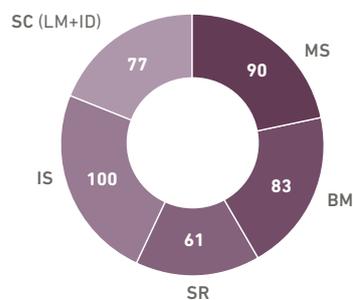
Projects by Domain

DOMAIN	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
MS_New Functional and Intelligent Materials and Surfaces and New Sensing Applications	7	8	8	5	4	10	7	7	8	10	7	9	90
BM_Biomedical Sciences/Regulation of Chronic, Degenerative and Infectious Diseases	7	3	8	5	9	7	7	6	8	8	6	9	83
SR_Sustainable Resource Management in Luxembourg	6	11	5	5	6	4	4	4	3	6	3	4	61
IS_Innovation in Services	8	10	6	7	8	6	8	10	6	11	9	11	100
SC_Societal Challenges (LM+ID)	6	4	9	6	9	5	4	4	7	5	11	7	77
<b>TOTAL</b>	<b>34</b>	<b>36</b>	<b>36</b>	<b>28</b>	<b>36</b>	<b>32</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>40</b>	<b>36</b>	<b>40</b>	<b>411</b>

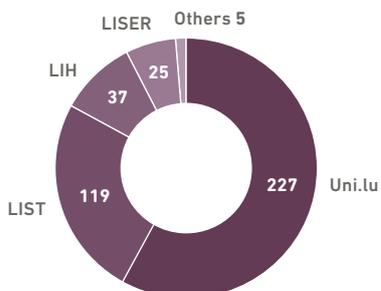
CORE: Funding by domain, between 2008 and 2019 (MEUR)



CORE: Projects by domain, between 2008 and 2019

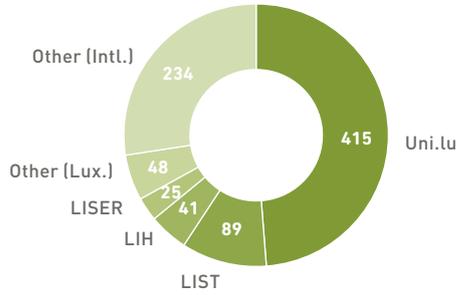


CORE: Projects by institution, between 2008 and 2019

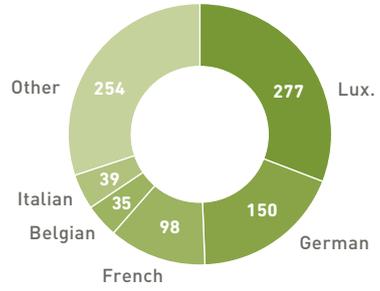


**AFR PHD & POSTDOC GRANTS**

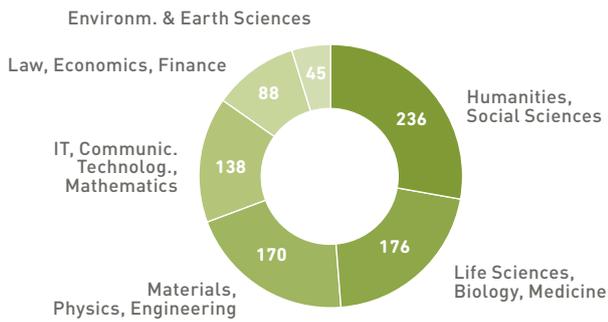
**AFR: PhD Grants per host institution (2008-2019)**



**AFR: PhD Grants by nationality (2008-2019)**



**AFR: PhD Grants by domain (2008-2019)**



## GENDER BALANCE IN RESEARCH: The view from Luxembourg

Gender balance in research is a topic frequently discussed and debated – it is a fact that nearly all countries in Europe have more men than women scientists, and it is also known that the proportion of women generally decreases the higher it goes up the career ladder. We take a look at what the situation is like in Luxembourg – and what the FNR is doing to help change it.

The Luxembourg public research system employs approximately 2,035 researchers<sup>1</sup>, based on the statistics provided for 2015 by the Government. Around one in four researchers are female – putting Luxembourg below the EU average of one in three. These statistics stem from the so-called SHE figures<sup>2</sup> from 2018 – an EU-wide publication edited every three years with data on female researchers' participation.

### Male and female success rates almost identical

As for the FNR's funding instruments, statistics show that the success rate for retained proposals is almost identical between male and female applicants (2007–2015, main FNR programmes). This shows that the evaluation procedure of the FNR does not have any

significant distortions, which was also confirmed in a recent external and independent evaluation of the FNR's CORE selection procedure<sup>3</sup>.

Also, there is a good gender balance in FNR's governing bodies, with 55% female members in the Board and 55% female members in the Scientific Council. 56% of the FNR Team members are female. The FNR expert panels are not yet as balanced (30,7% of 2019 panel members were female), but efforts are being made to increase female participation.

As a member of Science Europe, the FNR is committed to a detailed monitoring of gender statistics across its funding schemes. The FNR is doing well in terms of maternity and parental leave, since researchers funded in the framework of the FNR's various schemes all have employment contracts entitling them to the relatively generous Luxembourg maternity and parental leaves.

### Only 17,7% leading researchers in Luxembourg are female

Progressing in the career and moving up the ladder, Luxembourg ranks 3rd last in Europe with only 17,7% of so-called Grade A positions allocated to women (2016), corresponding to full professorships or senior researchers.



<sup>1</sup> Data by STATEC

<sup>2</sup> SHE Figures 2018

<sup>3</sup> 67,6% of all proposals submitted were from male researchers, 32,4% of all submitted were from female researchers. 67,4% of all proposals retained were from male researchers, 32,6% of all retained proposals were from female researchers.

# BALANCE SHEET

06

The page features a dark blue background with abstract geometric patterns. These patterns consist of various shapes, including triangles and rectangles, filled with diagonal lines. Some of these shapes are filled with white lines, while others are filled with gold lines. The overall effect is a modern, minimalist aesthetic.

The accounts have been audited by Grant Thornton Luxembourg (Audit & Assurance), société anonyme, and approved by the Board of Directors on March 27th, 2020. Only the original French version of the annual accounts and the audit opinion is binding. For the complete annual report (in French), please refer to [www.fnr.lu/annualreports](http://www.fnr.lu/annualreports)

## BALANCE SHEET

As at 31 December 2019 (EUR)

ASSETS	2019
<b>FIXED ASSETS</b>	
● Intangible fixed assets	94,828.52
● Tangible fixed assets	87,921.88
<b>CURRENT ASSETS</b>	
● Budgetary allocations to be received	111,793,760.61
<i>with a maturity less than 1 year</i>	67,290,000.00
● Other receivables	157,370.14
● Cash at bank	89,465,144.71
<b>DEFERRED CHARGES</b>	63,757.87
<b>TOTAL ASSETS</b>	<b>201,662,783.73</b>

LIABILITIES	2019
<b>CAPITAL AND RESERVES</b>	
● Reserves	5,396,297.67
● Result for the financial year	117,705.72
<b>CREDITORS</b>	
● Trade payables	718,911.85
● Tax and social security debts	80,358.71
● Amounts owed to beneficiaries	162,241,486.94
<i>with a maturity less than 1 year</i>	64,810,624.92
● Other debts	303,224.34
<b>DEFERRED INCOME</b>	32,804,798.50
<b>TOTAL LIABILITIES</b>	<b>201,662,783.73</b>

## PROFIT AND LOSS ACCOUNT

As at 31 December 2019 (EUR)

INCOME	2019
● Budgetary allocation	59,431,207.20
● Other operating income	30,528.86
● Commitments made	(54,230,677.74)
● Operating costs (including staff costs)	(5,125,297.39)
● Value adjustments on fixed assets	(74,392.68)
● Interest receivable and similar income	87,176.86
● Interest payable and similar charges	(839.39)
<b>PROFIT FOR THE FINANCIAL YEAR</b>	<b>117,705.72</b>



# FUNDING INSTRUMENTS

— 07

# FUNDING INSTRUMENTS

## STRATEGIC OBJECTIVE 1: Strengthening the foundations

### CORE

CORE is a traditional programme for the funding of research projects. Proposed projects are submitted by the research institutions (*bottom-up* approach) and are part of the national research priorities defined by the Government (*top-down* approach). The projects are selected on the basis of their scientific quality.

### INTER

The objective of the INTER programme is to strengthen international cooperation and increase the impact of research activities in Luxembourg by promoting research projects which combine Luxembourg and foreign researchers. The programme is currently in three segments: (1) the international mobility programme, (2) bilateral cooperation, and (3) multi-lateral cooperation. The projects are selected on the basis of their scientific quality.

### RESCOM (Support for Research Communication)

The objective of the RESCOM instrument is to promote communication and exchange between researchers, notably by subsidising scientific events of an international scope.

### OPEN

The OPEN programme allows researchers to submit research projects whose themes are not covered by the fields of the CORE programme and therefore make it possible to identify research groups which are competitive at international level outside national priorities. The projects are selected on the basis of their scientific quality.

### PEARL

The PEARL programme aims to contribute to developing a truly critical mass and international visibility of research priorities in Luxembourg both in quantitative and qualitative terms. The principal aim of PEARL is to offer a flexible and highly attractive tool to institutions so they can attract more experienced and established researchers who are recognised at international level. These parties will transfer and develop their research programmes to Luxembourg and thereby contribute to accelerating the development of national priorities.

### ATTRACT

The ATTRACT programme aims to strengthen the excellence of Luxembourg research by attracting researchers of an excellent scientific level who are able to draw upon recognised professional experience in research. The programme offers researchers not yet established in Luxembourg the opportunity to set up their own research in a public research body in Luxembourg which is prepared to accommodate them with a jointly submitted project.

### AFR (Aides à la Formation-Recherche) Individual

The AFR programme is one of the FNR's longest-running funding schemes and now serves the specific purpose of providing funding to the best researchers who are studying at doctorate levels. The AFR PhD grant scheme is divided into two sub-categories: AFR PhD in Luxembourg (AFR Incoming) and AFR PhD abroad (AFR Outgoing).

## **PRIDE**

PRIDE is the FNR's programme for funding doctoral research in Luxembourg. Under this programme, a block of PhD grants is awarded to a consortium of excellent researchers grouped around a coherent research and training programme. PRIDE is open to all domains of research and technological development. PRIDE aims at attracting excellent PhD candidates to Luxembourg and offering them a high quality interdisciplinary research training. Compared to the AFR individual grant scheme for PhDs, PRIDE provides greater advantage to institutions and PhD candidates, as institutions are able to immediately offer a full PhD grant to promising candidates, without having to undergo a separate application and selection procedure at the FNR.

## **STRATEGIC OBJECTIVE 2: Shaping a shift in Luxembourg**

### **JUMP (Proof of Concept, Pathfinder)**

The purpose of the valorisation programme is to encourage the transfer of research results into economically viable innovations. The FNR can support feasibility studies and the realisation of prototypes and pilot systems for the purpose of projects with a high level of potential innovation. The project will be selected on the basis of the economic potential of the innovation and the proposed exploitation plan.

### **KITS (Knowledge & Innovation Transfer Support)**

With KITS, the FNR may also support people whose expertise is needed to reflect the transfer of the results of the research into economically exploitable innovative projects.

### **Industrial Fellowship**

The PPP segment of the AFR programme quite specifically supports trainee researchers who carry out their research as part of a cooperation between a public research body and an industrial partner.

### **BRIDGES**

The PPP segment of the CORE programme supports in particular research projects carried out as part of a cooperation between a public research body and an industrial partner.

### **IPBG (Industrial Partnership Block Grant)**

The aim of the IPBG programme is to foster the cooperation between Luxembourg based companies active in R&D and public research institutions in Luxembourg. The IPBG awards a block allocation of PhD and/or Postdoc grants (AFR-PPP) in which Luxembourg-based industry partner(s) take the lead in arranging a research programme with a Luxembourg-based public research institution of their choice (in research relevant to FNR's strategic priority areas).

### **NCER (National Centre of Excellence in Research)**

The objective of the NCER programme is to support the development of public research in areas of strategic interest in order to derive a socio-economic return in the medium to long term. It aims to strengthen cooperation between institutions and to concentrate research activities based around a common scientific and socio-economic challenge. The objective of the programme is to increase the critical mass of public research in Luxembourg and to achieve greater visibility at international level.

### **SIS (Science in Society)**

The FNR wants to strengthen the link between sciences and society which is why it promotes scientific culture as one of its priority areas. This promotion aims to create awareness among the whole population, decision-makers and young people alike who are the citizens and researchers of the future. The objective is to create acceptance and comprehension of the role of sciences and research as creators of knowledge, innovation and to spark enthusiasm among young people about scientific careers. It is for this reason that the FNR offers platforms to assist researchers in promoting their activities, organises its own promotion activities in order to increase the visibility of sciences and research, and also provides financial support to researchers and scientific teachers/mediators.

### **PSP (Promoting Science to the Public)**

The objective of the PSP funding instrument is to strengthen the exchanges between science and society. The programme supports projects which create awareness among the public about scientific topics and projects which make research activities in Luxembourg visible. PSP supports

- researchers so they can pass on their knowledge to pupils, students and the general public and enter into dialogue with these target groups.
- teachers, private individuals and non-profit organisations so they can carry out projects for pupils, students and the general public which will give them an overview of sciences and scientific work.



## CORE 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● AxPD	<i>Axonal dying-back in Parkinson's disease is caused by local axonal accumulations of defective mitochondria</i>	Cláudia Saraiva	UL	BM	569,000.00
● COMPARE	<i>Collaboration with Parents and Multiliteracy in early Childhood Education</i>	Claudine Kirsch	UL	SC	350,000.00
● TuCaNG, for Tun	<i>Experimental and Numerical Investigation on Synthesis of Tungsten and Tungsten Carbide</i>	Alvaro Antonio Estupinan Donoso	UL	MS	404,000.00
● BEEHIVE	<i>Behaviour-Induced Configuration of High Variability-Intensive Systems</i>	Maxime Cordy	SnT (UL)	IS	656,000.00
● STEERMOB	<i>Strain-engineering the hole mobility in off-stoichiometric copper chromium delafossite</i>	Petru Lunca Popa	LIST	MS	657,000.00
● HYBMES	<i>Hybrid mesoscale devices based on quantum Hall edge states</i>	Edvin Idrisov	UL	MS	357,000.00
● ACTIVASION	<i>Actin cytoskeleton remodeling in tumor immune evasion - mechanistic aspects</i>	Clément Thomas	UH	BM	394,000.00
● ASSESS	<i>Are People Aware of their (Housing) Wealth? Assessing Owner-Estimated Home Values in Survey and Experimental Data</i>	Sofie Regina Walzl	LISER	SC	391,000.00
● MultiMath	<i>Acquisition of Number Concepts in the Multilingual Brain</i>	Amandine Van Rinsveld	UL	SC	617,000.00
● ULTRON	<i>Ultrafast coherent hybridization of photons and spins in multi-functional magnetoplasmonic metamaterials</i>	Nicolò Maccaferri	UL	MS	430,000.00
● STARTS	<i>Security Assessment of TrustZone-M enabled Software</i>	Antonio Ken Iannillo	SnT (UL)	IS	511,000.00
● MATURITY	<i>A single cell-based computational platform for cellular conversion to generate functionally mature cells - application to regenerative therapies</i>	Antonio Del Sol Mesa	UL	BM	658,000.00
● IDeM	<i>The role of NR2F1 in Parkinson's disease</i>	Silvia Bolognin	UL	BM	509,000.00
● DATA4WIND	<i>Data-Driven Approach for Urban Wind Energy Harvesting</i>	Anina Glumac	SnT (UL)	SR	582,000.00
● APLICA	<i>Analysis and Protection of Lightweight Cryptographic Algorithms</i>	Alex Biryukov	SnT (UL)	IS	586,000.00
● COATIHN	<i>Deposition of Multifunctional COATings with Interpenetrating Hydrogel Networks by Liquid nanopulsed Plasma Polymerization</i>	Roberto Quintana Vicente	LIST	MS	590,000.00
● EquiVox	<i>Secure, Quantum-Safe, Practical Voting Technologies</i>	Peter Y. A. Ryan	SnT (UL)	IS	602,000.00
● RASoRS	<i>Risk Analysis of Software Requirements Specification</i>	Michail Papadakis	SnT (UL)	IS	614,000.00
● FAIR-ITEMS	<i>Fairness of latest Innovations in Item and Test development in Mathematics</i>	Philipp Sonnleitner	UL	SC	368,000.00
● ALAC	<i>Age Acceleration and the Life Course</i>	Conchita D'Ambrosio	UL	SC	654,000.00
● ASA	<i>Academic Success in Autism: The impact of emotions and multilingualism</i>	Andreia Costa	UL	SC	397,000.00
● CAPACITY	<i>ClimAte and Plant hydrAulics Controls on drought prediction uncertainty in a new-generation Terrestrial sYstem model</i>	Mauro Sulis	LIST	SR	522,000.00
● NTEC	<i>Nonequilibrium Thermodynamics of Electronic Circuits</i>	Massimiliano Esposito	UL	MS	610,000.00
● PolaRAS2	<i>Investigation of nanoscale RAS polarizations in instructing cancer cell stemness</i>	Daniel Abankwa	UL	BM	518,000.00
● DISCO	<i>Diatoms as indicators of soil conditions: a high throughput sequencing approach</i>	Carlos Wetzel	LIST	SR	466,000.00
● DynCell	<i>Dynamics modelling from single-cell data</i>	Atte Aalto	UL	BM	439,000.00
● AltFin	<i>Regional approaches towards alternative economies and sustainable finance</i>	Christian Schultz	UL	SR	740,000.00
● metaPUF	<i>The dark metaproteome: identifying proteins of unknown function in the human gut microbiome</i>	Paul Wilmes	UL	BM	262,000.00
● CLASMARTS	<i>Cluster Assembled Materials Tuning for Sensing</i>	Emanuele Barborini	LIST	MS	764,000.00

UL University of Luxembourg

LCSB Luxembourg Centre for Systems Biomedicine

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LIH Luxembourg Institute of Health

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LISER Luxembourg Institute of Socio-Economic Research

BM Biomedical Sciences/Regulation of Chronic, Degenerative and Infectious Diseases

IS Innovation in Services

SC Societal Challenges (LM+ID)

MS New Functional and Intelligent Materials and Surfaces and New Sensing Applications

SR Sustainable Resource Management in Luxembourg

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● CAMESyn	<i>Contribution of Astrocyte Metabolism to Synucleinopathy in Parkinson's disease.</i>	Anne Grünewald	UL	BM	876,000.00
● ByzRT	<i>SByzRT: Intrusion resilient real-time communication and computation in autonomous systems</i>	PPaulo Esteves-Verissimo	SnT (UL)	IS	982,000.00
● FlexSAT	<i>Resource Optimization for Next Generation of Flexible SATellite Payloads</i>	Eva Lagunas	SnT (UL)	IS	696,000.00
● LoRaSAT	<i>Design of LoRaWAN protocol Optimisation over SATellite Connection for precision agriculture applications</i>	Maria Rita Palattella	LIST	IS	572,000.00
● BEEBS	<i>Building Effective European Banking Supervision</i>	David Howarth	UL	IS	266,000.00
● 5G-Sky	<i>Interconnecting the Sky in 5G and Beyond - A Joint Communication and Control Approach</i>	Bjorn Ottersten	SnT (UL)	IS	865,000.00
● WARLUX	<i>WARLUX: Soldiers and their communities in WWII: The impact and legacy of war experiences in Luxembourg</i>	Denis Scuto	UL	SC	958,000.00
● QML-FLEX	<i>QUANTUM-BASED MACHINE LEARNING FOR FLEXIBLE MOLECULES</i>	Igor Poltavskiy	UL	MS	345,000.00
● ASWELL	<i>Autonomous Network Slicing for Integrated Satellite-Terrestrial Transport Networks</i>	Symeon Chatzinotas	SnT (UL)	IS	633,000.00
● TOPOFLUME	<i>Topological Fluid Mechanics: Decoding emergent dynamics in anisotropic fluids and living systems</i>	Anupam Sengupta	UL	MS	763,000.00
● APPEAL	<i>Assessment of Primary Care Performance in Luxembourg</i>	Valerie Moran	LISER	BM	463,000.00
<b>TOTAL</b>					<b>22,636,000.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/core](http://www.fnr.lu/core)



## BRIDGES 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● STABILITY4.0PP	<i>Seamless TraceABILITY for I4.0</i>	Yves Le Traon	SnT (UL)	IS	395,623.70
● RESUPPLIPP	<i>High RESistance SUPerhydrophobic PLasma films</i>	Patrick Choquet	LIST	MS	400,000.00
● ARTAGOPP	<i>Artificial Intelligence-enabled Automation for GDPR Compliance</i>	Mehrdad Sabetzadeh	SnT (UL)	IS	380,523.99
● MaaS4AllPP	<i>MaaS4All</i>	Francesco Viti	UL	MS	211,413.84
● IntuitBuyPP	<i>Intelligent Algorithms to Support Buyer Intuition</i>	Nils Löhndorf	UL	LE	203,998.75
● ExLiFTPP	<i>Explainable Machine Learning in FinTech</i>	Jacques Klein	SnT (UL)	IS	388,780.00
● DISBuSPP	<i>Dynamic Beam Forming and In-band Signalling for Next Generation Satellite Systems</i>	Symeon Chatzinotas	SnT (UL)	IS	399,906.66
● IgnitionPP	<i>Investigations to understand the thermo-fluid dynamics of high-purity oxygen flow in pressure regulator - piping systems</i>	Stephan Leyer	UL	MS	386,761.37
● Heat2Power	<i>Heat2Power</i>	Alexandre Bertrand	LIST	MS	278,114.71
● EMDD	<i>Enhancement of Extruder Modelling with a Data-Driven Approach</i>	Jörg Baller	UL	MS	391,531.90
● spacePD	<i>Microgravity as a Testbed for Advanced Research in Parkinson Disease Modeling</i>	Jens Schwamborn	UL	BM	395,781.66
● CDI	<i>Connected Dynamic Insurance</i>	Raphael Frank	SnT (UL)	IS	224,354.58
● SKIMAS	<i>SKin Inflammation imaging by MAss Spectrometry</i>	Gilles Frache	LIST	MS	400,000.00
● AuFoSat	<i>Development Tool for Autonomous Constellation and Formation Control of Microsatellites</i>	Holger Voos	SnT (UL)	MS	399,427.09
● HybridSimCVD	<i>Addressing challenges in industrial Chemical Vapour Deposition Processes with a hybrid data-driven and equation-based computational framework</i>	Eleni Koronaki	UL	MS	188,647.00
● HEPHOTO	<i>High Efficient Water Splitting over Fe:NaTaO3 Photocatalysts</i>	Bianca Rita Pistillo	LIST	MS	399,993.26
● ROPETEST	<i>Towards efficient simulations of aggregates of slender bodies</i>	Lars Beex	UL	MS	293,982.38
<b>TOTAL</b>					<b>5,738,840.89</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/bridges](http://www.fnr.lu/bridges)

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● VISIONNANO	<i>VISIONNANO - Viscoelastic properties, entanglements, and polymer dynamics in ionic nanocomposites</i>	Argyrios Karatrantos	LIST	MS	283,000.00
● TINPERO	<i>Epitaxially grown tin perovskites</i>	Alex Redinger	UL	MS	339,000.00
● Try-IBD	<i>Multi-dimensional resolution of tryptophan-driven immune-metabolism as a novel pathophysiological principle in inflammatory bowel disease</i>	Johannes Meiser	LIH	BM	482,000.00
● QuantPhonon	<i>Dynamical Quantum Properties of Phonons in Crystals</i>	Alexandre Tkatchenko	UL	MS	366,000.00
● ACCEPT	<i>AnharmoniC and exChangE interactions in Phonon specTra</i>	Ludger Wirtz	UL	MS	272,000.00
● SLANT	<i>Spin and bias in Language Analyzed in News and Text</i>	Sjouke Mauw	SnT (UL)	IS	253,000.00
● SWITECH	<i>Secure Software using Whitebox Technology</i>	Jean-Sébastien Coron	SnT (UL)	IS	519,000.00
● DISAFECAP	<i>Safe Solid-state Supercapacitors using Dynamic Ion Gels from Poly(Ionic Liquids)</i>	Alexander Shaplov	LIST	MS	525,000.00
● EURO-FINGERS	<i>EURO-FINGERS multimodal precision prevention toolbox for dementia in Alzheimer's disease</i>	Jean Georges	Alzheimer Europ	BM	215,000.00
● PREADAPT	<i>Identification of personalized inflammatory profiles of aging and senescence which are modified specifically by risk factors of dementia modulating the pre-dementia speed of symptomatic progression.</i>	Reinhard Schneider	UL	BM	353,000.00
● HeartMed	<i>HeartMed: an ICT platform combining preclinical and clinical information for patient specific modelling in cardiovascular medicine to improve diagnosis and help clinical decision making</i>	Reinhard Schneider	UL	BM	299,000.00
● EUFIRST	<i>Globalization, Inequality and Populism across Europe</i>	Frederic Docquier	LISER	LE	646,000.00
● SusDens	<i>Sustainable Residential Densification</i>	Hichem Omrani	LISER	SR	577,000.00
● Mi*EGDE	<i>Modelling cell plasticity at the invasive Edge to Diminish Glioblastoma Early relapse risk</i>	Michel Mittelbronn	LNS	BM	325,000.00
● ML4SCOPF	<i>Machine learning based enhancements of security constrained optimal power flow computations</i>	Florin Capitanescu	LIST	MS	428,000.00
● D-DAB	<i>New Methods for Bridge Damage Assessment</i>	Stefan Maas	UL	MS	270,000.00
● 5FC HIV-Crypto	<i>Improved flucytosine formulation for the treatment of meningitis in advanced HIV disease</i>	Michel Vaillant	LIH	BM	163,000.00
● MIMVaC-Africa	<i>A multilateral initiative to foster the clinical development of effective malaria vaccine candidates in Africa</i>	Michel Vaillant	LIH	BM	321,000.00
● LiFT	<i>From Low fares to no fares: an analysis of economic, operational, socio-spatial and political dynamics of fare-Free public Transport</i>	Veronique Van Acker	LISER	SR	428,000.00
<b>TOTAL</b>					<b>7,064,000.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/inter](http://www.fnr.lu/inter)


**INTER-MOBILITY 2019**

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● PD-BIOMARK	<i>Investigation of the role of gene-environment interactions for predisposition to Parkinson's disease</i>	Rejko Krüger	UL	BM	67,000.00
● ENAML	<i>ENhancing Atomistic ModeLing: Physically Robust Atomistic Machine Learning Models for Predictive Insights into Solvated Chemical Reactions</i>	Alexandre Tkatchenko	UL	MS	79,000.00
● 3DMitoPore	<i>Exploring mtDNA release in Parkinson's disease using 3D correlative light-electron microscopy</i>	Sandro Lino Cardoso Pereira	UL	BM	35,000.00
● GloLux	<i>The Luxembourgish Financial Centre in a Global Perspective</i>	Benoit Majerus	UL	SC	37,000.00
● Co π2	<i>Coupling photo-pyro-piezo-effects in ferroelectrics</i>	Jens Kreisel	UL	MS	87,400.00
● DLAI	<i>Deontic Logic for Artificial Intelligence</i>	Leon van der Torre	UL	IS	100,000.00
● Sleepless@Seattle	<i>Research Stay at University of Washington and Microsoft Research for Secure and Reliable Software Systems</i>	Jacques Klein	SnT (UL)	IS	118,400.00
● TheCoco	<i>Thermodynamics of Computation and Communication</i>	Massimiliano Esposito	UL	MS	42,000.00
<b>TOTAL</b>					<b>524,600.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/inter](http://www.fnr.lu/inter)


**RESCOM 2019**

PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● ESORICS 2019 - The 24th European Symposium on Research in Computer Security	Peter Y.A. Ryan	SnT (UL)	IS	50,000.70
● 5th International Systems Biomedicine Symposium - "Systems neuroscience: bridging the scales of the brain"	Alexander Skupin	UL	BM	25,000.00
● 21st European Colloquium on Theoretical and Quantitative Geography	Geoffrey Caruso	LISER	SC	35,000.00
● 8-th European Conference on Injury prevention and safety promotion Main theme: Research for enhancing impact of strategies and actions	Laetitia Huiart	LIH	BM	27,000.00
● IMISCOE 2020 Conference: "Crossing borders, connecting cultures"	Birte Nienaber	UL	SC	50,000.00
● 12th International Conference "Water and Sea in Word and Image"	Nathalie Roelens	UL	SC	50,000.00
● 4th International Metaproteomics Symposium	Paul Wilmes	UL	BM	24,300.00
● The 12th Conference of the International Test Commission	Samuel Greiff	UL	SC	47,900.00
● 35th European Conference on Surface Science (ECOSS 35)	Ludger Wirtz	UL	MS	50,000.00
● Solidarity and the European Social Model	Luca Ratti	UL	SC	13,700.00
● Finance Seminar of Luxembourg School of Finance (2019-2020)	Stefanova Denitsa	UL	LE	30,000.00
● LISER Research Seminar Series (RSS)	Aline Muller	LISER	SC	30,000.00
<b>TOTAL</b>				<b>432,900.00</b>

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## PEARL 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● DHARPA	<i>Digital History Advanced Research Projects Accelerator</i>	Sean Takats	UL	SC	3,086,000.00
TOTAL					3,086,000.00

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/pearl](http://www.fnr.lu/pearl)

## NCER 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● NCER-PD	<i>National Centre of Excellence in Research on early Diagnosis and Stratification of Parkinson's Disease, NCER-PD (Phase II)</i>	Reiko Krüger	UL	BM	6,000,000.00
TOTAL					6,000,000.00

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/ncer](http://www.fnr.lu/ncer)

## KITS 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● Ulstars	<i>A global immersive accelerator to boost technology transfer and commercialisation at the University of Luxembourg</i>	Pranjul Shah	UL	IS	349,700.00
TOTAL					349,700.00

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/kits](http://www.fnr.lu/kits)



## OPEN 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● SOUND	<i>Synchronization of biological networks</i>	Jorge Gonçalves	UL	MT	531,000.00
● SYBION	<i>Systoles, Orthogeodesics and Underlying Moduli Spaces</i>	Hugo Parlier	UL	SC	322,000.00
● REFUND	<i>Life Cycle Assessment of green funds and bonds</i>	Enrico Benetto	LIST	SC	699,000.00
● CPLJ	<i>Comparative Procedural Law and Justice</i>	Burkhard Hess	Max Planck Lux	LE	746,000.00
TOTAL					2,298,000.00

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/open](http://www.fnr.lu/open)

## INITIATE 2019

PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● Clinnova 2.0	<i>Clinnova: Unlocking the potential of data science and artificial intelligence in health care</i>	Ulf Nehrbass	LIH	BM	250,000.00
TOTAL					250,000.00



## JUMP 2019

ACTION	PROJECT ACRONYM	PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● Pathfinder	AptaLux	<i>Aptamer as a tool for adenovirus detection</i>	Leslie Ogorzaly	LIST	BM	33,000.00
● Pathfinder	DigitalUs	<i>DigitalUs</i>	Beltran Borja Fiz Pontiferos	SnT (UL)	IS	45,150.00
● Pathfinder	eFLUX	<i>Embedded FLOWful User eXperience platform</i>	Yannick Naudet	LIST	IS	46,880.00
● Pathfinder	EVACUATE	<i>Indoor Tracking Emergency Evacuation Decision Support System</i>	Peiman Alipour Sarvari	LIST	SR	30,000.00
● Pathfinder	FIBer	<i>FIBer the FILE Blockchain</i>	Eric Falk	SnT (UL)	IS	50,000.00
● Pathfinder	INTERceptor	<i>Targeting chemokine receptors for improved cancer immunotherapy</i>	Martyna Szpakowska	LIH	BM	42,000.00
● Pathfinder	KYC-DSB	<i>KYC Data Sharing Blockchain</i>	Robert Norvill	SnT (UL)	IS	32,435.00
● Pathfinder	Microbiome Desi	<i>Designer microbial community for improved anaerobic digestion of biomass</i>	Magdalena Calusinska	LIST	BM	29,900.00
● Pathfinder	MUST	<i>Manage Urban Spaces Together (formerly PUPaD)</i>	Elie Daher	LIST	IS	44,330.00
● Pathfinder	NIRW	<i>NIR WATCHDOG</i>	Radu State	SnT (UL)	IS	34,395.00
● Pathfinder	NOFAKES	<i>No more fakes: giving goods a physical unclonable identity</i>	Gabriele Lenzini	SnT (UL)	IS	48,000.00
● Pathfinder	REST	<i>Software for home-based REhabilitation of STroke survivors (REST)</i>	Enjie Ghorbel	SnT (UL)	BM	45,000.00
● Pathfinder	SCALEM	<i>Software for CALculating EMergy based on life cycle inventories</i>	Tomas Navarrete Gutierrez	LIST	MS	34,250.00
<b>TOTAL</b>						<b>515,340.00</b>
● POC	ActPoSS POC	<i>Active Power Support for Smart Grids</i>	Patrick Kobou Ngani	UL	MS	100,000.00
● POC	DigitalUs POC	<i>DigitalUs</i>	Raphaël Frank	SnT (UL)	IS	200,000.00
● POC	HAPPY-	<i>High throughput microfluidics-based replicative lifespan determination in yeast cells</i>	Carole Linster	UL	BM	219,250.00
● POC	MaGrid-	<i>A language-neutral application for teaching and learning early mathematical skills</i>	Antoine Fischbach	UL	IS	199,850.00
● POC	MAISA2	<i>Maintenance of Semantic Annotations 2</i>	Cédric Pruski	LIST	IS	183,400.00
● POC	MEGAKINE	<i>Megakines - novel tools for structural insight into receptor:chemokine complexes</i>	Andy Chevigé	LIH	BM	374,500.00
● POC	MoNeyBox	<i>"Mobile Money in a Box" - Inclusive, Interoperable &amp; Secure by Design</i>	Tegawendé Bissyandé	SnT (UL)	IS	199,450.00
● POC	SHIM-	<i>Smart Waterjet Head for Industry 4.0 Manufacturing</i>	Edoardo Copertaro	UL	MS	199,550.00
<b>TOTAL</b>						<b>1,676,000.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/jump](http://www.fnr.lu/jump)

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## INDUSTRIAL FELLOWSHIP 2019

TYPE	NAME	PROJECT TITLE	PROJECT DOMAIN	HOST INSTITUTION	COLLABORATING INST.	FNR CONTRIBUTION IN EUR
● PDR	Percy Blount	<i>Cybersecurity in the Space Domain: Understanding the Legal Requirements for Cybersecure Space Operations</i>	LE	SES	UL	143,210.00
● PDR	Taynara Tuany Borges Valeriano	<i>Modelling pests and diseases impact on hazelnut production</i>	SR	Council for Agricultural Research and Economics	Ferrero	143,210.00
● PDR	Ali Margot Huerta Flores	<i>Atmospheric Pressure Plasma Deposition of Perovskite-type Complex Oxide Thin Films for Visible-Light Photocatalysis for Solar Fuel Generation</i>	MS	LIST	Molecular Plasma Group	144,960.00
● PDR	Martin Rehor	<i>Robust Incompressible FLOW solver Enhancement</i>	MS	Rafinex	UL	143,210.00
● PDR	Dheeraj Reddy Bobbili	<i>Empowering the individuals to access their personal genome data</i>	BM	Megenio	UL	143,210.00
● PDR	Mohammad Zare	<i>Improving Simulation and Prediction of flash Flood to develop a decision-making model for flood protection in LUXemburg</i>	SR	RSS-Hydro	UL	143,460.00
<b>TOTAL</b>						<b>861,260.00</b>
● PhD	Francesco Deboli	<i>Formulation and Characterization of Novel Hierarchical Ion Exchange Membranes for Electrodialysis Application</i>	MS	Amer-Sil	KU Leuven	208,066.00
● PhD	Marwa Kechaou	<i>Machine Learning for wood defects segmentation and classification</i>	MT	LuxScan	INSA-ROUEN	187,084.00
● PhD	Laurent Lesage	<i>Data Analysis For Insurance</i>	IS	UL	Foyer Assurances	208,066.00
● PhD	Qinzhuan Qian	<i>Vehicle In-cabin Scene Analysis</i>	IS	IEE	TU Kaiserslautern, DFKI	209,816.00
● PhD	Gabriel Tedgue Beltrão	<i>MIMO Distributed Radar for Indoor Applications</i>	IS	UL	IEE	212,670.00
● PhD	Vasile Ciorna	<i>Visual Analytics for Tire Engineers</i>	IS	Goodyear	University of Bordeaux, LIST	212,670.00
● PhD	Puneeth Jubba Honnaiah	<i>Resource Allocation and Interference Mitigation for demand based capacity adaptability in Satellite Communication System.</i>	IS	UL	SES	178,267.00
● PhD	Joe Lorentz	<i>Towards edge-optimized deep learning for explainable quality control</i>	IS	DataThings	UL	212,670.00
● PhD	Alexander Medina Peschiutta	<i>Rheology of Hard Metal Pastes.</i>	MS	UL	Ceratizit	212,670.00
<b>TOTAL</b>						<b>1,841,979.40</b>



## ATTRACT 2019

PROJECT TITLE	PRINCIPAL INVESTIGATOR	HOST INSTITUTION	DOMAIN	FNR CONTRIBUTION IN EUR
● <i>Public History as the New Citizen Science of the Past</i>	Thomas Cauvin	UL	SC	2,000,000.00
<b>TOTAL</b>				<b>2,000,000.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/attract](http://www.fnr.lu/attract)

 AFR PhD 2019

FIRST NAME	LAST NAME	HOST INSTITUTION	DOMAIN	TITLE OF PROJECT	FNR CONTRIBUTION IN EUR
● Navid	Aminnia	UL	MS	<i>Investigation into the evolution of grain structure for metal additive manufacturing</i>	191,552.00
● Philip	Bertemes	University of Innsbruck	BM	<i>Towards a reversible bio-inspired glue for medical application.</i>	190,302.00
● Zoé	Bürger	Eberhard-Karls University Tübingen	BM	<i>Hormonal contraception and stress reactivity in women</i>	190,302.00
● Naja	Camisa	UL	SC	<i>EU Migration Policies in Crisis: The role of traditional and social media in shaping the European policy attention and actions</i>	190,302.00
● Samuele	Ceolin	LIST	SR	<i>Root dynamics under varying water and nutrient supply</i>	190,552.00
● Jorge Alfonso Charry Martínez		UL	MS	<i>Towards First-Principles Understanding of Positron--Molecule Interactions</i>	192,052.00
● Luca	Courte	Albert-Ludwigs University Freiburg	MT	<i>Scaling Laws and Emergent Effects for Plasticity in Heterogeneous Materials</i>	190,302.00
● Lancelot	Da Costa	Imperial College London	MT	<i>Active Optimisation</i>	190,302.00
● Bastien	Dubuisson	UL	SC	<i>Books, Saints, and Men: for a Revaluation of Latin Hagiographic Culture in the Diocese of Trier (13th-16th centuries)</i>	190,302.00
● Noémie Catherine	Engel	University of Bath	BM	<i>Sex role evolution in the wild: sexual selection and parental cooperation in a social network</i>	190,552.00
● Lynn	Erpelding	UL	SC	<i>Body image distortion and cardio-visual integration in anorexia nervosa</i>	190,302.00
● Christopher	Geisser	University of Geneva	SC	<i>The moderating role of intergroup contact on discriminatory news</i>	190,552.00
● Arkajyoti	Ghoshal	UL	MS	<i>Microbial Signal Transduction Under Fluctuating Fields</i>	192,052.00
● Kim	Greis	Free University of Berlin	MS	<i>Studying Glycosyl Cations using Gas-Phase Infrared Spectroscopy</i>	190,302.00
● Thierry	Groff	UL	SC	<i>Die Legio XXII Primigenia Pia Fidelis: Eine epigraphische Studie zu Migration und Mobilität römischer Soldaten am Rande des Imperium Romanum.</i>	190,302.00
● Hailong	HU	UL	IS	<i>Privacy Attacks and Protection in Machine Learning as a Service</i>	192,052.00
● Pelin	Kaya	UL	BM	<i>Evaluation of the biological activity of novel PDE6D inhibitors</i>	191,052.00
● Jill	Kries	Catholic University of Louvain	SC	<i>Developing a neurodiagnostic test for aphasia: EEG as a measure of speech processing</i>	130,302.00
● Gustavo	Larrea-Gallegos	LIST	SR	<i>Using AgEnt based models and Network Analysis to assess supply chains criticalities</i>	192,052.00
● Anna	MACHURA-URBANIAK	UL	LE	<i>Investment fraud in the light of behavioral finance - integration of psychological aspects into financial regulation</i>	190,302.00
● Milan	Milenovic	LIST	SR	<i>Effect of Climate Change on the interaction between whiteflies, parasitoids, endosymbionts, and the host plant in European and Mediterranean regions</i>	190,802.00
● Christophe	Pixius	University of Heidelberg	MS	<i>Cosmic Structure Formation with Kinetic Field Theory</i>	190,302.00
● Goya	Razavi	University of Chicago	LE	<i>The Sources of Intergenerational Mobility in Luxembourg and the US</i>	190,302.00
● Julien	Rippinger	Free University of Brussels	SC	<i>Descriptive Geometry and Infographics: Towards the Formulation of a Theory of Projective Representation for Computer-aided Architectural Drawing Tools</i>	190,302.00
● Gabriel	Rivera Cosme	UL	SC	<i>Language Policy and Planning in Luxembourg and Eastern Belgium: Ideologies of Standardization</i>	190,302.00
● Jonathan	Rommelfangen	UL	MS	<i>Functionalization of MoS2 via ion beams and alkali metals</i>	190,302.00
● Eric	Schanet	Ludwig-Maximilians University, Munich	MS	<i>Search for electroweak supersymmetric particles with the ATLAS detector at the LHC.</i>	158,294.00
● Lucas Jean Nicolas	Schaus	California Institute of Technology	BM	<i>Machine Learning as a Tool in Cytochrome P450 Enzyme Discovery</i>	78,250.00
● Gilles	Stebens	Albert-Ludwigs University Freiburg	MS	<i>C-H-Bond Activation as a Model Process for the Transfer of Gas-Phase Ion-Chemistry into the Condensed Phase</i>	190,302.00
● Yannick	Weyer	Innsbruck Medical University	BM	<i>Functional characterization of a novel endosome and Golgi associated degradation (EGAD) system</i>	190,302.00
<b>TOTAL</b>					<b>5,575,750.00</b>

For a detailed summary of each project as well as other information, please refer to [www.fnr.lu/afp](http://www.fnr.lu/afp)

DESCRIPTION	DOMAIN	SOCIETE	FNR CONTRIBUTION IN EUR
● Fuersch duer um Naturparkfest!	SC	PARC NATUREL DE	30,000.00
● Indiana Jos- Naturwëssenschaft an Technik entdecken	SC	ELISABETHANNEAS	100,000.00
● Ökologische Exkursion auf Norderney	SC	ATERT LYCÉE RED	4,962.00
● élèves chercheurs au LRSL	SC	VOYAGES SCIENTI	11,000.00
● FIRST Global Robotics Challenge 2019	SC	Make it asbl be	10,700.00
● Forschungsstation Wattenmeer: Anpassungen an ein Ökosystem mittels einer multidisziplinären Zusammenarbeit untersuchen und verstehen.	SC	LYCÉE CLASSIQUE	3,900.00
● Ökologisches Praktikum auf der Insel Norderney	SC	Laurent Kellner	3,450.00
● Studienreise: Ökologie einer Insel im Wattenmeer im Wandel der Zeit	SC	LT ETTTELBRÜCK	9,750.00
● Make Permafrost Great Again 2.0 / Pour que les cartoons cartonnet	SC	polar.lu asbl	39,040.00
● Polaren Dustbuster	SC	polar.lu asbl	8,700.00
● LGE- CSI: Esch, Cool Science Investigations - 2nd Edition	SC	LGE	24,090.00
● Junglinster im 2ten Weltkrieg	SC	LYCÉE JUNGLINST	5,000.00
● Future Digital Leaders 2019-2020	SC	Luxembourg Tech	50,000.00
● Projet interdisciplinaire: Etude écologique du "Wattenmeer"	SC	Lycée Grevenmac	7,650.00
● Goodyear STEM Student Challenge	SC	GOODYEAR	5,000.00
● Recherche, Opinions, Décisions - Cycle de débats interactifs sur le thème « Vivre, Travailler et Décider Ensemble »	SC	ASTI a.s.b.l.	33,400.00
● Digital life skills, coding and logical thinking workshop for kids ages 4-6 ages 7-10 and ages 10-13	SC	Kids Life Skill	43,671.00
● LUNEX Sport Science Days 2020	SC	LUNEX Internati	20,000.00
● Falling Only for Science: promoting fall prevention science to older adults in Luxembourg	SC	LUNEX Internati	24,000.00
● Congrès MATH.en.JEANS 2020	SC	UNILU	21,500.00
● Freizeitaktivitäten in Wissenschaft und Natur für Kinder und Jugendliche (Panda Club und Science Club am MnhnL)	SC	MNHN	38,500.00
● The Lost Ocean VR	SC	MNHN	50,000.00
● Science to be Green	SC	LISTLUXEMBOURG	30,500.00
● La vie quotidienne en 2040, le point de vue de la science	SC	ECOLE PRIVÉE NO	29,071.00
● Ökologische Praktikum "Wattenmeer"	SC	LYCÉE CLASSIQUE	6,750.00
● LJBM: Science for kids 2020	SC	LYCÉE JOSY BART	2,830.00
● élèves chercheurs au LRSL	SC	VOYAGES SCIENTI	7,500.00
● ScienceAlert	SC	GROUSSGASMASCH	46,305.00
● Réponses des cellules cérébrales suite à un stimulus pro-inflammatoire - Cibles thérapeutiques pour les maladies neurodégénératives	SC	LYCÉE MICHEL RODANGE	2,113.00
● Parents As Trainers (PAT) Luxembourg - "Learning by Doing"	SC	Sakthivel Manik	12,300.00
<b>TOTAL</b>			<b>681,682.00</b>

UL University of Luxembourg

LCSB Luxembourg Centre for Systems Biomedicine

SnT Interdisciplinary Centre for Security, Reliability and Trust

LIH Luxembourg Institute of Health

LIST Luxembourg Institute of Science and Technology

LISER Luxembourg Institute of Socio-Economic Research

BM Biomedical Sciences/Regulation of Chronic, Degenerative and Infectious Diseases

IS Innovation in Services

SC Societal Challenges (LM+ID)

MS New Functional and Intelligent Materials and Surfaces and New Sensing Applications

SR Sustainable Resource Management in Luxembourg

## AWARDS 2019

DOMAINE	ACTION	SOCIETE	FNR CONTRIBUTION IN EUR
SC	AWARDS-PSC	<i>Juliette Pertuy - Laura Star - Noémie Guerisse - Malou Fraiture - Joanna Muz - Arnaud D'Agostini - Federica Amato</i>	5,000.00
SC	AWARDS-PSC	<i>Fondation Jeunes Scientifiques Luxembourg</i>	5,000.00
IS	AWARDS-PUB	<i>Eva Lagunas - Shree Krishna Sharma - Sina Maleki - Symeon Chatzinotas - Björn Ottersten</i>	5,000.00
BM	AWARDS-PUB	<i>Antonio Del Sol Mesa &amp; Satoshi Okawa</i>	5,000.00
MS	AWARDS-PHD	<i>Riccardo Rao</i>	5,000.00
BM	AWARDS-PHD	<i>Linda Wampach</i>	5,000.00
<b>TOTAL</b>			<b>30,000.00</b>





# ORGANISATION

## ORGANISATION

The FNR is a public institution created by statute (Law of 31 May, 1999) and enjoys legal capacity and full administrative and financial autonomy. Our overall strategy is laid down in a four-year contract with the Luxembourg Government, which also defines our budget appropriation.

### THE BOARD

Our Board supervises the organisation and approves the overall policies and strategic priorities of the FNR. It is appointed by the government and is composed of nine independent directors active in industry, business and the civil society. The members of the Board act in full autonomy.

#### Chair

*Véronique HOFFELD*, Attorney-at-law, Member of the Executive Committee and partner at Loyens & Loeff (until 11/19).

*Martine REICHERTS*, Head of the Directorate - General for Education and Culture (2015-2018). Member of the board of Directors of the Banque Centrale de Luxembourg (FNR Board Chair since 12/19).

#### Vice-Chair

*Thierry WOLTER*, Member of the Executive Board and the Supervisory Board of CERATIZIT



#### BOARD

from left to right: Richard Sedrani, Roger Assaker, Robert Kerger (Government Commissioner), Marc Schiltz (Secretary General), Thierry Wolter (Vice-Chairman of the Board), Véronique Hoffeld (Chair of the Board), Hjoerdis Stahl, Christine Hoffmann, Edmond Differding, Andrée Billon, Yves Fromes (ex-officio member)



#### BOARD

from left to right: Isabelle Schlessler, Richard Sedrani, Jean-Marc Fandel (sitting), Anouck Hilger, Stéphanie Damgé (sitting), Nadine C Martin (sitting), Marc Schiltz (Secretary General), Thierry Wolter (Vice Chairman of the Board, sitting), Martine Reicherts (Chair of the Board), Romain Martin (Government Commissioner, sitting), Yves Fromes. Not in the picture: Tania Brugnioni

### Members

*Andrée BILLON*, Executive Director of "Commission de Surveillance du Secteur Financier" from 2009-2016 (until 11/19)

*Edmond DIFFERDING*, Managing Director of Differding Consulting (Louvain-la-Neuve, Belgium) (until 11/19)

*Christiane HOFFMANN*, Manager of Lilith Project.

*Anouk HILGER*, Head of Project Development Renewable Energies at Enovos Luxembourg S.A.

*Richard SEDRANI*, Executive Director at the Novartis Institutes for BioMedical Research (Basel, Switzerland)

*Roger ASSAKER*, Co-founder and CEO of e-Xtream engineering (until 11/19)

*Yves FROMES*, Professor and associate researcher at the Paris Institute of Myology (FNR Board Member since 12/19)

*Jean-Marc FANDEL*, Board and C-level Advisor, Meraki Management SARL (FNR Board Member since 12/19)

*Isabelle SCHLESSER*, Director ADEM (FNR Board Member since 12/19)

*Stéphanie DAMGÉ*, Director Jonk Entrepreneur Luxembourg asbl (FNR Board Member since 12/19)

*Tania BRUGNONI*, Director 1535° Creative Hub (FNR Board Member since 12/19)

### Ex-officio (non-voting) members

*Marc SCHILTZ*, Secretary General of the FNR

*Robert KERGER*, Government Commissioner (until 03/19)

*Romain MARTIN*, Government Commissioner (since 04/19)

*Yves FROMES*, Chair of the Scientific Council of the FNR (until 11/19)

*Nadine C. MARTIN*, Chair of the Scientific Council of the FNR (since 12/19)

## THE SCIENTIFIC COUNCIL

Our Scientific Council acts as an advisory body to the FNR. Appointed by the Government, it is composed of international experts. The current Scientific Council was appointed by ministerial decree in June 2015.

### Chair

*Prof. Dr Yves FROMES,*

Institut de Myologie, Paris (France) (until 11/19)

*Nadine C. MARTIN,*

Siten-insel AG (Switzerland) (FNR Scientific Council Chair since 12/19)

### Vice-Chair

*Mrs Gabriele DOBENECKER,*

Empa, Dübendorf (Switzerland)



### SCIENTIFIC COUNCIL

from left to right: Aloyse Schoos, Dr Patrycja Paruch, Dr Marc Schiltz (Secretary General of the FNR), Prof. Dr Ursula Lehmkuhl (Vice-Chair), Prof. Dr Yves Fromes (Chair), Prof. Dr Moira Norrie, Prof. Dr Yves Cocard, Gabriele Dobenecker.  
Not in the picture: Prof. Claudine Mangen

### Members

*Prof. Dr Yves COCARD,*

Pädagogische Hochschule Bern (Switzerland)

*Prof. Dr Claudine MANGEN,*

Université Concordia, Montréal (Canada)

*Prof. Dr Moira NORRIE,*

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*Ass.-Prof. Dr Patrycja PARUCH,*

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*Prof. Freya BAETENS,*

Leiden University (Netherlands)

University of Oslo (Norway)

*Prof. John SCHEID,*

(Collège de France) (until 08/19)

*Prof. Dr Burkhard STILLER,*

University of Zurich (Switzerland)

*Prof. Dr Nicolas GENGLER,*

University of Liège (Belgium) (FNR Scientific Council

Member since 12/19)

### EXECUTIVE OFFICE

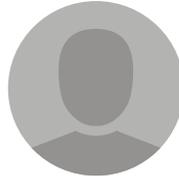
The Secretary General of the FNR is the chief executive of the organisation. He heads the Executive Office, implements the strategy, oversees programme development and manages all running activities. He is appointed by the Board of the FNR, subject to approval from the Government. The Executive Office is composed of more than 29 committed collaborators, who are experienced and highly-qualified professionals with a strong track record in science and research management or in the field of science communication.



**Florencia BALBASTRO**  
Programme Manager



**Jean-Paul BERTEMES**  
Head of Unit – Science in Society



**Olivier BUCHHEIT**  
Programme Manager



**Dr Helena BURG**  
Head of International Relations



**Angelina CLEMENS**  
Administrative Assistant



**Patricia DRIMEYER**  
Administrative Assistant



**Didier GOOSSENS**  
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**Emily IVERSEN**  
Digital Communication Manager



**Tom JAKOBS**  
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**Christiane KAELL**  
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**Dr Andreea MONNAT**  
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**Ionut PERES,**  
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**Susana PINTO,**  
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**Sonia RAMOS**  
Communication & Event Manager



**Melanie REUTER**  
Science Communication Assistant



**Susanne RICK**  
Programme Manager



**Marc ROCK,**  
Head of Finance



**Joseph RODESCH**  
Science Communicator



**Asaël ROUBY**  
Programme Manager



**Sean SAPCARIU**  
PhD, Programme Manager



**Dr Richard NAKATH**  
Programme Manager



**Dr Marc SCHILTZ**  
Secretary General,  
Executive Head of the FNR



**Josiane STAUS**  
Administrative Assistant



**Linda WAMPACH**  
Programme Manager



**Michele WEBER**  
PhD, Science Communicator & Programme Manager

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Eric Devillet

Olivier Minaire

FNR (all others)

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Published by: Fonds National de la Recherche (FNR) - [www.fnr.lu](http://www.fnr.lu) - [info@fnr.lu](mailto:info@fnr.lu)

Editorial direction: Didier Goossens

Layout: [lola.lu](http://lola.lu)

Printing: [reka.lu](http://reka.lu)

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