2020 Year in Review

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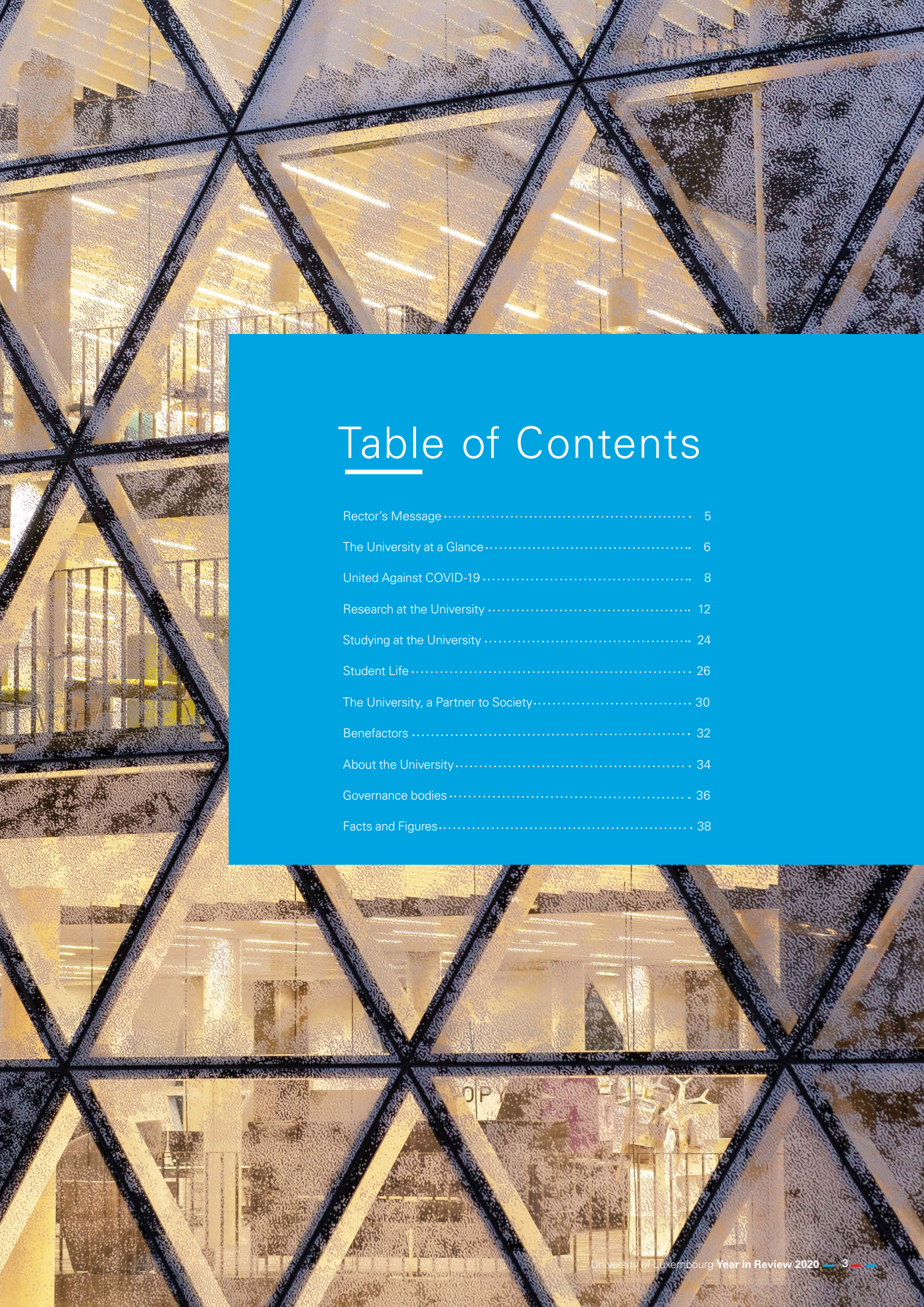

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A University for the Future


Prof. Stéphane Pallage, rector of the University of Luxembourg

2020 was an exceptional year, in all respects. It was the year in which the COVID-19 pandemic disrupted the way we fulfil our missions. Yet, we did more than fulfil all of our missions. The University was not closed for a single day during this phenomenal crisis on a global scale. On 13 March, 2020, we had to go "remote" with remote teaching, remote work, and by the end of the weekend we had managed this successfully.

Continuing to fulfil our missions of teaching, research and serving society meant the need for quick adaptation to new tools, new schedules, new environments, the reprioritisation of some of our projects, the difficult rebalancing of work and private life, and more. Many of our staff and students experienced health problems, directly or indirectly linked to COVID-19. Some have suffered the unbearable loss of family members and friends. It is in these moments that we have all seen the fragility of our lives. We have also discovered the fragility of our freedom, which many of us had not seen challenged in the recent past. 2020 took its toll on all of us.

But we did a lot more than just cope with the challenges. Our researchers obtained a record level of funding in 2020 from national and international sources. They published their results in leading journals at an even stronger rate than before. Teaching was certainly a challenge, but thanks to the dedication of our staff and our students it was delivered continuously in remote mode, in-person and via hybrid formats. Service to society has taken on a new meaning during the pandemic. Many of our researchers provided expert advice to decision makers through the national COVID-19 Task Force set up by the University and the other public research institutions.

The pandemic has also strengthened us regarding our sense of community. The University has grown stronger and more confident in its identity. We have developed a true sense of belonging. We are here for others, as others are here for us.

Among the lessons learned is the realisation that our University is in fact very agile. We learn and adapt quickly. We do so in a creative and innovative way.

In 2020, in spite of the pandemic, we launched a very important process of strategic reflection, building consensus around our values, missions and vision for the next two decades. This work aims to unite our community behind a common vision: to be a University for Luxembourg and the world, to be a driving force, generating knowledge and human capital based on research and education to the highest international standards. The strategic reflection process was conducted mostly virtually, and it involved many representatives of our community. It led to the adoption by our Board of Governors in February 2021 of a long-term strategy framework, providing guidance to our future orientation, vision and goals. Its implementation is now in our hands. It will be successful if the current generation of researchers, students and staff make it their own and transmit it to the next generation.

2020 was also the year in which the University deliberately took the path towards medical education. The new Bachelor in Medicine was launched in September 2020, opening perspectives for new developments in health and medical research and education. 2020 was the third year of our four-year plan, and saw additional funding from the Ministry of Higher Education and Research to support the University's Digital Strategy, the development of our Institute for Advanced Studies, a future centre for digital ethics, and many more projects.

The COVID-19 pandemic affects public finances worldwide. The years ahead may be financially more difficult than those behind us. The University may not see the same level of growth of its public endowment as in the past. Preferring a cautious approach, the University has therefore built a financial buffer in 2020 and 2021, which we plan to re-inject to sustain growth over the next four-year period in case the level of public funding were to stagnate.

In the upcoming four-year plan, our goals will be to reinforce our international profile as an excellent research university, to strengthen teaching and establish new forms of learning, to add value to society and meet emerging societal challenges, and to reinforce and encourage interdisciplinarity. Digital transformation, medicine and health, as well as sustainable and societal development will all become key research areas. Further developments of medical education will take place. The University will enter a new important phase of its history.

Of course, while writing these lines in the spring of 2021, I know that a priority for us all remains to stay healthy and to be able to return to a better quality life than the one we have experienced since March 2020. A year has passed since COVID-19 shook our lives, and the pandemic is unfortunately still with us. But there is hope on the horizon. Vaccination is underway. It is a fact that life will become better.

This anniversary is probably not one to celebrate. Yet, this crisis has helped create heroes in all of us, and I want to celebrate this in this review, and look with pride at the year just gone.

Have a look for yourself. Bonne lecture!

Stéphane Pallage,
Rector

Highlights 2020

Among the many achievements of 2020, the following stand out:

- University takes a core role in Luxembourg's COVID-19 Task Force
- Launch of the University's Institute for Advanced Studies
- New ERC grants awarded to:
  - Prof. Björn Ottersten for a radar system design
  - Prof. Tegawendé Bissyandé for software repair research
  - Prof. Alexandre Tkatchenko for a novel chemical discovery platform
- New chairs created at the Faculty of Law, Economics and Finance:
  - Chair in Digital Procurement
  - Chair in Sustainable Finance
- University announces bilateral cooperation agreements with the Luxembourg Institute of Health and the Luxembourg Institute of Science and Technology
- Expansion of study offer with new programmes: Bachelor in Mathematics, Bachelor in Physics, Bachelor in Engineering, Bachelor in Medicine, Master in Technopreneurship, Master in Software Development and Validation, Master in Legislative Studies
- University celebrates 1000th doctoral graduate
- More than 1,600 diplomas awarded for the academic year 2019/2020
- Launch of UNIVERSEH – The European Space University for Earth and Humanity with Université Fédérale de Toulouse (France), Université du Luxembourg (Luxembourg), Heinrich-Heine-Universität Düsseldorf (Germany), Luleå tekniska universitet (Sweden) and Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie (Poland)
- Formulation of a long-term strategic framework for the University
- Elaboration of a gender equality policy
- First student and staff satisfaction surveys
- Establishment of the Office for Partnership, Knowledge and Technology Transfer
- Inauguration of the Europe Direct Information Centre University of Luxembourg

The University

The University offers 17 Bachelor's and 46 Master's programmes, 4 doctoral schools and 15 vocational training and lifelong learning training courses

The University of Luxembourg is a research university with a distinctly international, multilingual and interdisciplinary character.

The University's ambition is to provide the highest quality research and teaching in its chosen fields and to generate a positive scientific, educational, social, cultural and societal impact in Luxembourg and the Greater Region.

6,700 Student Registrations

With more than 6,700 student registrations (of which 923 are doctoral candidates) from 130 countries and about 1,600 academic staff from all over the globe, the University is an inspiring melting pot. It offers a unique mix of international excellence and national relevance, delivering knowledge to society and businesses.

Three Faculties and Three Research Centres

The University comprises three faculties and three interdisciplinary centres: the Faculty of Science, Technology and Medicine (FSTM); the Faculty of Law, Economics and Finance (FDEF); the Faculty of the Humanities, Education and Social Sciences (FHSE); the Interdisciplinary Centre for Security, Reliability and Trust (SnT); the Luxembourg Centre for Systems Biomedicine (LCSB) and the Luxembourg Centre for Contemporary and Digital History (C²DH).

Research Areas

Research at the University focuses on six priority areas and two interdisciplinary themes: Materials Science, Computer Science & ICT Security, European and International Law, Finance and Financial Innovation, Education and Contemporary and Digital History, as well as Health and Systems Biomedicine and Data Modelling and Simulation.

Prominent Rankings

Times Higher Education ranks the University of Luxembourg #3 worldwide for its "international outlook", #12 in the Young University Ranking 2020 and among the top 250 universities in the World University Rankings 2021.

Faculty of Science, Technology and Medicine

Faculty of Law, Economics and Finance

Faculty of Humanities, Education and Social Sciences

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LCSB

SnT

C²DH LUXEMBOURG CENTRE FOR CONTEMPORARY AND DIGITAL HISTORY

United Against COVID-19

In 2020, the coronavirus impacted the world on every level and changed how the University functioned. COVID-19 has also shown how exceptional crises bring out the best in us. The University found ways to cope with the crisis, ensure continuity, limit the negative fallout for research, teaching and mental health and to support students in need.

How the University Adapted to the Pandemic

Faced with a highly contagious virus and the need to preserve the health system's operational capacity, unprecedented steps were taken to limit social contacts and put parts of the economy into lockdown. The University made its campuses as COVID-safe as possible and switched to remote teaching and working. Despite the highly disruptive effects of the COVID mitigation measures, the continuity of the University's teaching and research activities could be preserved. And a large part of that research activity was re-refocused to support the fight against the pandemic. Read more about the COVID-related research on page 10-11.

The measures included:

- COVID-safe spaces created in lecture halls, classrooms, shared areas, the library, labs and offices
- Distribution of 20,000 masks
- Installation of hand sanitiser stations in University buildings
- Installation of live streaming equipment in the lecture halls for remote/hybrid teaching
- Development of a dedicated platform with tutorials, guidelines and support for remote studying, remote exams and remote work
- Provision of computer equipment for remote work
- Consistent communication campaigns aimed at students and staff
- Free COVID-19 testing for staff and students

New students attended the University's Welcome Day 2020 organised in compliance with health and saftey regulations.

Beyond making the University COVID-safe and facilitating remote teaching and work, the University helped staff and students cope with psychological and financial burdens.

The University Launches UMatter

UMatter was launched at the beginning of the confinement period to help students and staff manage the rapid and unforeseen changes in their professional, academic and personal lives. UMatter is an online hub for information, resources, support and guidance. Students and staff can find tips on how to take care of themselves, what to do if a person is concerned about someone else's well-being and much more.

Hardship Fund and "Good Food" Vouchers Support Students in Need

With the COVID-19 crisis, many students were suddenly confronted with a loss of income which sometimes made it hard for them to support themselves. The Hardship Fund aims to support students in urgent financial need and relieve them of a part of this burden. Since the beginning of the project in February 2020, the Hardship Fund has supported over 80 students. The "Good Food" vouchers provide students in urgent need with a food voucher of €40/week to buy basic food items. Thanks to the generosity of the *André Losch Fondation* and the *Œuvre Nationale de Secours Grande-Duchesse Charlotte*, the University was able to support 100 students.

Filling Technological Gaps for Remote Studying

The Tech Scheme provides laptops to students who do not have access to suitable equipment to study remotely. This allows them to follow their online classes, hand in their assignments and participate in assessments for one semester or longer, depending on the need. This project has been made possible thanks to the generosity of *André Losch Fondation* and *Fondation du Grand-Duc et de la Grande-Duchesse*.

Campus Life Went Virtual

Since the summer semester, all Campus Life classes (sport, art & well-being) switched online, to reach staff and students in their homes.

Build Your Own Internship

Build Your Own Internship is a 10-week online programme designed when most summer internships were cancelled due to the COVID-19 pandemic. The Entrepreneurship Programme's remote initiative brought together Master's and Bachelor's students from the three faculties of the University of Luxembourg. During this course, participants acquired entrepreneurial skills and developed their own ventures. Student teams worked on education, community, financial, health tech and civil engineering ideas aimed at bringing sustainable positive change to our society.

The University's Research Contribution to the Fight Against COVID-19

In response to the COVID-19 pandemic, the University of Luxembourg reoriented a significant part of its research activities. In March 2020, the University became part of the national Research Luxembourg COVID-19 Task Force, to support the joint expertise that the University and other research institutions in Luxembourg can offer in the fight against COVID-19. Around 200 University researchers put their careers and other non-COVID-related projects on hold to join the cause and to contribute to all 14 work packages of the Task Force which focused on:

- Evaluating the infection prevalence in Luxembourg,
- Identifying predictive markers of disease severity,
- Coordinating interventional clinical trials with existing and novel drugs,
- Providing diagnostic capacity and large-scale testing strategies for Luxembourg,
- Identifying eHealth solutions for hospitalised and ambulatory patients,
- Making statistical pandemic projections,
- Gauging the economic impact of the pandemic,
- Assessing supply chains and logistics,
- Mobilising volunteers to support hospital emergency services,
- Mobilising and coordinating private-public partnerships,
- Developing COVID-19 centered communication,
- Compiling evidence-based review in the outbreak context, and
- Creating new research initiatives.

"In the spring 2020, very little was known about the virus and the illness it causes," says Prof. Paul Wilmes, Chargé de Mission of the University and co-speaker of the Task Force. "How many people in the Grand Duchy are likely to become infected with the coronavirus? How do we recognise severe COVID-19 cases from the early stages? What role do those people play who have only mild symptoms, or no symptoms at all? None of this was known. Science-based answers to these and similar questions were absolutely essential if we were to be able to take the right measures to prevent an uncontrolled escalation of the pandemic," says Prof.Paul Wilmes.

The Task Force cooperates closely with the government institutions, health authorities and hospitals on projects, projections and strategies. It supplies factual information on the spread of the virus and monitors the situation with the aim of continuously containing the spread of the novel coronavirus. Significant initiatives include:

- Large-Scale Testing: As part of its lockdown exit strategy, Luxembourg implemented an extensive and unique nation-wide testing campaign, co-led by Prof. Ulf Nehrbass, CEO of the Luxembourg Institute of Health and Professor at the University of Luxembourg, and Prof. Paul Wilmes, principal investigator at the Luxembourg Centre for Systems Biomedicine (LCSB), inviting its residents and cross-border workers to voluntarily get tested for SARS-CoV-2. The aim of this Large-Scale Testing (LST) initiative was to limit the spread of the SARS-CoV-2 virus by identifying positive cases early, including asymptomatic carriers, thereby pre-emptively breaking infection chains. At the same time, LST contributed to the close monitoring of the spread of the virus among the Luxembourg population.
- Prevalence study: The CON-VINCE study, led by Prof. Rejko Krüger from the LIH and LCSB, aims to evaluate the dynamics of the spread of the COVID-19 disease within Luxembourg's population.
- Statistical pandemic projections: Prof. Rudi Balling, Prof. Alexander Skupin and Prof. Jorge Gonçalves from the LCSB, developed a workflow for daily simulations on evolution, impact and spread of the COVID-19 outbreak to forecast the burden on the healthcare system and to understand for how long social distancing and other measures need to be in place before people could safely resume their everyday lives outside their homes.
- Mobilising volunteers to support hospital emergency services: Under the leadership of Prof. Gilbert Massard from the Faculty of Science, Technology and Medicine, this initiative was particularly important during the first phase of the pandemic to secure patient care in Luxembourg.
- Supply chains and logistics: Led by Prof. Benny Mantin from the Luxembourg Centre for Logistics and Supply Chain Management (LCL), the initiative to study supply chains and logistics remains instrumental in assessing the impact of the pandemic on the different logistics providers, analysing supply chains that support various sectors of the economy and supporting the planning process of the Large-Scale Testing initiative.

While science has already meaningfully contributed towards the management of the pandemic in Luxembourg over the last year, much remains to be discovered in the months ahead. "We have much to learn about the next phase of the pandemic, in which new vaccines are available but also newly circulating strains appeared. Whether vaccines will also protect against infection and transmission, and not only disease symptoms, is just one aspect that has to be clarified urgently," says Prof. Paul Wilmes.

The University distributed 20,000 masks.

Outside of the Task Force, approximately 50 University projects are dedicated to COVID-19 research. While these projects were conducted outside of the Task Force, many of them inform the work and research within the work packages of the Task Force, and contribute to a broad-based network of expertise. A number of these projects focus on the Coronavirus SARS-CoV-2 and the infection it causes, COVID-19. Yet others look at the economic and social effects of the pandemic. 26 projects received funding from the Luxembourg National Research Fund (FNR). More than 20 pandemic-related research activities were funded by the University internally.

The following are only a few of the many significant projects dedicated to COVID-19 research outside of the Task Force:

Towards Pharmacological Treatments for COVID-19

The project CovScreen, led by Prof. Enrico Glaab, provides a fast experimental validation of drug repurposing candidates for COVID-19 from a computational pre-selection of antivirals, drugs and natural compounds that are inexpensive, have known safety properties and high predicted bioavailability in the lung.

Legally Fighting COVID-19

The project "Legally Fighting COVID-19", led by Prof. Elise Poillot, proposes a strategic assessment of the existing legal framework to be respected at the EU and domestic level (compliance with the GDPR) to fight the spreading of the virus through tracking applications.

Understanding Psychological Effects of Social Distancing

COVID-19 has profoundly changed our daily habits. Between "home-office", "home-schooling" and only leaving our homes for basic necessities, social interactions have been drastically reduced. Stress factors such as the loss of income must be added to this social isolation. A survey, conducted by Profs. Conchita D'Ambrosio and Claus Vögele, aimed to better understand the impact of confinement on the populations of Luxembourg, Italy, Spain, Sweden, France and Germany.

Analysing the Impact of Exit Strategies

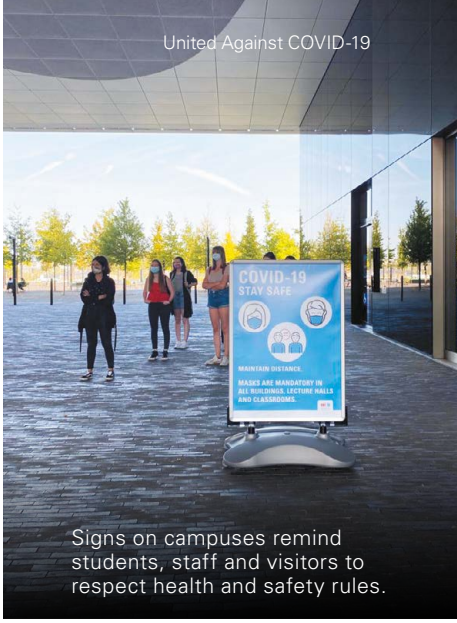
A team at the University of Luxembourg's Interdisciplinary Centre for Security, Reliability and Trust (SnT), led by Prof. Yves Le Traon, has developed an online tool to simulate COVID-19 exit strategy planning for close to 100 countries. The tool uses machine learning techniques to analyse public data and deliver hypothetical projections of how different isolation measures will impact the spread of COVID-19.

Survival Prediction in Patients With Severe COVID-19 Infection

Building on a long-standing collaboration with the Wuhan University of Science and Technology, researchers from the Luxembourg Centre for Systems Biomedicine at the University of Luxembourg conducted a study based on blood samples from Chinese COVID-19 patients. They developed machine learning tools to identify crucial biomarkers of disease severity. Their results highlight three parameters that can be used to predict the survival of individual patients with more than 90% accuracy.

Covidmemory – Memories of a Pandemic

The COVID-19 pandemic is an event whose historic dimension is immediately obvious. The crowdsourced memory bank covidmemory.lu, launched in April 2020 by the Luxembourg Centre for Contemporary and Digital History, offers all people living or working in Luxembourg the opportunity to share their experiences and preserve them for future generations. The project, led by Dr Stefan Krebs, aims to document the impact the pandemic has had on people's lives and social relationships.



Signs on campuses remind students, staff and visitors to respect health and safety rules.


Hand sanitiser stations were installed across the campuses.

Our Research in 2020

The University of Luxembourg is a strongly research-oriented university. Its ambition is to produce top-class research output, addressing society's challenges through interdisciplinary approaches.

In 2020, more than 1,100 academic staff were involved in about 1,000 University research projects.

The University strongly supported the national COVID-19 Task Force, and many University researchers suspended their ongoing projects to join the fight against the global pandemic. Detailed information about COVID-related research is published on pages 10-11.

The University focuses on six research priorities and two interdisciplinary themes. These are defined as areas in which excellence and critical mass, as well as a high potential for international leadership, already exists or can be achieved.

Research priorities:

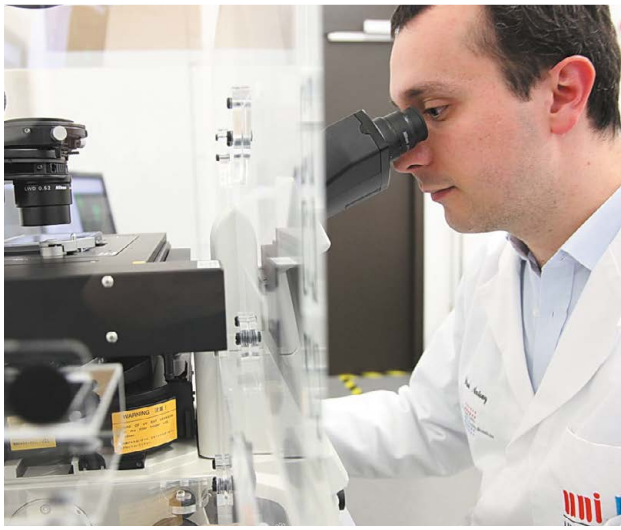
- **Materials Science**
- **Computer Science & ICT Security**
- **European and International Law**
- **Finance and Financial Innovation**
- **Education**
- **Contemporary and Digital History**

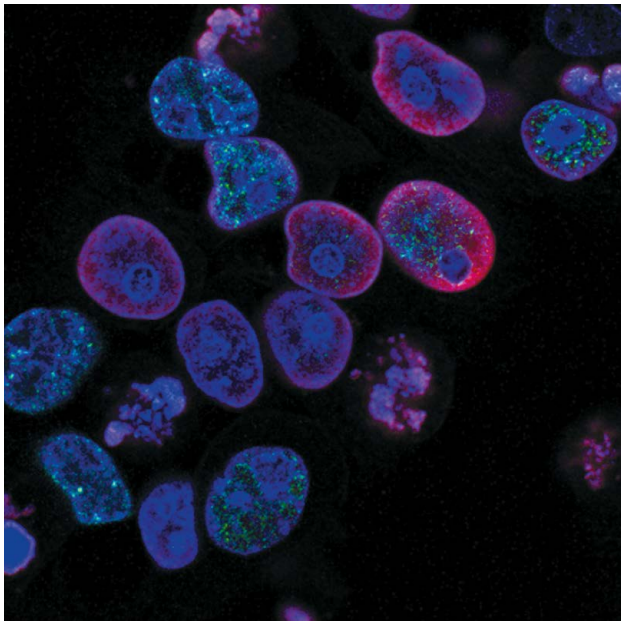
Interdisciplinary themes:

- **Health and Systems Biomedicine**
- **Data Modelling and Simulation**

In 2020, the University received a total of 61.7 million euros in third party funding. A remarkable success was achieved in terms of international competitive funding (H2020). 27 new projects were accepted by the European Commission's Horizon 2020 programme, attracting funding of 8.2 million euros. Another 145 new projects received grants by the Luxembourg National Research Fund (FNR). This represented 48.4 million euros of funding.

In 2020, the University counted 1,137 academic staff.





Research Highlights

Launch of the Institute for Advanced Studies

The University launched an Institute for Advanced Studies (IAS) with the aim of strengthening its interdisciplinary research. The IAS reinforces the University's international profile as an excellent research university and acts as a promoter to overcome boundaries between different scientific disciplines and sectors.

Building on its strong disciplinary roots, the University uses interdisciplinary research as a catalyst to generate new understanding and innovations to improve the quality of life and society of tomorrow.

The IAS has four missions: to leverage bold interdisciplinary research at the very forefront of science; to project the University's values of excellence, interdisciplinarity and internationality; to build bridges within the University community, with external visitors and society; and to attract and retain international talent in Luxembourg.

In the context of the Audacity instrument (which features ten collaborative projects at the forefront of interdisciplinary science, all with a distinctly exploratory and audacious character), have been retained for funding in 2020.

"The major challenges we face today, whether they are economical, industrial, societal, health-related or environmental, are so complex and over-arching that interdisciplinary efforts are required to assess, understand and solve them", explains Prof Jens Kreisel, Vice-Rector for Research at the University, who leads the University's IAS during the first year as its founding director. *"The IAS acts as a magnet for the international research community and opens additional channels of exchange with civil society."*

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Prof. Jens Kreisel, Vice-Rector for Research and founding director of the IAS

New ERA SanDAL Chair

The University was awarded a prestigious ERA (European Research Area) Chair grant. With a budget of 2.5 million euros for five years. The ERA Chair in Mathematical Statistics and Data Science (SanDAL) aims to complement current research activities to position Luxembourg as a key player in mathematics and data science. Prof. Yannick Baraud was inaugurated as the chairholder.

New Chair in Digital Procurement

The University of Luxembourg and the Ministry of the Economy announced the creation of a Chair in Digital Procurement. The Chair, held by associate professor Nils Löhndorf, is hosted at the University's Centre for Logistics and Supply Chain Management of the Faculty of Law, Economics and Finance and trains Master's students in the use of new technologies and computer science in procurement.

ERC Grant for Radar Project

Prof. Björn Ottersten, Director of the Interdisciplinary Centre for Security, Reliability and Trust, received a Proof-of-Concept grant from the European Research Council (ERC). The grant will be used to develop a product based on a novel radar system, working together with research associate Dr Christian Hammes and research scientist Dr Bhavani Shankar. The radar system design allows exceptionally accurate movement tracking – down to a few centimetres – for use in high-performance sports coaching and the manufacturing industry.

Funding for Humanities, Education and Social Sciences

Seven projects – funded by the Luxembourg Research Fund's CORE programme for strengthening the scientific quality of Luxembourg's public research – were launched at the Faculty of Humanities, Education and Social Science in 2020. This exemplified the relevance of the humanities and the social sciences for advancing Luxembourg's research priorities. The projects address topics like multilingualism and the acquisition of number concepts; childhood and multiliteracy; the effects of socio-economic factors in the ageing process; regional economic development and sustainable finances; test development in mathematics; and European banking supervision.

Prof. Yannik Baraud

Stem Cell research Develops New Treatment Strategy for Parkinson's Disease

In a seven-year research effort, an international team of scientists led by Prof. Rejko Krüger of the Luxembourg Centre for Systems Biomedicine clarified the cause of certain genetic forms of Parkinson's disease, and identified potential pharmacological treatments. The interdisciplinary research team experimented on patient-based cell cultures in the lab and gained new insight into the role of a protein called DJ-1. Their results offer novel possibilities to treat a malfunction in this protein's synthesis.

FNR ATTRACT Fellow Thomas Cauvin Joins University

Associate professor Thomas Cauvin joined the Luxembourg Centre for Contemporary and Digital History with an FNR ATTRACT fellowship endowed with 2 million euros. Inspired by the evolution of digital participatory sciences, Cauvin's project facilitates interactions between academics, cultural institutions, and the general public to contribute to a democratisation of access to and the production of history.

Prof. Thomas Cauvin

Tackling the Notorious Oncogene RAS in Cancer

Prof. Daniel Abankwa from the Department of Life Sciences and Medicine at the Faculty of Science, Technology and Medicine conducted four cancer related projects in 2020 on, which is the most frequently mutated human oncogene (the mutated genes that can significantly drive tumour formation).The projects were conducted in collaboration with partners in Germany, the Netherlands and the UK.

Most research on RAS deals with its role in driving cell growth, but recent data suggest that its dysfunction in cancer goes well beyond that. This is addressed in the project PolaRAS2. This applies sophisticated microscopy methods to understand how RAS proteins drive cancer stem cells defining cellular processes, which could be at the origin of every tumor.

The second project, RAS-NANOME, focuses on finding novel regulators of RAS, specifically those that would regulate the organisation of RAS into signaling packages in the cellular membrane. Importantly, some of these regulators may have the potential to become important drug targets in cancer.

Most drugs on the market are small molecules that fit into a drug-target like a key into a 'deep' keyhole. The third project, HRAS-PPI, aims to develop challenging inhibitors, which can attack flat and large protein-protein interfaces. "Together with our collaborator Prof. Tom Grossman (VU Amsterdam), we will design so called peptidomimetics as inhibitors," explains Prof. Abankwa.

Finally, a FNR Proof-of-Concept grant supports the development of a novel anti-cancer drug. The project aims to create a virtual biotech company to develop a drug, which indirectly inhibits RAS. "RAS drug development is a very hot topic at the moment. The National Cancer Institute in the US has even dedicated a special programme to support this, called the RAS-Initiative. However, drug development is a very expensive process, typically taking more than 10-years. Yet, several examples in recent years have demonstrated that academic labs are important innovators," says Prof. Abankwa.

With this in mind, Prof. Abankwa is optimistic that the next years will show some breakthroughs in understanding and drug-targeting RAS in cancer. It will be exciting to see progress in this area at the University of Luxembourg.

The Luxembourg National Research Fund (FNR) supports these projects with a total of more than 1.6 million euros.

> "I am optimistic that the next years will show some breakthroughs in understanding and drug-targeting RAS in cancer."
>
> Prof. Daniel Abankwa

Doctoral Education at the University

The University is one of the main pillars of Luxembourg's dynamic research landscape, driving the national ecosystem of innovation and research. Doctoral education plays a very important role in this, and doctoral candidates contribute heavily to research and to the University's positioning as a research university. They also represent an important talent pool for the country.

In 2020, more than 923 doctoral candidates were registered at the University, compared to the first nine doctoral graduates in 2006/2007.

In total, 129 candidates obtained their doctor's degree in 2020. The University also celebrated an important milestone in 2020 – its 1000th doctoral graduate Dr Carmine Gabriele, who completed his thesis on financial stability at the Faculty of Law, Economics and Finance.

In 2020, the University for the first time honoured 15 doctoral graduates with the "Excellent Thesis Award" which recognises the outstanding quality of their doctoral theses. "The 'Excellent Thesis Award' celebrates cutting-edge research and is awarded to the top 10% of the University's doctorates. We are proud of our outstanding young researchers, who will be ambassadors of our University and for the research and innovation potential of Luxembourg," says Prof. Jens Kreisel, Vice-Rector for Research of the University.

The University of Luxembourg has four Doctoral Schools:

- The Doctoral School in Science and Engineering (DSSE) currently offers seven doctoral programmes in civil engineering, computational sciences, computer science and computer engineering, mathematics and applications, mechanical/electro and communications engineering, physics and materials science, and systems and molecular biomedicine. More than 570 doctoral candidates from more than 60 countries are currently pursuing their studies in the DSSE.

- The Doctoral School of Law responds to the needs of PhD candidates educated in different legal systems and prepares them for competitive academic and non-academic future careers. Courses on general skills and methods are combined with specific training in legal topics, including themes attached to externally funded research programmes on doctoral education.

- The Doctoral School in Economics and Finance (DSEF) aims at providing doctoral candidates with a high-calibre research environment meeting the standards of the best universities in Europe and North America. The doctoral candidates will focus on developing their ability to cope with new, original research questions and address them with up-to-date quantitative tools and methods. The School collaborates with private partners as well as local and international public institutions.

- The Doctoral School in Humanities and Social Sciences (DSHSS) offers its training within four different doctoral programmes: Humanities, Education, Social Sciences and Psychology.

In 2020, the University for the first time honoured 15 doctoral graduates with the "Excellent Thesis Award"

Luxembourg in Transition - Addressing the Challenges of the 21st Century

Reducing the ecological footprint is one of the major concerns that society is currently facing. New creative tools and solutions are required at all levels to reduce the human impact on our planet.

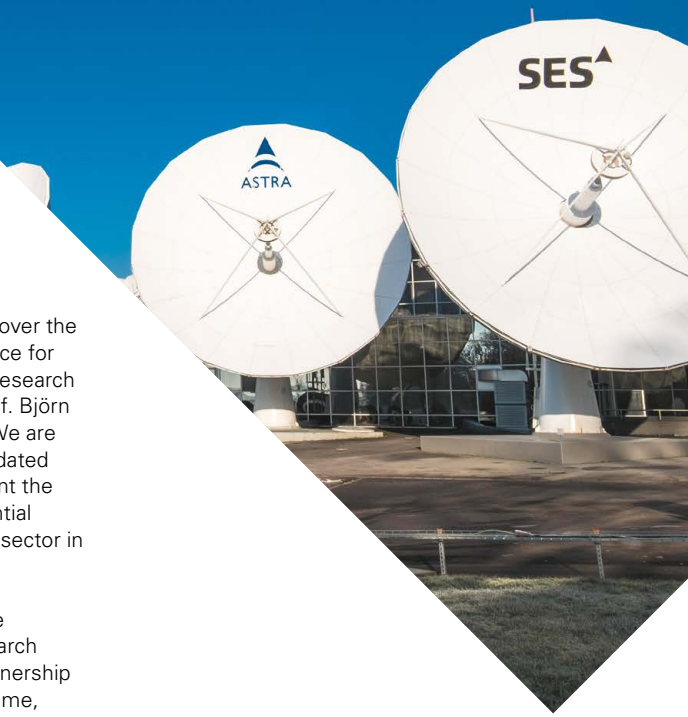
The Luxembourg Government wishes to play a key role in decarbonising the economy and implementing a green transition. It launched the initiative "Luxembourg in Transition: Spatial Visions for the Zero-Carbon and Resilient Future of the Luxembourg Functional Region" in June 2020. The Ministry for Energy and Spatial Planning called for teams of regional developers, urban planners, architects, and scientists from the humanities and the social sciences to submit their visions for an ecological transition of Luxembourg and the Greater Region. The "Luxembourg in Transition" initiative aspires to find new, creative planning and development solutions, while protecting biodiversity and moving towards a zero-carbon society by 2050. Rather than putting the participating teams into competition, "Luxembourg in Transition" is designed as an exchange of ideas, which should guide future political decision-making and transform ways of living.

Researchers from the Department of Geography and Spatial Planning and the Department of Engineering teamed up with the Luxembourg Institute of Science and Technology (LIST), the Centre for Ecological Learning (CELL), the Institute of Organic Agriculture (IBLA) and the Office for Landscape Morphology (OLM) to bring their expertise to the project. The team drew on the experiences acquired by some of their fellow team members who worked on the "Prospective visions for Greater Geneva competition", a consultation project that largely inspired the "Luxembourg in Transition" initiative. Their scenario for facilitating Luxembourg's ecological transition focuses on five closely intertwined topics: agro-ecology, regenerative energy systems, alternative economies, and governance/ participation-processes, in addition to regional planning, urban planning and design, and architecture. The researchers argue that technological progress is not the only solution towards a sustainable society. Changes of society's economic, social, political, and anthropological orientations are required to achieve this shift.

10 projects were selected out of 30 proposals. Among the final participants are the University of Luxembourg consortium led by Prof. Florian Hertweck as well as internationally renowned offices such as MVRDV, Kees Christianse and Arup. The three-stage competition ends in December 2021 when the three remaining teams will present their detailed visions.

Collage by students Daniel Domine, Christos Floros and Simona Popova of the accompanying design studio led by Dr. Nikos Katsikis and Prof. Florian Hertweck.

Cutting-Edge Research for Novel Satellite-Terrestrial Networks



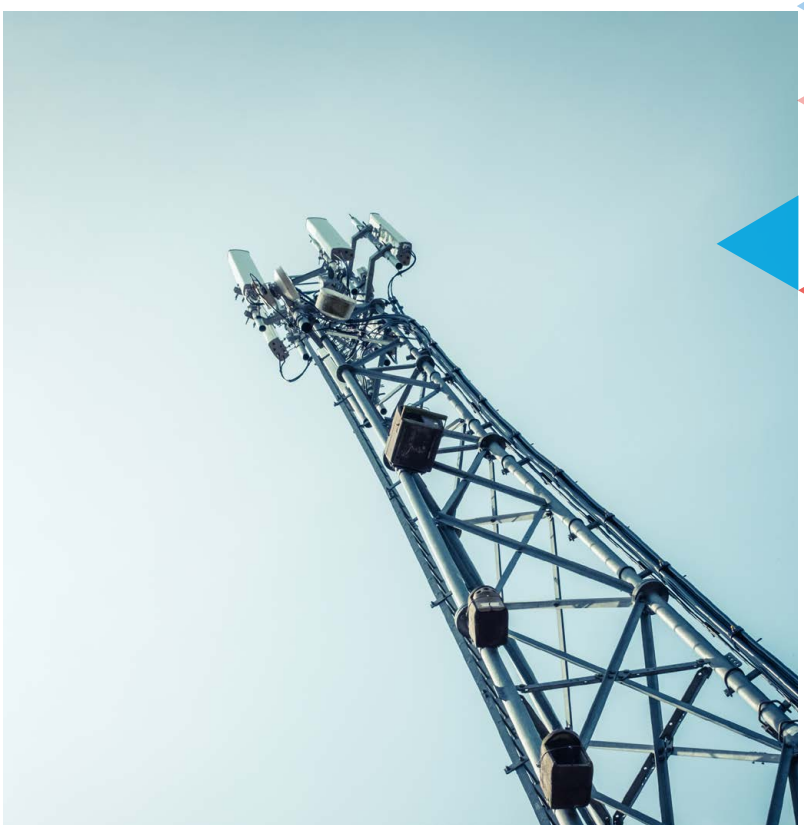
A six-year research partnership between the Interdisciplinary Centre for Security, Reliability and Trust (SnT) and SES, a leader in global content connectivity solutions, explores next-generation integrated satellite-terrestrial networks, leveraging what has already been achieved in the 5G area. Titled INSTRUCT (INtegrated Satellite-TeRrestrial Systems for Ubiquitous Beyond 5G CommunicaTions), the project builds on a successful 10-year relationship between SnT and SES that has resulted in a number of advanced technology solutions.

The integration of satellite and terrestrial systems is crucial, as truly global next-generation networks require an ecosystem of multiple communication infrastructures to be inclusive, ubiquitous and affordable. A satellite is an ideal enabler of the next-generation networks thanks to its wide coverage, ability to deliver to moving platforms and simultaneity. It allows a broad range of next-generation connectivity scenarios, even in remote areas, for crucial applications in mobile backhauling, aero and maritime connectivity, emergency response, telemedicine, and much more. As an industry leader, SES has a solid track record in delivering to the existing data markets, and spearheads major technological innovation and standardisation initiatives, including for 5G.

"The integration of satellite and terrestrial networks is a complex research challenge as we enter the beyond 5G era," says Prof. Symeon Chatzinotas, Project Principal Investigator at SnT. "This FNR grant gives us the support to build a Centre of Excellence in Luxembourg, as well as advance research and technology transfer in this area."

"The partnership with SES over the years has been a driving force for some of the most exciting research outcomes of SnT," says Prof. Björn Ottersten, Director, SnT. "We are proud to have our work validated by the FNR and are confident the research will create substantial opportunities for the space sector in Luxembourg."

The project is funded by the Luxembourg National Research Fund's (FNR) Industrial Partnership Block Grant (IPBG) programme, the FNR's most extensive funding mechanism for collaborative industrial research in Luxembourg. The IPBG award funds 17 SnT research projects.



The Exposome: When Our Environment Drives Health and Disease

Prof. Emma Schymanski, Luxembourg National Research Fund (FNR) ATTRACT fellow and head of the Environmental Cheminformatics research group at the Luxembourg Centre for Systems Biomedicine (LCSB), and collaborators have conducted fundamental research to better map the complexity of the exposome. Their contributions were published in two papers in the prestigious scientific journal *Science*.

The exposome is the sum of all the environmental drivers of health and disease: a combination of external factors such as chemicals contained in the air, water or food, and of internal components produced by our organism in response to various stress factors. This very complex set of elements is continually evolving. To map it fully is a challenging undertaking. A first paper[1] describes progress that will help with this task, such as the development of high-resolution mass spectrometry, a technology that can detect tens of thousands of compounds in biological and environmental samples. Associated with growing databases on all known chemicals and powerful computational tools to analyse large amounts of data, these technological advances could revolutionise environmental monitoring.

This first paper also highlights that a network approach is needed to take into account the large number of chemical exposures in our daily lives and the complex way they interact with our cells. The second review[2] describes ways to characterise groups of chemicals in diverse samples, from water and soil to biological tissues, and to identify mixtures that pose a combined risk. "Innovative sampling techniques such as hand wipes or silicon bracelets can be used to measure personal exposure," Prof. Schymanski explains. "We also mentioned the importance of non-targeted analyses to identify unknown contaminants and showed the potential of *in-vitro* bioassays to assess the toxicity of complex mixtures, even if chemical identities remain unknown."

"Both papers are a call for a research effort at a scale comparable to what was done for the human genome, to get in-depth knowledge of the cocktail of substances we are exposed to and their intricate interactions with living organisms," Prof. Schymanski points out. There are still many challenges ahead: databases have to be harmonised and made fully accessible, statistical tools need refining in order to account for the constellation of chemicals coming from related sources, and methodologies should be standardised. But despite the difficulties, the perspectives are tremendous.

[1] The exposome and health: where chemistry meets biology
Roel Vermeulen, Emma L. Schymanski, Albert-Laszlo Barabási and Gary W. Miller, *Science*, January 2020

[2] Tracking Complex Mixtures of Chemicals in our Changing Environment
Beate I. Escher, Heather M. Stapleton, and Emma L. Schymanski, *Science,* January 2020

Supported by the Luxembourg National Research Fund (FNR).

Experimental Media Archaeology

The goal of the project "Doing Experimental Media Archaeology" (DEMA) of the Centre for Contemporary and Digital History (C^2DH) is to explore the hands-on potential of historical re-enactments and experiments to study past media technologies and how they were used in the past. The C^2DH has joined forces with the Department of Engineering (DoE) of the Faculty of Science, Technology and Medicine on several interdisciplinary projects.

One such interdisciplinary project was the replication of a Kinora, one of the first motion picture technologies designed for home use, developed in 1896 and used until 1914. This device of the history of (early) cinema applies a flipbook mechanism, in which a series of paper-based unperforated photographs are attached to a wheel. By turning the wheel and looking through the viewer, one could watch a series of photographs in motion. DEMA researcher Tim van der Heijden worked on this project with senior lecturer Claude Wolf and student assistant Morgane Piet from the DoE. By means of 3D modelling and desktop manufacturing engineering techniques, they were able to produce a working replica of the original Kinora viewer from c. 1907.

The Kinora viewer and reel: original and replica.

DEMA co-researcher Aleks Kolkowski embarked on another historical replication project in collaboration with the DoE, involving the amplification of sound using compressed air. This pioneering technology from the early 20th century, a precursor to electrical public address systems, enabled recorded music and announcements to be played to large audiences. The goal was to recreate a compressed air gramophone using two types of valved sound boxes, namely the Auxetophone (c. 1905) and the Stentorphone (1913-20). Based on a close examination of these objects, Bachelor's students David Schmit and Thomas Theisen and Master's student Sunil Kumar created replica models using 3D printing in polymers and metal, laser-cutting and more traditional milling techniques.

The year 2021 will see the culmination of this fruitful interdisciplinary collaboration, with live public demonstrations and performances centred on these replicated technologies and their usage.

At the Intersection of Law and Digitalisation With DTU DILLAN

DILLAN is a Doctoral Training Unit (DTU) covering topics of shaping the evolution of Europe's multi-level legal systems to the digital evolution and digitalisation. It is based on an interdisciplinary cooperation between lawyers (in the Department of Law at the Faculty of Law, Economics and Finance) and computer scientists (at the Interdisciplinary Centre for Security, Reliability and Trust and the Department of Computer Science at the Faculty of Science, Technology and Medicine). DILLAN was initiated and is coordinated by Profs Herwig Hofmann, Katerina Pantazatou and Mark Cole, bringing together an academic community of 17 doctoral students, one post-doc and 17 associated supervisors.

The research focuses on enhancing digitalised problem-solving and decision-making for various areas of regulation and law, while protecting democratic decision-making, transparency and individual rights. Researchers study possibilities of several key enabling technologies on values, principles and rights, accountability and develop responses for the legal system. The projects focus on six clusters addressing matters in constitutional and regulatory fields, taxation, currencies and Fin-Tech, crime and criminal law, dispute settlement and machine learning.

The University of Luxembourg is uniquely positioned to undertake this interdisciplinary research. European and International Law as well as Computer Science and ICT Security are amongst the University's central research priorities. The combination of these research priorities will ensure enhanced digital literacy among law doctoral candidates and knowledge of legal context among computer science doctoral candidates. The project DILLAN received funding from the Luxembourg National Research Fund's (FNR) PRIDE programme.

PRIDE is the FNR's main programme for funding doctoral research in Luxembourg. It supports the development of critical mass in key research areas by attracting excellent doctoral candidates to Luxembourg and offering high quality research training. Under this programme, doctoral candidate grants are awarded to researchers cooperating on a coherent research and training programme.

Excellence

Excellence in research is not only a matter of strategies, programmes and projects. It is, above all, a matter of aligning dedicated bright minds. In 2020, many members of the University research community have been honoured with awards of excellence.


Prof. Tonie van Dam


Prof. Stéphane Bordas


Prof. Alexandre Tkatchenko


Fatima Chaouche receives the Rolf Tarrach Prize from Rolf Tarrach.

Prof. Tonie van Dam Inducted as AGU Fellow

Prof. Tonie van Dam was inducted as a Fellow of the American Geophysical Union (AGU). AGU Fellows are a select group of scientists who have made exceptional contributions to Earth and space sciences.

Two Professors Among the World's Highly Cited Researchers

Professors Stéphane Bordas and Alexandre Tkatchenko rank among the world's most influential academics on the "Highly Cited Researchers 2020" list released by Clarivate. Their publications rank in the top 1% by citations for field and publication year in the Web of Science citation index, demonstrating significant influence among their peers.

Rolf Tarrach Prize for Fatima Chaouche

The association Les Amis de l'Université has awarded the Rolf Tarrach Prize 2020 to Fatima Chaouche for her doctoral thesis. She explores the legal value and enforceability of tax circulars and tax rulings in Luxembourg domestic law in light of the principle of legitimate expectations. The prize rewards excellence in the field of research and promotes the international reputation of the University.

Pierre Werner Scholarship

The Pierre Werner Scholarship, awarded by the Fondation Pierre Werner under the aegis of the Fondation de Luxembourg, is given to outstanding doctoral students in the fields of either law, economics, finance, or political sciences. The 2020 laureates are Rana Cömertpay, Bastian Krieger, Roila Mavrouli and Igor Tkalec.

FNR Awards 2020

University researchers win FNR Awards

The Luxembourg National Research Fund (FNR) Awards celebrate science and research in Luxembourg. In 2020, researchers of the University received awards in four categories:

- Outstanding PhD Thesis: Maciej Chrzanowski, Thierry Titcheu Chekam
- Outstanding Promotion of Science to the Public: Sophie Wagner, Sabine Katharina Schmitz, Ruxandra Soare Lelubre, Lucie Debroux, Lisa Smits, Philippe Lamesch
- Outstanding Research-Driven Innovation: Prof. Claudine Kirsch and Simone Mortini
- Outstanding Scientific Publication: Dr Carole Linster, Nicole Paczia, Julia Becker-Kettern, Jean-François Conrotte and Daniel Kay.

Focus on Sustainability

The University also conducts outreach activities to engage with a broad general audience. These include the "October Days of Sustainable Development," the lecture series "Inequality and...", as well as the "Inclusive and Sustainable Finance Research Conference," organised virtually in 2020 due to the COVID-19 pandemic.

The world is changing at an exceptionally fast pace. Climate change is one of the most important challenges of the time. Sustainability is arguably the most visible and broad current international topic, attracting significant interest from policy makers and the wider public, particularly the younger generation. With its mission of research and stimulating innovation, and with its broad expertise across disciplines and sectors, the University is uniquely positioned to help address societal challenges and sustainability. It has identified sustainable and societal development as one of its future strategic focus areas.

Numerous research projects at the University already focus on areas such as water management, sustainable finance, natural resources management, social inequality, sustainable urban planning and renewable energy.

Study Programmes in Sustainability

The University offers one Master's programme, a specialisation track and two certificates related to sustainability: The Master en développement durable (Master in sustainable development), the sustainable finance track in the Master in Finance and Economics, the Certificate in Law and Regulation of Inclusive Finance, and the Certificate in Sustainable Development and Social Innovation.

With Double Power: Tandem Solar Cells

Solar cell technology has seen significant progress over the last decades, putting solar cells among the lowest cost sources of electricity in central Europe. Thin film solar cells are particularly interesting because of their low energy consumption during production, which makes them the electricity source with the lowest greenhouse gas emissions, together with onshore wind power. The laboratory for photovoltaics (LPV) at the Faculty of Science, Technology and Medicine, led by Prof. Susanne Siebentritt, contributes to understanding, developing and improving thin film solar technologies.

Solar cells have fundamental physical limitations, and they can never be 100% efficient. Materials for solar cells are always a compromise between losing less light and losing less of the energy. This balance can be improved considerably by using two different materials and making a tandem solar cell. The LPV works on materials that can be used for the bottom and top cell. In 2020, the LPV identified and quantified several major loss mechanisms for the bottom cells and improved the efficiency of these stable top cells to nearly the current world record efficiency of 29.15%. Evidence suggests that efficiency can be improved even further.

Research work on solar cells: chasing efficiency gains

New Chair in Sustainable Finance

The University of Luxembourg, together with the Luxembourg Ministry of Finance and the Luxembourg Ministry of the Environment, Climate and Sustainable Development, have launched a Chair and research project in Sustainable Finance. Research and teaching activities of the Chair contribute to a sustainable and inclusive economic system in Luxembourg and beyond. The Chair, hosted at the Department of Finance, aims to help bring change to Luxembourg's financial landscape through developing high-quality research and teaching programmes, attracting talents, and by promoting Luxembourg as an attractive destination for providers of sustainable finance services.

The Chair includes the establishment of a Master Track in Sustainable Finance in the second year of the Master in Finance and Economics. Students are equipped with the very latest knowledge on climate-related financial risks, as well as the expertise, networks and skills to design and implement practical solutions for measuring and managing these risks. The first cohort of 20 students began their studies in September 2021.

Towards a Sustainable Food System for Luxembourg

Food systems in developed countries have proven to be unsustainable: apart from providing food security and food safety, they entail negative environmental and health effects and foster power imbalances and social injustice.

The research project Sustainable Food Practices aims at helping Luxembourg to transition to a more sustainable food system, by contributing to current debates on food sovereignty, biodiversity degradation, limits to growth, inequity, the search for more sustainable ways of production, consumption and governance. Project members have initiated different projects ranging from producing an interactive infographic to analyse the national foodscape to developing a sustainable shopping app. They also collaborate on a cross-border project to promote the supply of local food to out-of-home catering. Project members are also actively involved in the creation of the first Food Policy Council for Luxembourg, which advocates more coherent food policies and food democracy.

> “Only a holistic focus on food systems will lead to truly sustainable transitions for communities to curb the effects of climate change.”

Dr Rachel Reckinger, principal investigator of Sustainable Food Practices.

Strengthening Sustainable Development in West Africa

Education plays a significant role in sustainable development, which is how the LuxWays project was established. The project was initiated by the University of Luxembourg's Interdisciplinary Centre for Security, Reliability and Trust (SnT) and is supported by the Luxembourg Ministry of Foreign and European Affairs. Their aim is to select Master's students from participating universities in Burkina Faso and Senegal to join SnT in Luxembourg and earn doctoral degrees in a variety of computer science disciplines, predominantly cybersecurity. The students will then return to their home institution with their doctoral degree and become professors in their area of research. The academic cooperation in the framework of this project will be conducted with the University of Cheikh Anta Diop in Senegal, as well as the University of Joseph Ki-Zerbo and the Virtual University, both located in Burkina Faso.

With former students progressing to become professors, LuxWays will create the manpower locally to carry out significant teaching activities in computer science disciplines. These will include a variety of cybersecurity topics, for example how security relates to FinTech systems, or Artificial Intelligence. Once the professors are teaching, each University is expected to be able to award up to 60 Master's degrees every two years thanks to their efforts. This will support the regional economies as the graduates will be able to fill skill gaps in local companies or create their own start-ups.

> "We need to educate the trainers in creating sustainable development. This project will create so many opportunities for young researchers who will now be able to study computer science at home, instead of only a select few leaving the country, as I did in order to follow my chosen research path."
>
> Prof. Tegawendé Bissyandé, leader of the LuxWays project at SnT

Studying at the University: A Unique Experience

Studying at the University of Luxembourg is a uniquely enriching experience. The University instils a drive for excellence and success in its students. It offers a supportive environment, including a network of great expertise.

Students can learn, grow, explore and benefit from a truly stimulating international environment.

In 2020, the University counted more than 6,700 student registrations.

Studying at the University of Luxembourg is also a uniquely international experience. 56% of the student population is international and includes 130 nationalities. This diversity is echoed by the teaching staff from 100 countries.

Teaching at the University of Luxembourg is multilingual. The programmes are primarily bilingual (French/English or French/German), some are trilingual, and others are entirely taught in English.

The University offers 17 Bachelor's programmes, 46 Master's programmes, and 15 vocational training and lifelong learning training courses, as well as 4 doctoral schools.

To ensure highest-quality teaching, the University relies on highly experienced academic staff across its faculties and interdisciplinary centres. It also draws on the knowledge of a range of experts from the business community and international institutions. It has close ties to Luxembourg's globally significant financial centre, the European Investment Bank, the European Court of Justice and many more.

THE* Young University Rankings 2020

#12 worldwide

#4 among 'millennial' universities**

* Times Higher Education
** set up in the 21st century

Teaching Awards 2020 (from left to right): Prof. Stéphane Pallage, Damien Negre, Prof. Anke Müßig, Alessio Buscemi, Prof. Martin Theobald, Dr Alfredo Capozucca, Prof. Catherine Léglu, Prof. Jean-Marc Schlenker

Outstanding Teachers, New Programmes and New Alumni

More Than 1,600 Graduates in 2020

The University awarded 1,697 diplomas for the academic year 2019/2020, including 659 Bachelor's degrees, 544 Master's degrees, 121 doctoral degrees and 373 other degrees.

New and Redesigned Study Programmes

The University launched new programmes in September 2020:

- Master in Software Development and Validation
- Master in Legislative Studies
- Master in Technopreneurship
- Bachelor in Medicine
- Bachelor in Mathematics
- Bachelor in Engineering
- Bachelor in Physics
- Bachelor in Animation

First Graduates in the Bachelor in Computer Science, the Master of Science in Biomedicine and the Master in Border Studies

The first student cohort graduated from the University's Bachelor in Computer Science and International Master of Science in Biomedicine. The joint international Master in Border Studies of the UniGR, a network of seven universities located in the cross-border area of the Greater Region, including the University of Luxembourg, also celebrated its first graduates.

FIBAA Accreditation of Master's programmes in Economics and Finance

Under the leadership of Anke Müßig, Professor of Accounting and Audit, the team of study programme directors and administrators at the Faculty of Law, Economics and Finance received FIBAA re-accreditation, a seal of quality, for the Masters in Accounting and Audit, Entrepreneurship and Innovation, and Wealth Management and the initial accreditation for the Master in Finance and Economics and Master in Quantitative Economics and Finance.

University Ranks Among Top Law Schools Worldwide

The Faculty of Law, Economics and Finance at the University of Luxembourg with its Department of Law was ranked 13 out of 500 top international law schools in the Social Science Research Network's (SSRN) May 2020 ranking.

Awards for Excellence in Teaching

Recognising excellence in teaching, the University awarded Teaching Awards to Martin Theobald and Alfredo Capozucca (Faculty of Science, Technology and Medicine), Anke Müßig and Damien Negre (Faculty of Law, Economics and Finance), and Robert Harmsen (Faculty of Language and Literature, Humanities, Arts and Education, FHSE). The FHSE dedicated one award to all students, lecturers and administrative staff of the FHSE to honour their commitment and hard work in the context of the COVID-19 pandemic. The prize money was donated to the University's Hardship Fund.

What Students Say About the University

Mara van Dyck (Bachelor en Gestion, Luxembourgish)

"The University of Luxembourg is one of the most multicultural and most modern universities around. You get to know a lot of people from all corners of the world and learn so much from them. The drive for new ideas is very welcome and students are heard. A very beneficial collaboration preparing us for the professional world. In good times and bad, a bond that lasts."

Erika González Gutiérrez (Master in Logistics and Supply Chain Management, Mexican)

"So far, and even with COVID-19 restrictions, I have had an incredible experience. School activities have been adapted successfully to our new normality. I must admit it is hard not being in the classroom, but we have managed to adapt and still get to know everyone in our classes and make new friends. I still have a lot to explore in Luxembourg and I am really looking forward to it."

Saroj Neupane (Master in Civil Engineering - Megastructure Engineering with Sustainable Resources, Nepalese)

"The University of Luxembourg not only encourages me to be academically strong but also teaches me to be a better person in life. Taking courses, seminars and sitting in different workshops has boosted my leadership quality, the approachability towards others and certainly the inner confidence in me which indirectly aids me to be a better construction manager, the career I desire to pursue after the completion of my course."

Nicola Theis (Bachelor in Psychology, German)

"I really feel like the University makes a big effort to bring people from different countries together. Even though it's sometimes a step out of your comfort zone to talk to someone in a different language, the friendliness and openness of all the people here makes everyone feel like he or she fits in, and that's not something you can take for granted."

Pedro Rocha (Bachelor en Gestion, Portuguese)

"For me, the biggest plus of our University are all the different cultures from around the world. This allows us students to make great connections and get a better view of the world! The social media team provides us students with a lot of useful information and are always ready to help; just like the LLC, which is for me among the best libraries in the world."

Student Life

The SEVE - Service des Études et de la Vie Étudiante - is the service for students at the University of Luxembourg. The SEVE accompanies students from their application to their graduation and supports them in managing their student life. The SEVE provides information about and support for study programmes and registration procedures, accommodation, mobility, health, well-being and inclusion, student participation and internships and student jobs.

New Admissions in 2020

The admission and enrolment office of the SEVE processed more than 7,600 new applications for Bachelor's and Master's programmes, excluding re-enrolments. 3,218 of those applications were accepted for admission to the University of Luxembourg. The University counts about 4,900 student registrations for Bachelor's and Master's programmes for the academic year 2020/2021. Another 923 registrations for doctoral degrees and 975 registrations for vocational training and lifelong learning courses add to the total of student registrations of more than 6,700.

Student Housing

The University provides 36 student residences with more than 1,100 rooms and studios in close proximity to the campuses. In the academic year 2019/2020, 1,074 rooms were occupied.

The life of the University's more than 6,700 students was to a large extent determined by the COVID-19 pandemic in 2020. Students needed to adapt quickly and learn in new ways from one day to another. The lack of social interaction, maintaining physical distance and financial hardships were particularly challenging. To help the student community cope, the University introduced a range of mental health support initiatives (and also made them available to the entire University community) as well as financial support initiatives. The University also offered a temporary deferral of rent to tenants of student residences in need. For more details on the University's COVID-19 mitigation plan, please refer to pages 10-11.

New features for a well-rounded study experience

Launch of Campus Well-Being

In the summer 2020, the University launched Campus Well-Being. This programme offers students and staff the opportunity to refocus on themselves in their daily routine with Mindfulness, Qi Gong, Meditation and Tai Chi classes.

Buddy Programme and Peer Assisted Learning (PAL) Programme

Two new programmes based on peer-to-peer support were launched for the beginning of the winter semester 2020. The Buddy Programme aims to facilitate the integration of new students as well as increase the sense of belonging of current students to the University. The programme pairs a 2nd or 3rd year student (Buddy-Guide) with a first-year student (Buddy) to help them settle into life at the University of Luxembourg and in Luxembourg as a country. The Peer-Assisted-Learning (PAL) Programme offers students the possibility to study and give each other feedback and encouragement via regular small group study sessions.

Bringing Students Together

Student associations aim to federate students with similar interests and contribute to generating a positive study experience. They provide a framework for social activities and allow students to engage with the University and their non-academic peers. In this way they create a family away from home, or simply provide a valuable opportunity to work in a team.

In total, the University of Luxembourg has 14 recognised student associations:

ALAS
Association of Latin American Students

GSA
Green Student Association

ASA
Architecture Student Association

Historic UL
History Students Association

CCSA
Conscious and Cultural Student Association

ISAL
Indian Student Association Luxembourg

CSA
Chinese Students' Association

DSAIL
Doctoral Students Association in Luxembourg

Uni.lu LGBT+
University of Luxembourg LGBT+ Student Association

RSG-lux - International Society for Computational Biology's Regional Student Group Luxembourg

ELSA Luxembourg - European Law Students' Association Luxembourg

SAUL - Student Association of University campus Life

ESN Luxembourg
Erasmus Student Network Luxembourg

EWBLux
Engineers Without Borders Luxembourg

New Support for a Growing Alumni Community

Over the years 11,000 students have graduated from the University. They remain part of the University family for a lifetime, with their role changing from students to ambassadors and partners for the University when they finish their studies. The University is launching initiatives in 2021 to put renewed emphasis on engagement with those alumni, including:

- Extending access to the University's Career Centre and Job Teaser platform for new graduates
- Promoting existing services for recent alumni from the University of Luxembourg Incubator, including office space for startups and the mentoring programme
- Offering discounts to alumni for courses offered by the University of Luxembourg Competence Centre and the Confucius Institute
- Expand relationships with alumni in close coordination with the Faculties and the Interdisciplinary Centres. This includes gathering feedback on study programmes, finding mentors for current students, and helping open doors to internships or employment in alumni's current organisations.

Andy Adams joined the University as new alumni relations specialist in October 2020.

The student delegation from left to right: Ines Bröckel, Nikole Kaserová, Anne Feltz, Aymeric Le Drezen, Nicola Schreiner, Naveen Aruchamy, Patrick Leske, Alexandre Mortelette

New Student Delegation Focuses on Communication, Student Well-Being and a Greener Campus

The newly elected student delegation took up its two-year mandate on 1 November 2020. It is focusing on five short and long-term topics during the first year of their mandate: communication with students, strengthening collaboration with the housing department, generating an active student life during COVID-19, improving academic well-being and sustainability on campus.

Members of the delegation and areas of focus

- Nicola Schreiner, President of the Student Delegation, Master in Space, Communication & Media Law (FDEF), Communication
- Nikole Kaserová, Master in European Law (FDEF), Housing
- Ines Bröckel, Bachelor in Psychology (FHSE), Housing
- Anne Feltz, Bachelor in Philosophy (FHSE), Student Life
- Aymeric Le Drezen, Bachelor in Computer Science (FSTM), Student Life
- Patrick Leske, Bachelor in Engineering (FSTM), Academic Affairs
- Alexandre Mortelette, Master in European Governance (FHSE), Sustainability
- Naveen Aruchamy, Doctoral Programme in Physics and Material Science / Specialisation in Ferroelectric materials, Doctoral Candidates

The new student delegation builds on the work of its predecessor. It is committed to contributing to the University's success and making the experience of studying in Luxembourg unique. "The best way to do it is to be active. The University of Luxembourg is a young university with great potential, and we want to be part of creating the best student experience possible," says President Nicola Schreiner.

A Partner to Society

A university is a place where knowledge is created and new ideas are born. It is also a place where creative minds transform their research insights into practical applications and new businesses. It is part of the University of Luxembourg's mission to deliver research and innovation with a positive impact on the regional economy and society. Throughout 2020, the University has sought out meaningful partnerships to further strengthen its network with other research institutions, public authorities and corporations in Luxembourg and beyond.

The University's mission of service to the country intensified in 2020 with the mobilisation of researchers in the COVID-19 Task Force and participation in public debate. For more information about the University's contribution in the fight against COVID-19 see pages 10-11.

ATOZ Chair for European and International Taxation Renewed

The University of Luxembourg and the ATOZ Foundation extended the funding of the ATOZ Chair for European and International Taxation for five years. First established by ATOZ tax advisors in 2009, the chair develops research and education activities of high quality in these areas, with the overarching goal to raise the level of knowledge of tax issues in Luxembourg.

From left to right: Prof. Stéphane Pallage (Rector), Prof. Katalin Ligeti (Dean of the Faculty of Law, Economics and Finance), Tonika Hirdmann (Director General of the Fondation de Luxembourg), Prof. Werner Haslehner (Chairholder), Claude Meisch (Minister for Higher Education and Research), Yves Elsen (Chairman of the Board of Governors), Keith O'Donnel (Managing Partner at ATOZ Tax Advisers)

Partnering With the Pharmaceutical Industry

The University initiated collaborations with various pharmaceutical companies (Janssen, Bayer, AstraZeneca) to conduct research in the emerging field of machine learning (ML) methods for chemical discoveries. The discovery and formulation of new drugs, antivirals, antibiotics and in general chemicals with tailored properties is a long and painstaking process. The development of ML methods, combined with first principles of quantum and statistical mechanics and trained on increasingly available big molecular-datasets, has the potential to revolutionise the process of chemical discovery.

University Launches CONNECT, a Forum About Dementia

The University of Luxembourg, with support from the Fondation du Grand-Duc et de la Grande-Duchesse, launched an online forum to facilitate communication on the subject of dementia (Alzheimer's disease and related types of dementia).

Individually Tailored Dementia Prevention

The Luxembourg Programme for Dementia Prevention (pdp) of the Luxembourg Ministry of Health in cooperation with the University of Luxembourg entered a new funding period in 2020. This allows continued work towards personalised prevention, and offers help towards reducing the risk of dementia in Luxembourg for people with Mild Cognitive Impairment (MCI). MCI is a slight decrease in the performance of the brain that can lead to dementia. In pdp, risk factors are specifically targeted in people with MCI, thus significantly reducing the likelihood of developing dementia.

SNCI Supports Creation of Micro-Enterprises

SNCI (Société Nationale de Crédit et d'Investissement) and the University of Luxembourg signed a new cooperation agreement to support the creation of micro-enterprises. The SNCI loan instrument, "Facilité Université du Luxembourg," intends to co-finance the business plans of young enterprises whose products, processes or services are based on research projects carried out at the University of Luxembourg.

Cooperation With the Roy Rosenzweig Center for History and New Media

The Luxembourg Centre for Contemporary and Digital History and the Roy Rosenzweig Center for History and New Media at George Mason University (USA) signed a cooperation agreement to stimulate and support intercultural educational activities and projects between the two research centres. The agreement paves the way for joint research projects, provides for the organisation of symposia, conferences and/or summits hosted every other year by each centre, and encourages postgraduate student exchanges between the two centres. The agreement is supported by an intermobility grant of the Luxembourg National Research Fund (FNR).

Inventing Autonomy for In-Orbit Satellite Repairs

The University of Luxembourg's Interdisciplinary Centre for Security, Reliability and Trust signed a partnership agreement with the space start-up LIFT ME OFF. The cooperation provides crucial research support for tackling future needs of autonomous in-orbit satellite repairs.

New Central Office for Partnership, Knowledge and Technology Transfer

In 2020, the University of Luxembourg created a new central Office for Partnership, Knowledge and Technology Transfer (PaKTT) and appointed Dr Christophe Haunold as its head. The office aims to foster the University's partnerships with industrial and public partners and transfer the University's high-quality research results to create value for society and businesses. The University's Faculties and Interdisciplinary Centres have launched numerous significant partnerships, proof of concepts and spin-off companies. The PaKTT office provides central management and support, an interface for industrial and public stakeholders and bundles existing activities in the spirit of a distributed system to support researchers.

Since its creation, the University of Luxembourg has gone to great lengths to develop its research activities in partnership with industry and public organisations. Through these partnerships, the University experiences the industrial and societal challenges that increasingly require interdisciplinary and intersectoral approaches.

The University's culture of partnership and knowledge and technology transfer is many-faceted, including chairs like the ArcelorMittal Chair of Steel Construction, the SES Chair in Satellite Communications and Media Law, the PayPal PEARL Chair in Digital Financial Services, the Chair Ville d'Esch on Urban Regeneration and spin-offs like Motion-S (the University's first spin-off), Databourg, LuxAI, LetzMath-MAGRID and OrganoTherapeutics in the fields of mobility, environmental monitoring, robotics, education or drug discovery.

"Successful Partnership, Knowledge and Technology Transfer requires a strong political will, adequate resources, and of course high-quality research activities. All of these can be found in Luxembourg and its University," says Christophe Haunold.


Christophe Haunold

Entrepreneurship for the University community

The Entrepreneurship Programme and Incubator were founded in 2017 at the University of Luxembourg. It has the mission to build bridges between the University and the professional world, while opening new career perspectives, empowering participants to become successful leaders in businesses and the community.

The Entrepreneurship Programme offers relevant courses and workshops to develop entrepreneurial skills beyond the core education. Since its creation it has channeled over 1,500 participants through its different initiatives, including the popular workshop Ideation Camp. The University of Luxembourg Incubator enables students, researchers, staff and alumni to create their own enterprises, and offers them support until they are ready to start their own journey in the business world. The Incubator is a house of ideas, currently hosting over 40 startups in BioTech, EdTech, FoodTech and other areas. In just three years, the Incubator invited over 200 highly qualified mentors and speakers to support over 60 startup ideas.


The team of the Incubator and Entrepreneurship Programme from left to right: Pranjul Shah, Liza Shliakhova, Linda Jaerling, Siva Bactavatchalou

The fundraising team from left to right: Philippe Lamesch, Lisa Smits, Florence Tacque, Ken Fukino

Donations Make a Difference

The University's central fundraising office aims to raise donations to finance its research and offer help to students. Since its inception, the office has gained dozens of new donors including individuals, companies, foundations and service clubs. 2020 has naturally been marked by the COVID-19 pandemic, impacting the volume of donations as well as the causes they were directed to.

"We have seen great generosity from our donors in 2020. Many existing donors asked how they could help and often donated funds for COVID-19 research in addition to the funds they had already committed to other causes. We were able to meet a series of new foundations through their support of our students in need. However, our fundraising activities were also dramatically affected due to limitations of meeting potential donors. In 2020, the University received donations totaling 2.64 million euros. As partner of the 'Research Luxembourg Task Force', we raised an additional 1 million euros for other local institutions, mostly in the context of COVID-19 project collaborations with the University," says Philippe Lamesch, Head of Fundraising.

André Losch Fondation Supports Biomedical Research

In 2020, shortly after the outbreak of the pandemic, the *André Losch Fondation* announced its partnership with Research Luxembourg in the fight against the SARS-CoV-2. The foundation's generous donation of 1.4 million euros helped finance three COVID-19 studies in Luxembourg, with the participation of the University of Luxembourg. The CON-VINCE study aims to evaluate the dynamics of the spread of the disease within Luxembourg, the Predi-COVID study is dedicated to finding predictive markers for disease severity, and the study 'Short, mid-term & exit strategy predictions of the COVID-19 epidemic in Luxembourg' develops statistical projections and modelling. This was one of the *André Losch Fondation's* biggest donations to date. By heavily supporting COVID-19 related research at the beginning of the pandemic, the *André Losch Fondation* provided important financial support to national researchers aimed at benefitting the Luxembourgish population at a time of dire need.

Le Foyer and Œuvre Support Research on Children's Mental Health

Researchers at the University also work on topics like the mental health of children. The project COVID-Kids led by Professor Claudine Kirsch at the Faculty of Humanities, Education and Social Sciences aimed at gaining a better understanding of the impact that the pandemic has on children's mental well-being. In addition to young people from Luxembourg, the project included youngsters from Germany, France, Belgium, Switzerland, Portugal, the United Kingdom, the United States and Brazil. By giving a voice to children, the international and interdisciplinary team aimed at gaining a deep understanding on how COVID-19 affects youngsters in Luxembourg and abroad. The findings help teachers and educators, policymakers, parents, children and adolescents to better understand the effects of COVID-19 and identify appropriate ways to support children. This research could not have been carried out in such depth and in this time frame without the generous support by *Le Foyer* and *Œuvre Nationale de Secours Grande-Duchesse Charlotte*.

Funding Research to Discover Drugs for Rare Childhood Diseases

Approximately 7,000 different rare diseases are known worldwide, of which only 5% have an approved medication. The Linster Lab at the Luxembourg Centre for Systems Biomedicine has invested great efforts over the last years to develop pipelines using simple model organisms allowing a faster drug discovery for rare genetic disorders affecting mainly children and adolescents. In 2020, Prof. Carole Linster received support from the ATOZ and Juniclair Foundations and Mr. Norbert Becker for her work on rare childhood diseases.

By using a novel drug discovery pipeline, the Linster Group identified about ten promising compounds for a group of rare neurodegenerative disorders, which they aim to test in two pre-clinical models. As some of the candidate compounds correspond to drugs that are already approved for other indications, positive results in this project using human neuronal cells and mini brains should allow for a more rapid progress towards clinical trials. The generous donations allowed Prof. Linster to hire an additional new researcher to contribute to this research and to cover part of the project running costs.

Donations to the University of Luxembourg in 2020

By category

COVID	19%
Parkinson's	16%
Computer Science	15%
History	13%
Student Support	10%
Scienteens Lab	9%
Rare Diseases	6%
Scholarships	4%
Cancer	4%
Alzheimer	2%
Other	3%

By donor type

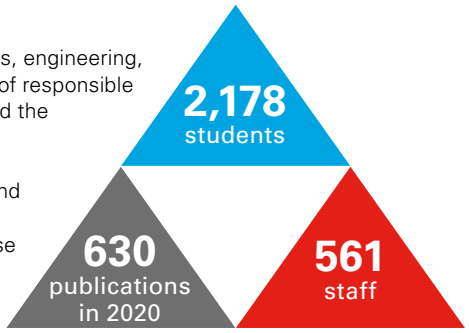
Foundations	64%
Corporations	26%
Associations	6%
Private Individuals	4%

The Faculties

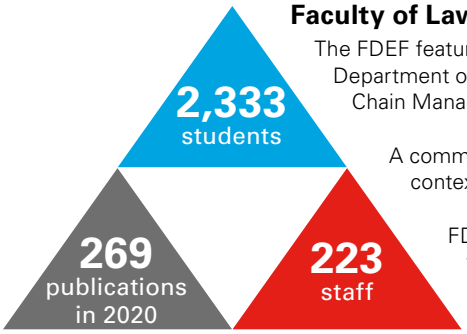
Faculty of Science, Technology and Medicine (FSTM)

The FSTM contributes multidisciplinary expertise in the fields of mathematics, physics, engineering, computer science and life sciences and medicine. The FSTM trains new generations of responsible citizens and leaders in order to better understand, explain and advance the society and the environment we live in.

With eight Bachelor's and 17 Master's programmes, one doctoral school in science and engineering and lifelong learning programmes, the FSTM offers opportunities with multilingual and small - group courses, early involvement in research projects and close connections with institutions and industry. Its five departments undertake cutting-edge science and innovation in collaboration with local and international partners.



Faculty of Law, Economics and Finance (FDEF)



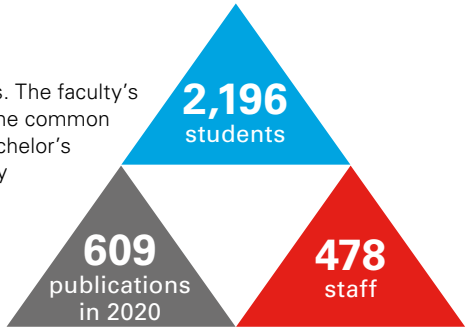
The FDEF features three departments – the Department of Law, the Department of Finance and the Department of Economics and Management, including the Luxembourg Centre for Logistics and Supply Chain Management (LCL).

A common theme is a resolutely European and international outlook that is rooted in the Luxembourg context through a number of strong institutional and industry partnerships.

FDEF offers four Bachelor's and 12 Master's programmes as well as lifelong learning/ vocational programmes. It aims to shape critical thinkers who are able to provide solutions to the challenges of today and tomorrow in Luxembourg and beyond.

Faculty of Humanities, Education and Social Sciences (FHSE)

The FHSE covers a wide range of fields: behavioural and cognitive sciences, education and social work, geography and spatial planning, humanities and social sciences. The faculty's research and teaching focuses on social, economic, political and educational issues with the common goal of contributing to an inclusive, open and resourceful society. The FHSE offers five Bachelor's and 17 Master's programmes and a doctoral school, providing students with the necessary knowledge and high-qualified skills to succeed in their future career.



The Interdisciplinary Centres

Interdisciplinary Centre for Security, Reliability and Trust (SnT)

SnT conducts internationally competitive research with high relevance in information and communication technology (ICT), creating socio-economic impact. In addition to long-term research, SnT engages in demand-driven collaborative projects with industry and the public sector.

The centre has set up a Partnership Programme with 56 members targeting strategic areas addressing challenges confronting industry and the public sector in ICT. The resulting concepts present a genuine, long-lasting competitive advantage for companies in Luxembourg and beyond.

SnT has undergone rapid development since its launch in 2009, recruiting top scientists, launching over 80 EU and European Space Agency projects, creating a technology transfer office, protecting and licensing IP, launching four spin-offs, and creating a dynamic interdisciplinary research environment.

435 publications in 2020

309 staff

Luxembourg Centre for Systems Biomedicine (LCSB)

189 publications in 2020

251 staff

The LCSB is accelerating biomedical research by closing the gap between systems biology and medical research. In 16 research groups, collaborations between biologists, medical and computer scientists, physicists, engineers and mathematicians offers new insights into complex systems such as cells, organs and organisms. These findings are essential for understanding principal mechanisms of disease pathogenesis and for developing new tools in diagnostics and therapy.

Neurodegenerative diseases such as Parkinson's disease and the description of diseases as networks are the focus of the LCSB's research. The centre has established strategic partnerships with leading biomedical laboratories worldwide and with all major biological and medical research units in Luxembourg. The LCSB fosters collaboration with industrial partners and accelerates the translation of fundamental research results into clinical applications.

Luxembourg Centre for Contemporary and Digital History (C²DH)

The key focus areas of the C2DH are the history of Luxembourg and Europe in the 20th and 21st centuries and the burgeoning field of digital history, which explores the impact and potential of digital technology, tools and working methods for historical research. The centre serves as a catalyst for innovative and creative scholarship and new forms of public dissemination. Public history, outreach and societal engagement with history in Luxembourg are an integral part of the centre's approach. The "Forum Z" series of events serves as a platform for the discussion of current issues related to contemporary Luxembourgish and European history. The C2DH also houses a doctoral school in Digital History and Hermeneutics, which provides valuable training in digital literacy for the next generation of history scholars.

102 publications in 2020

93 staff

Governance bodies

Board of Governors

The Board of Governors decides upon the University's general policies and strategies, and oversees the University's activities.

It has 13 voting members: 11 members are appointed by the Government (of which two are proposed by the University Council). The head of the staff delegation and the head of the student delegation are also voting members of the Board of Governors. The Rector of the University and the Government Commissioner have a consultative role in meetings.

From left to right: Alex Domin (until 31 Oct. 2020), Massimo Malvetti, Anne Christophe, Gérard Hoffmann, Sandra Visscher, Yvonne Flour, Georges Steffgen, Stéphane Pallage, Paul Lesch, Yves Elsen, Jeannot Trampert, Kristín Ingólfsdóttir, Michel Goedert, Claudine Moulin, Léon Diederich, Anke Müßig, Virginie Mucciante

Chairman:

Yves Elsen
Managing partner and CEO of HITEC

Vice-Chairman:

Kristín Ingólfsdóttir
Professor and former Rector at the University of Iceland

Members:

Yvonne Flour
Vice-Rector of Université Paris Panthéon Sorbonne

Michel Goedert
Programme leader at Medical Research Council Laboratory of Molecular Biology in Cambridge, Honorary professor of University of Cambridge

Gérard Hoffmann
CEO and Managing Director of Proximus Luxembourg

Paul Lesch
Director of the Centre National de l'Audiovisuel

Claudine Moulin
Professor at the University of Trier

Virginie Mucciante
Head of the staff delegation

Anke Müßig
Professor at the University of Luxembourg

Georges Steffgen
Professor at the University of Luxembourg

Jeannot Trampert
Professor at the University of Utrecht

Sandra Visscher
Director of UNICEF Luxembourg committee

Alex Domin
Head of the student delegation (until 31 Oct. 2020)

Nicolas Schreiner
Head of the student delegation (from 1 Nov. 2020)

Non-voting participants:

Stéphane Pallage, Rector

Léon Diederich, Government Commissioner

Secretary General:

Massimo Malvetti,
Secretary General

Anne Christophe,
Deputy Secretary General

The Rectorate

Prof.
Stéphane Pallage
Rector

Prof.
Jens Kreisel
Vice-Rector
for Research

Prof.
Catherine Léglu
Vice-Rector for
Academic Affairs

Director of Administration and Finance

Dr
Erica Silvia Monfardini

Deans of Faculties and Directors of Interdisciplinary Centres

Prof.
Jean-Marc Schlenker
Dean of the Faculty of
Science, Technology
and Medicine

Prof.
Katalin Ligeti
Dean of the Faculty of
Law, Economics and
Finance

Prof.
Georg Mein
Dean of the Faculty of
Humanities, Education
and Social Sciences

Prof.
Björn Ottersten
Director of the
Interdisciplinary Centre
for Security, Reliability
and Trust

Prof.
Rudi Balling
Director of the
Luxembourg
Centre for Systems
Biomedicine

Prof.
Andreas Fickers
Director of the
Luxembourg Centre
for Contemporary and
Digital History

University Council

The University Council assists the Rector in the organisation of teaching and research activities, decides on the orientation of study programmes and issues opinions on internal regulations, appointments of rectorate members, the four-year plan, the budget and other strategic decisions.

It is composed of 38 with 24 voting members (of which 18 are elected representatives of staff across 9 electoral colleges, and 6 students designated by the student delegation) and 14 non-voting members (members of the management team and key representative officers: staff delegation, gender equality, inclusion officer).

Chair: Paul Heuschling

Voting Members: **Representatives of Professors**: Pascal Bouvry, Anke Müßig, Jang Schiltz , Antoine Fischbach, Georges Steffgen, Anne Grünewald, Jacques Klein;

Representatives of Assistant researchers: Elisabeth Schaffner-Reckinger, Ariane Scheffer, Janine Silga,Véronique Weber, Andreia Pinto Coelho Da Costa, Christoph Purschke (until 14 Oct. 2020), Elena Danescu, Cedric Laczny;
Representatives of Administrative, Finance and Technical staff: Audrey Collard, Adolfo Sommarribas;
Student representatives: Naveen Aruchamy, Anne Feltz, Nikola Kaserová, Aymeric Le Drezen, Patrick-Claus Leske, Alexandre Mortelette.

Non-Voting Members: Rudi Balling, Andreas Fickers, Jens Gerkrath, Jens Kreisel, Catherine Léglu, Katalin Ligeti, Massimo Malvetti, Georg Mein,Erica Monfardini, Björn Ottersten, Stéphane Pallage, Jean-Marc Schlenker, Skerdilajda Zanaj, Joanna West.

Facts and Figures

The University in Rankings

Times Higher Education[1]

World University Rankings 2021

- **No. 3 worldwide for its international outlook**
- **Top 201-250**
- **No. 12 Young University - Rankings 2020**
- **No. 4 among 88 millenial[2] - universities worldwide**

By subject:

- **89 in Computer Science**
- **101-125 in Engineering & Technology**
- **101-125 in Life Sciences** (not listed previously)
- **151-175 in Physical Sciences**
- **151-175 in Psychology**
- **201-250 in Social Sciences**
- **201-250 in Business and Economics**
- **201-250 in Education**
- **201-250 in Arts and Humanities** (not listed previously)
- **301-400 in Clinical and Health** (not listed previously)

Shanghai Ranking[3] 2020

- **601-700 among the top 1,000 universities worldwide**

By subject:

- **76-100 in Telecommunication Engineering**
- **201-300 in Electrical and Electronic Engineering**
- **201-300 in Biological Sciences**
- **201-300 in Political Sciences**
- **201-300 in Education**
- **301-400 in Human Biological Sciences**
- **301-400 in Economics**
- **301-400 in Management**
- **401-500 in Materials Science and Engineering**
- **401-500 in Psychology**

QS World University Ranking 2021

By subject:

- **251-300 in Computer Science and Information Systems**
- **251-300 in Law and Legal Studies**
- **451-500 in Economics and Econometrics**
- **451-500 in Mathematics**

University Graduates

130 Student nationalities

Graduates by degree	
2019/2020	
Total	1,710
Bachelor	706
Master	549
Doctoral	129
Other	326

Graduates by Faculty	
2019/2020	
Total	1,710
FSTM	360
FDEF	749
FHSE	581
Competence Centre	20

Student Statistics

Total number of student registrations: 6,783

Student registrations by degree	
Bachelor	3,087
Master	1,798
Doctoral	923
Other degree*	975

*Vocational and lifelong learning programmes

Student registrations by Faculty	
FSTM*	2,178
FDEF**	2,333
FHSE ***	2,196
Competence Centre	76

*Faculty of Science, Technology and Medicine
** Faculty of Law, Economics and Finance
*** Faculty of Humanities, Education and Social Sciences

Publications 2020

- **401 Conference proceedings**
- **1,355 Journal papers**
- **40 Edited books**
- **18 Authored books**
- **290 Book chapters**
- **2,104 Total publications**

University Staff

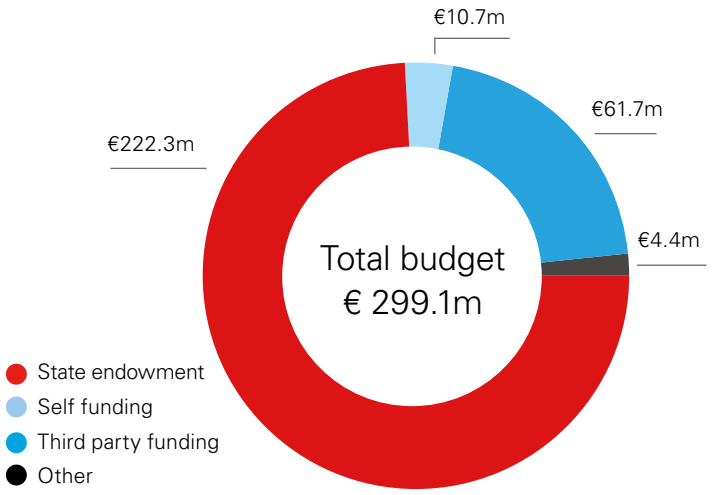
- **1,137 Academic staff, postdocs**
- **535 Administrative staff**
- **283 Professors**
- **290 Technical staff**

[1] The THE World University Rankings was founded in 2004 by the Times Higher Education magazine. It evaluates world-class universities against 13 separate performance indicators, covering the full range of a top university's essential areas of activity: research, interaction with business, international outlook and the teaching environment. More than 1,500 universities are ranked.

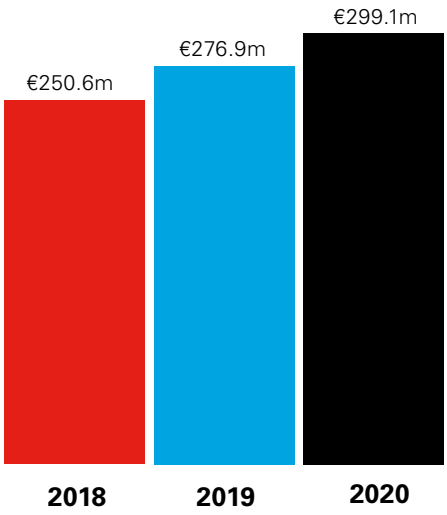
[2] founded since 2000

[3] The Shanghai Academic Ranking of World Universities (ARWU) aims to establish the quality of teaching, the quality of research as well as the impact of an institution by using multiple criteria. More than 1,800 universities are ranked by ARWU every year and the best 1,000 are published.

University Budget in 2020



Budget Evolution 2018-2020



ERC Grant Holders and Chairs at the University of Luxembourg

ERC grant holders

Prof. Jean-Sébastien Coron (Advanced Grant)

Prof. Anja Leist (Starting Grant)

Prof. Paul Wilmes (Consolidator Grant)

Prof. Björn Ottersten (Advanced Grant and Proof-of-Concept)

Prof. Lionel Briand (Advanced Grant)

Prof. Mark Podolskij (Consolidator Grant)

Prof. Massimiliano Esposito (Consolidator Grant)

Prof. Daniele Brida (Consolidator Grant)

Prof. Josip Glaurdic (Starting Grant)

Prof. Alexandre Tkatchenko (Consolidator Grant and Proof-of-Concept)

Prof. Tegawendé F. Bissyandé (Starting Grant)

PEARL Chairs

Chair in Cyber Solutions for Critical Information Infrastructures (Prof. Paulo Esteves-Veríssimo)

Chair in Digital History Advanced Research Projects Accelerator (Prof. Sean Takats)

Chair in Neuroscience (Prof. Rejko Krüger)

PayPal-FNR PEARL Chair in Digital Financial Services (Prof. Gilbert Fridgen)

Chair in Functional Materials (Prof. Jens Kreisel)

Chair on Social Inequality (Prof. Conchita D'Ambrosio and Prof. Louis Chauvel)

Chair in Software Verification and Validation (Prof. Lionel Briand)

ERA Chair

ERA Chair in Mathematical Statistics and Data Science for the University of Luxembourg SanDAL (Prof. Yannick Baraud)

Chairs in Partnership

ATOZ Chair for European and International Taxation (Prof. Werner Haslehner)

Chair in Entrepreneurship and Innovation (Prof. Mickaël Geraudel)

Chaire de recherche en études parlementaires (Prof. Philippe Poirier)

ADA Chair in Financial Law (Inclusive Finance) (Prof. Dirk Zetzsche)

UNESCO Chair in Human Rights (Prof. Robert Harmsen)

Chair in Sustainable Finance

SES Chair in Satellite Communications and Media Law (Prof. Mahulena Hoffmann)

ArcelorMittal Chair of Steel Construction (Prof. Christoph Odenbreit)

Chair in Digital Procurement (Assoc. Prof. Nils Löhndorfer)

Chair in Urban Regeneration (Prof. Markus Miessen)

Chair in Capital Markets and Post Trade

Horizon 2020 Projects

Faculty/IC	Responsible/PI within University	Project acronym	Role of the University
FSTM	VAN DER TORRE Leon	ADELE	Partner
FSTM	TKATCHENKO Alexandre	AIDD	Partner
FSTM	SENGUPTA Anupam	BIOMIMIC	Coordinator
FSTM	WIRTZ Ludger	Q-Line	Coordinator
FSTM	BORDAS Stéphane	SURFING	Coordinator
FSTM	BOTEV Jean	ChronoPilot	Partner
FSTM	TKATCHENKO Alexandre	DISCOVERER	Coordinator
FSTM	MACCAFERRI Nicolò	ProID	Partner
FSTM	ENGEL Thomas	CITIES2030	Partner
FSTM	VOGELE Claus, JONES Catherine	SURREAL	Partner
FDEF	LIGETI Katalin	EULAW	Coordinator
FHSE	RECKINGER Rachel	FUSILLI	Partner
FHSE	HADJAR Andreas	PIONEERED	Coordinator
SnT	BRIAND Lionel	COSMOS	Partner
SnT	BORDAS Stéphane	DataProMat	Coordinator
SnT	OTTERSTEN Bjorn	DREAM	Coordinator
SnT	LENZINI Gabriele	LeADS	Partner
SnT	BRORSSON Mats	MAELSTROM	Partner
SnT	FRIDGEN Gilbert	MDOT	Partner
SnT	THOEMEL Jan	MEESST	Partner
SnT	BISSYANDE Tegawende	NATURAL	Coordinator
SnT	OLIVARES-MENDEZ Miguel	SESAME	Partner
LCSB	BECKER Regina	B1MG	Partner
LCSB	SCHNEIDER Reinhard	COVIRNA	Partner
LCSB	SCHNEIDER Reinhard	PerMedCoE	Partner
LCSB	WILMES Paul	PROSPECTOMICS	Partner
LCSB	SCHNEIDER Reinhard	HealthyCloud	Partner

Luxembourg National Research Fund (FNR) projects

Faculty/IC	Responsible/PI within University	Project acronym	Role of the University
FSTM	FODOR Etienne	SMAC	Coordinator
FSTM	TKATCHENKO Alexandre	ML-LocSym	Coordinator
FSTM	LEYER Stephan	CHFPAAR	Coordinator
FSTM	ZILIAN Andreas	DIMMOFEMM	Coordinator
FSTM	LEYER Stephan	DEFMRW	Coordinator
FSTM	VITI Francesco	ANTOINE	Coordinator
FSTM	PETERS Bernhard	HiFiProSi	Coordinator
FSTM	ENGEL Thomas	SETICA	Coordinator
FSTM	WALDMANN - DIEDERICH Danièle	SHM4REUSE	Coordinator
FSTM	VAN DER TORRE Leon	AuReLeE	Coordinator
FSTM	TKATCHENKO Alexandre	BroadApp	Coordinator
FSTM	LAGERWALL Jan	ECLIPSE	Coordinator
FSTM	LETELLIER Elisabeth	MICROH-CRC	Coordinator
FSTM	FARIAS Maria Belen	OpenTop	Coordinator
FSTM	BORDAS Stéphane	QuaC	Coordinator
FSTM	BERRYMAN Josh	QUIRE	Coordinator
FSTM	REICHARDT Sven	RESRAMAN	Coordinator
FSTM	SIEBENTRITT Susanne	TAILS	Coordinator
FSTM	VITI Francesco	M-EVRST	Partner
FSTM	PRUSKA Cedric	HKG4COVID	Coordinator
FSTM	DESPOTOVIC Vladimir	CDCVA	Partner
FSTM	MAAS Stefan	D-DAB	Partner
FSTM	BALLER, Jörg	EMDD	Coordinator

Luxembourg National Research Fund (FNR) Projects (cont.)

Faculty/IC	Responsible/PI within University	Project acronym	Role of the University
FSTM	VAN DER TORRE Leon	EXPECTATION	Partner
FSTM	BORDAS Stéphane	HybridSimCVD	Coordinator
FSTM	SAUTER Thomas	IML4PRS	Coordinator
FSTM	WIRTZ Ludger	TOPREL	Coordinator
FSTM	ZILIAN Andreas	PorSol	Coordinator
FSTM	SENGUPTA Anupam	Vside	Coordinator
FSTM	SCHOMMER Christophe	DeepHouse	Coordinator
FSTM	THOMPSON James	ABMLUX	Coordinator
FSTM	PETERS Bernhard	ConMicMac	Partner
FSTM	ENGEL Thomas	5G-INSIGHT	Partner
FSTM	ESPOSITO Massimiliano	TheCirco	Partner
FSTM	PETERS Bernhard	IDS	Partner
FSTM	SAUTER Thomas	PREVENE	Partner
FSTM	LEYER Stephan	DIRECT	Coordinator
FSTM	KEDZIORA Slawomir	Flex-Man	Partner
FSTM	SCHLENKER Jean-Marc	CoSH	Coordinator
FSTM	VAN DER TORRE Leon	DELIGHT	Coordinator
FSTM	REDINGER Alex	HYPS	Coordinator
FSTM	LIBAL Tomer	PaCT	Coordinator
FSTM	MINOUFEKR Meysam	AssistAR	Coordinator
FSTM	DALE Phillip	Energy Balance	Coordinator
FSTM	SCHOMMER Christoph	Machine Learning & Arts: The smart photo booth	Coordinator
FSTM	HAAN Serge	LUX:plorations	Coordinator
FSTM	BARAUD Yannick	ICON STARF	Coordinator
FSTM	GUENNOU Maël	DyProSo 2021	Coordinator
FSTM	ABANKWA Daniel	inhibitPDERAS2	Coordinator
FSTM	LIBAL Tomer	icomplai	Coordinator
FSTM	MINOUFEKR Meysam	AssistAR	Coordinator
FSTM	ABANKWA Daniel	HRAS-PPi	Partner
FSTM	ABANKWA Daniel	RAS-NANOME	Partner
FSTM	ABANKWA Daniel	PolaRAS2	Coordinator
FSTM /LCSB	ESPOSITO Massimiliano, SKUPIN Alexander, LINSTER Carole, GONCALVES Jorge	ACTIVE DTU	Coordinator/Partner
FDEF	LIGETI Katalin	CRIM_AI	Coordinator
FDEF	POILLOT Elise	LEGAFIGHT	Coordinator
FDEF	KOULOVATIANOS Christos	COVID-19 MORTGAGE	Coordinator
FDEF	BRAUM Stefan	PROLAW	Coordinator
FDEF	HOFMANN Herwig	INDIGO	Coordinator
FDEF	HASLEHNER Werner	DIGI-VALTAX	Coordinator
FDEF	PRÜM André	CAMLXCY	Coordinator
FDEF	HOFFMANN Mahulena	Launching spacecraft: regulatory aspects	Coordinator
FDEF	PICARD Pierre M.	TSPQ	Coordinator
FDEF	HOFMAN Herwig	DTU DILLAN	Coordinator
FDEF	BEINE Michel	DTU ACROSS	Partner
FDEF	NEUGEBAUER Tibor	DTU E3	Partner
FDEF	PICHOU Maria	EURLIBERTY	Coordinator
FDEF	IRMEN Andreas	CULTUTRAGING	Coordinator
FHSE	FLYNN Lindsay	PROPEL	Coordinator
FHSE	HÖGENAUER Anna-Lena	FRA-GER-PARL	Coordinator
FHSE	OBOJSKA Maria	DigiFam	Coordinator
FHSE	CARR Constance	DIGI-GOV	Coordinator
FHSE	DE SAINT-GEORGES Ingrid	DisPOSEG	Coordinator

Luxembourg National Research Fund (FNR) Projects (cont.)

Faculty/IC	Responsible/PI within University	Project acronym	Role of the University
FHSE	DIEROLF Angelika	PAGES	Coordinator
FHSE	SCHILTZ Christine	SymNumDev	Coordinator
FHSE	DIJST Martin	SEI	Coordinator
FHSE	SAMUEL Robin	YAC	Coordinator
FHSE	ALBERT Isabelle	CRISIS	Coordinator
FHSE	VÖGELE Claus	COMEHERE	Coordinator
FHSE	MARGUE Michel	INTERLOR	Partner
FHSE	SCHULZ André	INBODY	Partner
FHSE	SCHILTZ Christine	SpaNuMaDev	Partner
FHSE	POWELL Justin	TRANSFER	Coordinator
FHSE	CARUSO Geoffrey	URBANFORMS	Partner
FHSE	VÖGELE Claus	PROCHEAL	Coordinator
FHSE	LEIST Anja	MEDITAGING	Coordinator
FHSE	DUSDAL Jennifer	Science of Science in the Spotlight	Coordinator
FHSE	WILMES- DOMBKOWSKI Sara	Kuck elei! Digital Mikroskope fir Léierpersonal	Coordinator
FHSE	BARTHELMEBS-RAGUIN Helene	FEATHER	Coordinator
FHSE	TORE Gian Maria	AAA	Partner
FHSE	GEWINNER Irina	DIGITUP	Partner
FHSE	CHAUVEL Louis	MOVID	Partner
SnT	ABDU Tedros Salih	INSAT	Coordinator
SnT	KABORE Abdoul Kader	NERVE	Coordinator
SnT	CORDY Maxime	SEADOCO	Coordinator
SnT	SAMHI Jordan	DIANA	Coordinator
SnT	PONS Reynaldo Gil	ATTEST	Coordinator
SnT	LENZINI Gabriele	ConGenIAL	Coordinator
SnT	AOUADA Djamila	MEET-A	Coordinator
SnT	PASTORE Fabrizio	FUNTASY	Coordinator
SnT	FRANK Raphael	AUTOMAP	Coordinator
SnT	MYSORE RAMA RAO Bhavani Shankar	MASTERS	Coordinator
SnT	STATE Radu	SCRiPT	Coordinator
SnT	DANOY Grégoire	ADARS	Coordinator
SnT	LENZINI Gabriele	DECEPTICON	Coordinator
SnT	MUELLER Johannes	FP2	Coordinator
SnT	VOLP Marcus	HERA	Coordinator
SnT	OTTERSTEN Björn	RISOTTI	Coordinator
SnT	PAPADAKIS Mike	TestFlakes	Coordinator
SnT	KLEIN Jacques	REBORN	Coordinator
SnT	RYAN Peter	SMARTExit	Coordinator
SnT	PENG Jun	PandemicGR	Coordinator
SnT	FRANK Raphael	PEOPLE	Coordinator
SnT	MEIRA Jorge Augusto	Pocket Rehab	Coordinator
SnT	LE TRAON Yves	PILOT	Coordinator
SnT	STATE Radu	GLADIS	Partner
SnT	LENZINI Gabrielle	SEVERITAS	Partner
SnT	CORDY Maxime	Scaling Up Variability	Partner
SnT	BRORSSON Mats	MAELSTROM	Partner
SnT	LACOSTE Clément	RELICA	Coordinator
SnT	ANNAIYAN Arun	HUGE	Coordinator
SnT	KREBS Julian	MILAN	Partner
SnT	MURTADA Ahmed Abdelnaser Elsayed	RADII	Coordinator
SnT	LE TRAON Yves	FINTECH	Coordinator

Luxembourg National Research Fund (FNR) Projects (cont.)

Faculty/IC	Responsible/PI within University	Project acronym	Role of the University
SnT	CHATZINOTAS Symeon	INSTRUCT	Coordinator
SnT	HAMMES Christian	ReMap	Coordinator
SnT	MERLANO DUNCAN Juan	REDSAT	Coordinator
SnT	PAPADAKIS Michail	ICSME 2021 - 37th IEEE International Conference on Software Maintenance and Evolution	Coordinator
SnT	PETER Ryan	ETAPS 2021 - European Joint Conferences on Theory and Practice of Software	Coordinator
SnT	VOOS Holger	FUZZ-IEEE 2021	Coordinator
SnT	STATE Radu	NIRW	Coordinator
SnT	LENZINI Gabriele	NOFAKES	Coordinator
SnT	CHATZINOTAS Symeon	MegaLeo	Coordinator
SnT	FRIDGEN Gilbert	FiReSpARX	Coordinator
SnT	BIRYUKOV Alex	APLICA	Coordinator
SnT	ESTEVES-VERISSIMO Paulo	ByzRT	Coordinator
SnT	OLIVARES-MENDEZ Miguel	VBN	Coordinator
SnT	LE TRAON Yves	NATIONTWIN	Partner
LCSB	VENEGAS, MALDONADO Carmen	NeuroFlame	Coordinator
LCSB	KRÜGER Rejko	RareCom	Coordinator
LCSB	FOQUIER D'HEROUEL Aymeric	UCoVis	Coordinator
LCSB	GONCALVES Jorge	Previd	Coordinator
LCSB	SCHNEIDER Reinhard	COVlit	Coordinator
LCSB	DEL SOL MESA Antonio	SYSBIOCOVID-19	Coordinator
LCSB	GLAAB Enrico	CovScreen	Coordinator
LCSB	HUSCH Andreas	AICovIX	Coordinator
LCSB	MAY Patrick	CoPhyloDyn	Coordinator
LCSB	WILMES Paul	CO-INFECTOMICS	Coordinator
LCSB	SCHWAMBORN Jens	PDage	Partner
LCSB	SCHNEIDER Reinhard	ReDIRECt	Partner
LCSB	GRÜNEWALD Anne	ProtectMove II	Partner
LCSB	GONCALVES Jorge	DynaSti	Partner
LCSB	DEL SOL MESA Antonio	TIPS	Partner
LCSB	GLAAB Enrico	DIGIPD	Partner
LCSB	LINSTER Carole	Losch Centre for Childhood disorders	Coordinator
LCSB	SCHNEIDER Reinhard	Clinnova	Partner
LCSB	ROBERTSON Graham	POPP-E	Coordinator
LCSB	KLUCKEN Jochen	DHealthPD	Coordinator
LCSB/FSTM	GRÜNEWALD Anne, SCHWAMBORN Jens, WILMES Paul, SCHNEIDER Reinhard	i2TRON DTU	Partner
LCSB	GONCALVES Jorge, HUSCH Andreas	MoveSenseAI	Partner
LCSB	KRÜGER Rejko, SCHNEIDER Reinhard, WILMES Paul	CON-VINCE	Partner
LCSB	WILMES Paul	Predi-COVID	Partner
LCSB	SATAGOPAM Venkata	CoLiBri	Partner
LCSB	WILMES Paul	CORONASTEP+	Partner
LCSB	WILMES Paul	FunBiome	Partner
LCSB	SATAGOPAM Venkata	HKG4COVID	Partner
LCSB	GONCALVES Jorge, SKUPIN Alexander	MODVid	Partner
LCSB	LINSTER Carole	CHARLIE	Partner
LCSB	DEL SOL MESA Antonio	CureMILS	Partner
C²DH	SCHAFER Valérie	HIVI	Coordinator
C²DH	KREBS Stefan	COMEM	Coordinator
C²DH	FICKERS Andreas	DH-Summit	Coordinator
C²DH	SCHAFER Valérie	RESAW Conference	Coordinator

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