

2020


ANNUAL REPORT

F A

FONDATION
WIENER-ANSPACH



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WORD OF WELCOME FROM THE PRESIDENT



While at the start of the year we imagined that preparing for Brexit would be our main concern, we had to respond to the most pressing needs and focus our attention on managing the effects of the pandemic on international mobility

This 2020 report can only open with the mention of the terrible pandemic that has disrupted the entire world. Academic life has not escaped the constraints of the successive confinements, nor the permanent uncertainty that the epidemic has confronted us with. Faced with the seriousness of the situation and the multiple damages (not only in terms of health, which is of course essential!), the Foundation was keen to provide the best possible support to its fellows and to find, together with them, the most flexible solutions.

While at the start of the year we imagined that preparing for Brexit (whose implementation is not without difficulties and uncertainties) would be our main concern, we had to respond to the most pressing needs and focus our attention on managing the effects of the pandemic on international mobility and the difficulties caused by the confinement. On behalf of the fellows and researchers, I would like to thank the small administrative team (Francesca, Violette and Nicole, who retired in 2020), for their commitment to the daily management of the Foundation and their concern for the Foundation's beneficiaries in this situation. Fortunately, thanks to the Executive Director of the FWA, Professor Kristin Bartik,

and the Chairman of the Finance Committee, Professor Eric De Keuleneer, the Foundation's financial situation is stable and positive. This will enable us to continue with confidence our work and strengthen support for the collaborations between ULB and the Universities of Cambridge and Oxford, despite the effective exit of the United Kingdom from the European Union. I thank them both very warmly for their efficient action.

Despite all the difficulties faced, and thanks to the technical means that were used extensively, the Foundation's activity in 2020 was maintained. You will find details of all our actions in this annual activity report. I would like to take the opportunity of this introductory word to thank Professor Luc Lemaire for his constant dedication to the chairmanship of the Scientific Committee. I hope that we will all get through this period of health insecurity without too many problems and that we will soon enjoy the warmth of (no longer virtual) meetings, which bring such richness to international collaborations!

Didier Viviers
President of the Foundation

THE FOUNDATION



The Fondation Philippe Wiener - Maurice Anspach was established by **Phyllis A. Beddington Wiener** in 1965 to honour the memory of her husband, **Philippe Wiener**, who died during World War II at Esterwegen, where he was imprisoned as a political opponent. After the death of **Maurice Anspach**, Philippe Wiener's close friend, who had taken care of his family during and after the war, Mrs Wiener modified the Foundation's statutes to add his name to her husband's.

OUR ACTIVITIES

- ▶ We enable graduates from the ULB to study or undertake research at the Universities of Cambridge and Oxford and vice versa
- ▶ We support two-year collaborative research projects
- ▶ We organise lectures and chairs in Brussels, Cambridge and Oxford
- ▶ We encourage contacts between researchers and academics by funding short-term visits

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Professor **Philippa Watson**
City Law School, City University, London

THANK YOU TO CATHELINÉ PÉRIER-D'ETEREN



Over the years, everyone at the Foundation has had the chance to appreciate not only her efficiency but also her great kindness towards all the young researchers and her humour, as endearing as her frankness

The Philippe Wiener-Maurice Anspach Foundation has had the honour of being able to count on the unfailing support of Catheline Périer-D'eteren for many years. Catheline chose to step down from the board of Trustees last June so as to be able to devote more time to her numerous scientific and philanthropic activities in the fields of Art History and Heritage Conservation.

Catheline was appointed Trustee of the Foundation in 1996 on the suggestion of Mrs Evelyne Anspach, widow of Maurice Anspach. In 2009 she was elected Vice-President and became Chair of the Scientific Committee, a position to which she devoted herself with enthusiasm, seriousness and foresight until 2014. Under her responsibility, multi-annual collaborative research programmes were set up, an initiative which will be all the more valuable now that Brexit has become a reality. Seeing the number of applications to the Foundation's grants increasing every year, Catheline also set up new procedures for their evaluation. With the rigour that characterises her, she

studied all the dossiers in detail – even those in disciplines very different from her own – to ensure that the Foundation remained synonymous with scientific excellence. The Scientific Committee appreciated not only her efficiency but also her great kindness towards all the young researchers and her humour, as endearing as her frankness.

Catheline also played a pivotal role in the Foundation's other activities and carried out several missions to Cambridge and Oxford, to set up the privileged partnerships between ULB and our UK partners and to attend different lectures and diplomatic events.

Thank you Catheline for all that you have done for the Foundation and for the numerous young researchers that have been able to launch their careers with your help.

Kristin Bartik
Executive Director of the Foundation

Fellowship programme



FELLOWSHIP PROGRAMME

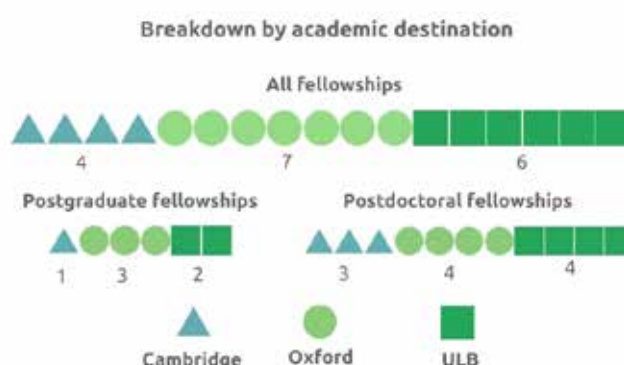
Our 2020/2021 Fellows



In line with its objectives, the Foundation promotes the development of academic activities between the ULB and the Universities of Cambridge and Oxford by awarding:

- ▶ Postgraduate fellowships to ULB graduates to enrol at the University of Cambridge or Oxford
- ▶ Doctoral fellowships to ULB students to undertake part of their research at the University of Cambridge or Oxford and vice versa
- ▶ Postdoctoral grants to researchers who have obtained their PhD from the ULB to work at the University of Cambridge or Oxford and vice versa

Applications are examined by the Scientific Committee. For the 2020/2021 academic year, the Foundation selected 17 Fellows.



CAMBRIDGE

Doctoral fellow

Maya Dannawi

PhD student in Developmental Genetics (ULB) and FRIA Fellow
(supervisor: Eric Bellefroid)

Doctoral research entitled
"Study of epigenetic regulator Prdm12,
a putative potential tool to target and manage pain",
under the supervision of Dr Ewan St. John Smith
(Department of Pharmacology).



Postdoctoral fellows

Ahmed Hamila

PhD in Political Science (ULB/Université de Montréal)

Research project entitled
"The construction of a New Space of Collective Action:
Mobilisations in favour of LGBT Refugees in the UK",
under the supervision of Dr Véronique Mottier
(Department of Sociology).



Santiago Muñoz Moldes

PhD in Cognition and Neuroscience (ULB)

Second year of research on his project
"The role of interoception in decision-making and learning:
A behavioural and neuroimaging approach",
under the supervision of Dr Tristan Bekinschtein
(Department of Psychology).



Marc-Antoine Sabaté

PhD in Political Theory (ULB)

Research project entitled
"Socialism: Days of Future Past.
Towards an Alternative Conceptual History of the Welfare State",
under the supervision of Dr Pedro Ramos Pinto
(Faculty of History).



OXFORD

Postgraduate fellow



Orvil Collart

MA in Biomedical Engineering (ULB)
MA in Translational Medicine (Berkeley & UCSF)

Second year of the Accelerated Medicine Course.

Doctoral fellows



Julien Decharneux

PhD student in Theology and Religion at the ULB
(supervisor: Guillaume Dye) and FNRS Research Fellow

Second year of doctoral research on
"The Quranic cosmology in its late antique context:
An Antiochene lore in the Quran?",
under the supervision of Prof. Philip Booth
(Faculty of Theology and Religion).



Nuna Terri

PhD student in History at the ULB (supervisor: Aude Busine)

Doctoral research entitled
"Thekla and the traditional religious landscape
of Seleukeia on the Kalykadnos",
under the supervision of Prof. Bryan Ward-Perkins
(Faculty of History).

*Nuna's stay in Oxford has been postponed
to October 2021 due to the sanitary crisis.*

Postdoctoral fellows

Julie Dainville

PhD in Languages, Literature and Translation Studies (ULB)

Research project entitled
"Ancient rhetorical theory in papyrological sources",
under the supervision of Dr Daniela Colomo
(Faculty of Classics)

*Julie's stay in Oxford has been postponed
to October 2021 due to the sanitary crisis.*



Damien Dewez

PhD in Chemistry (ULB)

Research project entitled
"Developing Sulfinyl Nitrenes as New Reactive Intermediates
for Organic Synthesis", under the supervision of Prof. Michael Willis
(Chemistry Research Laboratory).



Justine Feyereisen

PhD in Languages, Literature and Translation Studies (ULB)
and French and Francophone Literature (Université Grenoble Alpes)

Second year of research on her project
"Poetics of Cosmopolitical Utopias: Challenging Borders with Literature",
under the supervision of Prof. Matthew Reynolds
(Faculty of English).



Coraline Jortay

PhD in Languages, Literature and Translation Studies (ULB)

Research project entitled
"You, (Un)gendered: Literary Fates of China's
Most Popular 'Useless' Pronoun (1927-1956)",
under the supervision of Dr Jennifer Altehenger
(Faculty of History).



BRUSSELS

Doctoral fellows



Bethany Dubow

PhD student in English at the University of Cambridge
(supervisor: Gavin Alexander)

Doctoral research entitled
"Toadstool Geometry in Edmund Spenser's
The Faerie Queene (1590-1596)",
under the supervision of Prof. Franca Bellarsi
(Faculty of Letters, Translation and Communication).



Andrea Filipi

PhD student in Politics at the University of Cambridge
(supervisor: Devon Curtis)

Doctoral research entitled
"'People Power' or elite Struggle?
Untangling the Politics of Burundi's 2015 Protests",
under the supervision of Prof. Marie-Soleil Frère
(Faculty of Letters, Translation and Communication)
and Prof. Elisa Lopez-Lucia
(Faculty of Philosophy and Social Sciences).

Postdoctoral fellows



Peter Asimov

PhD in Musicology (University of Cambridge)

Research project entitled
"Toward a theory of paratextual practices in musical composition:
The case of Olivier Messiaen's writings",
under the supervision of Prof. Valérie Dufour
(Faculty of Philosophy and Social Sciences).



Anton Jäger

PhD in Philosophy (University of Cambridge)

Research project entitled
"Basic income: An Intellectual History – How a Fringe Idea Went Global",
under the supervision of Dr Daniel Zamora
(Faculty of Philosophy and Social Sciences).

Tzveta Manolova

DPhil in Archaeology (University of Oxford)

Research project entitled
"Protohistoric Eastern Mediterranean Ships Digital Project (1500-600 B.C.)",
under the supervision of Prof. Athéna Tsingarida
(Faculty of Philosophy and Social Sciences).



Vidar Arild Stenberg

PhD in Music Psychology (University of Cambridge)

Research project entitled
"Text designs for the facilitation of reading:
A cross-domain study of linguistic and musical approaches",
under the supervision of Prof. Régine Kolinsky
(Faculty of Psychology and Education Sciences).



THANK YOU, NICOLE!

In January 1997 Nicole Bosmans started working at the Foundation as its Administrative Officer. For twenty-three years, she was the backbone of the office, handling the daily management of the Foundation's activities and providing vital support to both candidates and beneficiaries of its fellowship and funding programmes. Her constant, warm, good-humoured and helpful presence is remembered fondly by all those who met her through the Foundation. In 2020 Nicole entered a new, exciting chapter – retirement – which in her case is filled with a myriad of activities, as those of you who know her could certainly confirm. Cheers to you, Nicole, and many thanks for everything!





Ganshof van der Meersch Chair

ALISON YOUNG

University of Cambridge



In 2020 the Ganshof van der Meersch Chair was held by Professor Alison Young on the recommendation of Professors Julien Pieret, Director of the Department of Public Law, and Emmanuel Slautsky, an Alumnus of the Foundation

Alison Young is the Sir David Williams Professor of Public Law at the University of Cambridge. She studied Law with French law at the University of Birmingham, prior to obtaining her BCL and DPhil from the University of Oxford.

She was a lecturer, Associate Professor and later Professor of Public law at the University of Oxford before moving to Cambridge. She researches in public law and constitutional theory and is widely published in these areas.

She is the author of *Parliamentary Sovereignty and the Human Rights Act* and *Democratic Dialogue and the Constitution*, which was a runner up for the Inner Temple Book Prize, 2018.

The opening lecture of the Chair, entitled "Brexit and the United Kingdom Constitution", was delivered on February 13, 2020 and was a remarkable success (the video has 1,600 views on the [YouTube channel](#) of the Foundation). The other lectures had to be cancelled due to the Covid crisis. Professor Young was extremely reactive and accepted to prepare and send us video lectures on the following topics:


- The impact of Brexit on the territorial organisation of the United Kingdom
- The impact of Brexit on the protection of fundamental rights in the United Kingdom
- The impact of Brexit on the division of powers between Parliament and Government in the United Kingdom

The **Ganshof van der Meersch Chair** was established in 1995 in memory of Walter Jean Ganshof van der Meersch, founder and first president of the Institute for European Studies at the ULB, holder of the chair of Public Law at the ULB, attorney general at the Belgian Court of Cassation and vice-president of the European Court of Human Rights. Prof. Ganshof van der Meersch, who understood from the very beginning the potential of the Foundation, was its second President after the death of its founder, Mrs Wiener. The chair is held at the ULB by a visiting professor from Cambridge or Oxford. The course must focus on the economic, historical, political and legal aspects of European integration or on public law.

CHAIRE GANSHOF VAN DER MEERSCH 2019 - 2020
Fondation Philippe Wiener - Maurice Anspach

Prof. ALISON YOUNG
Sir David Williams Professor of Public Law
University of Cambridge
Brexit and the United Kingdom Constitution

Thursday 13th February 2020, 6 pm
Auditoire Pierre Orion (R42.5.503), Solvay Brussels School of Economics and Management
Avenue F.D. Roosevelt 42 - 1050 Brussels



The lecture will be followed by a reception.
All welcome but registration is required
by February 5th at alisonyoung.eventbrite.com
Info: fwa.relations@ulb.ac.be - fwa@ulb.ac.be

ULB FWA UNIVERSITY OF CAMBRIDGE

Abstract of the opening lecture

Brexit has had a profound impact on the UK constitution. It questions a series of assumptions on which the UK constitution is based. The use of referendums challenges both representative democracy and parliamentary sovereignty. The tension between Parliament and the Government illustrates a tension between different conceptions of representative democracy. The measures adopted to implement the UK's exit from the European Union have provoked further tension between the component nations of the United Kingdom, potentially placing the stability of the Union in doubt.

Brexit has also seen a growth in the use of courts to resolve constitutional issues, suggesting that the move away from the constitutionalisation of the UK which arose due to its membership of the European Union may be replaced by a growing constitutionalisation of the UK from the development of the common law. Finally, Brexit has made evident a deeper flaw in the UK's constitutional arrangements. Whilst the evolutionary nature of the UK constitution can enable it to weather such storms, it can be argued that its preference for pragmatic solutions can leave it vulnerable to populism.

If the UK is to survive the challenges posed by Brexit, there is a need for a deeper engagement with and discussion of the values of constitutionalism in the UK. This may only be achieved through a process of constitutional renewal, if not codification of aspects of the UK constitution.

Clockwise, from top left: Emmanuel Slautsky, Kristin Bartik and Alison Young; Professor Young; Catherine Stewart with Wiener-Anspach Alumnus Alec Burnside and Professor Jean-Victor Louis, former President of the Foundation; the audience.



Research projects

Detail from the Building A, Campus du Solbosch, Université libre de Bruxelles

The Fondation Wiener-Anspach supports two-year collaborative research projects in all fields between teams from the Université libre de Bruxelles and the Universities of Cambridge or Oxford. Eight projects were supported for the 2018-2020 period.

ROLE OF THE MANTLE WEDGE FOR THE FLUID DYNAMICS IN THE SUBDUCTION ZONES: CONTRIBUTIONS FROM THE STUDY OF THE MARIANA AND JAPAN CONVERGENT MARGINS

Subduction zones are active sites of chemical exchange between the Earth's surface and deep interior and play a fundamental role in regulating planet habitability. However, the mechanisms by which redox sensitive elements (e.g., iron, carbon and sulfur) are cycled during subduction remains unclear.

Our study uses Fe stable isotopes ($\delta^{56}\text{Fe}$), which are sensitive to redox-related processes, to examine forearc serpentinite clasts recovered from deep sea drilling of mud volcanoes formed above the Mariana subduction zone in the Western Pacific.

We show that serpentinisation of the forearc by slab-derived fluids produces dramatic $\delta^{56}\text{Fe}$ variation. Unexpected negative correlations between serpentinite bulk $\delta^{56}\text{Fe}$, fluid-mobile element concentrations (e.g., B, As) and $\text{Fe}^{3+}/\Sigma\text{Fe}$ suggest a concomitant oxidation of the mantle wedge through the transfer of isotopically light iron by slab-derived fluids. This process must reflect the transfer of either sulfate- or carbonate-bearing fluids that preferentially complex isotopically light Fe.

This work has produced two publications in high-impact factor international journals (with peer-reviews). It gave also the opportunity to share the results in international Conferences (Goldschmidt Conference, EGU).

Cambridge Promoter: Helen Williams (Department of Earth Sciences)

ULB Promoter: Nadine Mattielli (Faculty of Sciences)

HOW MAGNESIUM SETS THE TIME OF DAY IN PLANTS

We investigated the effect of magnesium (Mg) on the circadian clock of the model plant *Arabidopsis*.

We are pleased to report that Dr Annelie Gutsch made substantial progress despite the pandemic and published her findings in two manuscripts. In de Melo, Gutsch et al., *Plant Physiology* (2021) she reported that Mg affects circadian period in *Arabidopsis* by possibly affecting the rate of protein translation. In Rivière, Gutsch, et al., *Annals of Applied Biology* (2020) she reported that Mg deficiency interacts with the circadian clock by affecting light signalling.

Cambridge Promoter: Alex Webb (Department of Plant Sciences)

ULB Promoter: Nathalie Verbruggen (Interfaculty School of Bioengineering)

Postdoctoral researcher: Annelie Gutsch

CONFLICTS OF SOVEREIGNTY IN A EUROPEAN UNION IN CRISIS (SOVEU)

In the second year of the SovEU project, promoters N. Brack, R. Coman and A. Crespy published the volume *Understanding Conflicts of Sovereignty in the EU* (Routledge) and a chapter on 'Sovereignty Conflicts in the European Union' (in *Theorizing the crises of the European Union*, edited by N. Brack and Seda Gürkan, Routledge). Dr Julia Rone published in British Politics the journal article "'Enemies of the people'? Diverging discourses on sovereignty in media coverage of Brexit" as well as the book *Contesting Austerity and Free Trade in the EU* (Routledge).

Furthermore, promoters C. Bickerton, N. Brack, R. Coman and A. Crespy drafted the new concept paper 'Unravelling Sovereignty Conflicts in an Era of Politicization' elaborating the theoretical framework of the project. They also presented new papers on Brexit, the rule of law in CEE, and CETA - the key empirical cases at the focus of the project. Two conferences, for advanced and early career scholars, were held online, with a Special Issue and a volume submission related to SovEU planned in 2021.

The project findings will continue to be shared through the website sovereigntyconflicts.eu, which will soon include videos and podcasts.

Cambridge Promoter: Christopher Bickerton

(Department of Politics and International Studies)

ULB Promoters: Nathalie Brack, Ramona Coman and Amandine Crespy (Department of Political Science)

Postdoctoral researcher: Julia Rone

SYSTEMS BIOLOGY OF INTRACELLULAR SIGNALS - EXPERIMENTAL AND COMPUTATIONAL ANALYSES OF THE INTERPLAY BETWEEN CALCIUM AND CAMP SIGNALLING PATHWAYS IN SPECIALISED ENZYME-CHANNELS JUNCTIONS

We aim at resolving the unusual pattern of Ca^{2+} release evoked by a ubiquitous family of intracellular Ca^{2+} channels, IP3 receptors (IP3Rs). IP3Rs mediate 'incremental' responses to IP3, wherein Ca^{2+} release by a low concentration of IP3 rapidly terminates without affecting subsequent responses.

Based on electrophysiology, optical analyses of Ca^{2+} signalling and a new ligand of IP3Rs, we could show that this unusual behaviour is due to activation of IP3Rs, rapidly followed by inactivation. We have extended our modelling approach to include more realistic data. This confirms that successive, significant Ca^{2+} releases can be induced in response to an incremental addition of IP3 because only a tiny fraction of the IP3R population is required to elicit Ca^{2+} signals. Our work thus sheds new light on the fine regulation of the widespread IP3-mediated Ca^{2+} signalling.

Cambridge Promoter: Colin Taylor (Department of Pharmacology)

ULB Promoter: Geneviève Dupont (Faculty of Sciences)

DEFINING THE MOLECULAR CONSEQUENCES OF MUTATIONS THAT DISRUPT EARLY HEART DEVELOPMENT

Heart malformation stands out as one of the major complications requiring medical intervention in infants, yet the molecular mechanisms are often not well understood.

During the first part of this joint ULB/Cambridge project, the teams of Professors Blanpain and Gottgens have focused on analyzing the consequences of mutations in the *Zic3* gene. Mutations in the human *Zic3* gene are associated with congenital heart defects in patients. The teams have spent the first year developing a new model system where they can study the molecular consequences of mutations in *Zic3* during the earliest stages of heart development, using parallel analysis of thousands of single cells.

During the second year of this project, detailed analysis of this dataset has been performed. Results from this analysis have made important contributions to our understanding of how *Zic3* is part of a network of regulatory genes involved in early heart development. This body of work forms part of a scientific paper currently under review for publication in a scientific journal. Very gratifyingly, the results from this joint research project will be directly relevant to improve our understanding of congenital heart disease in newborns.

Cambridge Promoter: Bertie Gottgens (Department of Haematology)

ULB Promoter: Cédric Blanpain (Faculty of Medicine)

CAT19 - PANORAMA OF THE FRENCH-LANGUAGE NOVEL IN THE EARLY 19TH CENTURY

CAT19 builds up a full picture of the early 19th-c. French-language novel. It offers a comprehensive catalogue, initiating research into formal and thematic trends, authorial identities and publishing practices, materiality, readership, critical reception, and the geographical, social and political trajectories of novels-as-objects.

Database and site design started in 2020; the website (hosted by ULB) should be launched in Spring 2021. A 2018 international conference, a 2019 roundtable and an upcoming workshop (June 2021) complete the primary research project. Proceedings will be published in a collaborative volume (in press), and via online contributions after the workshop.

Oxford's John Fell Fund awarded a year's funding (2020-21) to pursue the elaboration of the database. Its construction would have been impossible without the Wiener-Anspach Foundation's invaluable support for which we are deeply grateful.

Given the wealth of data discovered, we hope CAT19 will be an important asset for researchers.

Oxford Promoter: Catriona Seth (Faculty of Medieval and Modern Languages)

ULB Promoter: Valérie André (Faculty of Philosophy and Social Sciences)

Postdoctoral researchers: Chanel de Halleux and Fanny Lacôte

ALCHEMY - MACHINE LEARNING FOR COMPLEX MULTIPHYSICS PROBLEMS

ALChEMY (mAchine Learning for ComplEx MultiphYsics problems) aims to develop a unified framework for predicting the behaviour of low-emission combustion devices using a combination of experiments and simulations, tied together by machine learning (ML).

In the past year, a ML algorithm based on Deep Neural Networks was employed to predict the chemical features of a clean combustion regime known as Moderate or Intense Low-oxygen Dilution combustion. The DNN predictions were found in excellent agreement with numerical experiments for a broad range of conditions, providing one of the first evidence of trusted data-driven modelling of combustion systems using ML techniques.

In addition to that, we used unsupervised learning methods to automatically identify reaction zones and the key parameters characterising them, demonstrating the potential of ML techniques in detecting topologically and morphologically complex reacting structures and other interesting patterns without training.

Cambridge Promoter: Nedunchezian Swaminathan (Department of Engineering)

ULB Promoter: Alessandro Parente (Brussels School of Engineering)

Postdoctoral researchers: Golnough Ghiasi and Veeraraghavan Kannan

M-THEORY/F-THEORY: GEOMETRIC ENGINEERING OF SUPERCONFORMAL FIELD THEORIES

During the past year, our traveling ability has been impeded by the pandemic. Nevertheless, we have strengthened our collaboration, as our research direction gradually became more concrete. We have established and maintained a weekly zoom-meeting between Oxford and Brussels, and have added two collaborators from Imperial and Birmingham, A. Bourget and C. Closset. There is a concrete research project that we are currently developing in full, and which we are confident will lead to a publication.

We have focused on five-dimensional superconformal field theories, and their string theory realizations. We are working on the long-standing problem of understanding how Higgs branches, a purely QFT notion, is realized in M-theory in terms of geometric deformations.

During the past year, we have tackled a number of examples, where we have been able to extract meaningful answers. This will enable us to setup a general dictionary for this problem, and open up new avenues of study of SCFT's in five dimensions.

Oxford Promoter: Sakura Schäfer-Nameki (Oxford Mathematical Institute)

ULB Promoter: Andrés Collinucci (Faculty of Sciences)

Postdoctoral researcher: Martin Bies

Our Alumni



Wiener-Anspach Alumnus Peter Coveney

PETER COVENEY

The importance of being eclectic

In 1985 Peter Coveney came to the ULB to work with Nobel laureate Ilya Prigogine, from whom he acquired an interdisciplinary approach to scientific research. He now leads several projects in the field of supercomputing and has developed what he calls a “Brexit mitigation strategy”

How did you find out about the Wiener-Anspach Fellowship?

Around 1984 or 1985 I wanted to start working in a different field of research from the one I had been working on in my DPhil at the University of Oxford. I had become increasingly fascinated by the kind of questions Ilya Prigogine was interested in as well. I was reading his works and I got in contact with him. He was interested in meeting me and he mentioned the Fondation Wiener-Anspach. I can remember graphically the first time I met him in what was called the Service de Chimie-Physique 2 of the Université libre de Bruxelles. The first thing he told me was: “You see, Einstein was wrong!” It was about the direction of time. I worked with his team for two years, the first one funded by the Fondation. It was a very international setup.

What impact did those two years have on your research and career?

It was very formative for my way of thinking about science. I am interested in lots of things, and I don't see why I shouldn't be able to potentially work in these areas and contribute to them. That might be a bit unorthodox, because the general view is increasingly “you've got to specialize!” As time went by, however, I have been able to set up a centre at UCL, the [Centre for Computational Science](#). If you look at our catchphrase, it says “Advancing science through computers”. In most countries you can't function successfully as an academic without getting funding for your research. A way of doing that is to have a computational theme, because nothing could be more current and trendy, and then use it to study a lot of different things. It's a kind of continuation of the same intellectual way of thinking that I acquired while working with Prigogine. In his team he had people working in many different areas. There was a unified link that had to do with thermodynamics and irreversibility, but there were very fundamental activities and there were applied things, from cosmology to ant colonies. In a way I do the same. I have people in my team who work on very basic stuff, but also on diverse applications.

What kind of applications?

One area which has become very strong in the last ten years or so is the biomedical area. It's become increasingly digitized, because of advances in IT and data acquisition, and we're looking at very complex systems. That was one of the things Prigogine was into: complexity, how do we understand that and then use it to make sense of ourselves. We have to use computers to do much of this work, often using supercomputers to perform very complicated simulations. We work on algorithms for making these codes work and

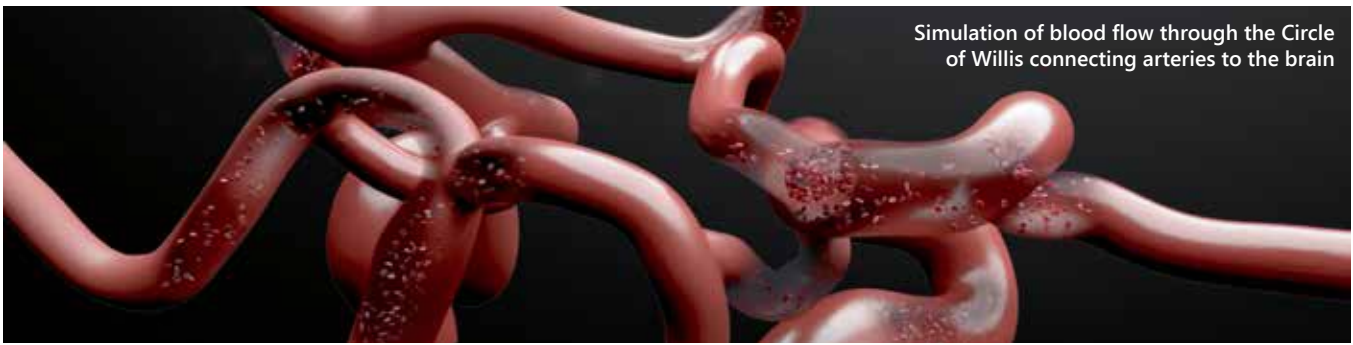
we work on the end applications. We interact with people in mathematics, computer science, physics, chemistry, biology and medicine.

You mentioned irreversibility. How did Prigogine's research on foundational matters influence your own research?

At the time I worked on the connections that he was advocating between systems which are chaotic (in other words they have this extreme sensitivity to initial conditions from a microscopic point of view), and how that connects to larger-scale descriptions of matter. If you have something which is extremely sensitive to initial conditions, in practical terms it means you will never be able to describe it in the detail that conventional physics description would wish you to do, because you would have to know an infinite amount about the detail of the starting conditions. So you have to develop methods that are more probabilistic and statistical. This is very relevant to biomedicine and personalized medicine. If you're doing drug discovery and you have a drug that's binding to a protein, you need to run simulations and you need to do it fast. But the traditional way is thinking you can run these so-called molecular dynamics simulations one-off and you'll be able to predict something. It's actually very unreliable. It is partly to do also with the reproducibility crisis in research, in science in particular. Someone runs one simulation, but the next person who tries to do the same thing is going to get a different result. You have to develop more robust statistical ways of handling the description. In a certain sense it's extremely applied, because what we're able to do is predict drugs that will bind reliably with well-defined error bars, but it's informed by this idea that we can't rely on a deterministic picture. We have to do things probabilistically.

This reminds me of an [article](#) about the study that you led on Covid-19 forecasts. Your team was commissioned by the Royal Society to examine CovidSim, an epidemiological model developed by Neil Ferguson at Imperial College London.

That model came to prominence because it was used by the UK prime minister and the government to decide that they had better impose a lockdown in March 2020. The predictions, however, were based on a few individual simulations, but the model is very much a probabilistic one. We did some detailed analysis of that which reveals the amount of uncertainty that the model has in it – the code and its underlying mathematical model can predict a huge diversity of outcomes reflecting the uncertainty in the values of the parameters within it. Neil Ferguson's own predictions were on the modest side compared to what the model could allow to occur. Our analysis is all to do



Simulation of blood flow through the Circle of Willis connecting arteries to the brain

with “ensemble simulations”, the study of all possible outcomes from the model. In order to convey this to the general public, I like to say that this is the same method used today in weather forecasting: one has to perform many simulations because a single one cannot give you a reliable prediction. This is all part of the same picture necessary to understand complex systems, and Prigogine was already talking about it all those years ago.

Can you tell us about another project you're leading, “First full-scale 3D high-fidelity simulations of blood flow in the human vasculature”?

The physical model we're using is called a lattice-gas or lattice Boltzmann model. I mention that because one of the people who was working with Prigogine's large group was Jean-Pierre Boon (I'm still in contact with him though he retired quite a few years ago), and he was using these lattice models. They're meant to represent a fluid – here it's blood flow. The blood goes through the vasculature. With these extremely powerful computers, we're able to do simulations of the blood flow through the whole body in a personalized way because we get the three-dimensional structure of the arteries and the veins, and then we want to flow the blood through this very fine network of arteries and veins. We use lattice models because they are very efficient computationally at managing large quantities of matter, whereas conventional fluid-dynamics code doesn't scale. These methods scale very nicely because in order to go from one time-step to the next in the simulation you only need to know what happens in the immediate neighborhood of any point. It is sort of intuitive but with hydrodynamics, a bit like electrostatics, the range of interactions can be very large. This method enables you to keep the calculations local. This is one of the areas where I'd like to think that we have made some of the biggest advances in terms of the virtual human scale simulation, because we were able to include an entire human body within the simulations that we run today.

Have you developed collaborations around this project?

Yes, in particular with people in Amsterdam, Oxford and Barcelona. In Barcelona, they have developed a very powerful model of the human heart, called Alya, that carries the electromechanical beating, but it has also fluid flowing into it. It stops where the flow comes into and out of aorta. We're connecting that model on the computer with my model, called HemelB, so we can have a single closed loop describing an individual's cardiovascular. That work is in progress.

And it needs to be funded...

The European Union has a huge initiative which is worth many billions of euros about exascale computing [editor's note: next generation machines which will perform more than one billion

billion operations per second]. What they want is applications in areas which need this type of machines. My answer to them has always been: “In biomedicine, doing virtual human scale simulations, you are going to need these machines.”

This brings me to the sore issue of Brexit. The deal says the UK can continue to participate in certain European funding programmes, but details still need to be negotiated. What is your take on the situation?

From my perspective as a scientist, after all this activity with European collaborators, nothing has ever been so damaging as the threat to prevent me being able to pursue these scientific collaborations. The deal announced just before Christmas is great good news only by comparison with what might otherwise have been, which is nothing. It's like a small mercy, but as you said the nature of the collaborations and the rush with which the deal was put together show there's still a lot of things that have to be negotiated. UK participation in Horizon 2020 finally got sorted out in the end during the earlier parts of last year with the Withdrawal Agreement, and it was agreed that the UK would continue to play into those things. I'm partly running two big projects, the Centre of excellence in computational biomedicine and another, called VECMA, about uncertainty quantification. Together they are worth in total around 16 million euros. Just to be at risk of losing that would have been terrible. The latest news [editor's note: in mid-February 2021] is that the UK expects to participate in Horizon Europe, but the terms still need to be agreed and signed off. But of course we're already diminished because we're no longer at the table agreeing what the work programme for that period is.

Another source of concern for you is the European High Performance Computing Joint Undertaking (EuroHPC).

Yes, a new European initiative, called EuroHPC, has been taken out of Horizon 2020 and Horizon Europe, although the budget for it comes partly from Horizon Europe. The detail is that only 50 per cent of the funding comes from Horizon Europe, the other 50 per cent comes from the nations involved. This is quite messy already and it has led to a lot of complications. It's been designed in order to make the HPC programme even bigger, but the main point I'd make here is that the UK has never signed up to EuroHPC. That initiative got going after the Brexit referendum, so at that moment it became a political football when the British government didn't want to be involved in new European initiatives. That's a big problem for me now. If I want to continue in that area, I have to wear another hat, which is why I took a chair in HPC at the University of Amsterdam. It's a deliberate mitigation strategy to get round this problem. From my background – my parents were both linguists, into European affairs and culture – I've always expected integration rather than division, and to see Brexit happen is extremely sad.

NEWS FROM OUR ALUMNI

RESEARCHING, CONTAINING AND EXPLAINING THE COVID-19 PANDEMIC

The activities of the Wiener-Anspach Alumni Network were strongly affected by the sanitary crisis. The pandemic started right on the eve of a planned visit to the Belgian Constitutional Court, which was to be guided by our Alumnus **Jean-Pierre Spreutels**, former President of the Court and a Trustee of our Foundation. The visit had to be canceled, but we look forward to rescheduling this activity as soon as the circumstances allow.

Since the beginning of the Covid-19 crisis, researchers all over the world have been playing an important role in both researching the epidemic and explaining it to the general public. In Belgium, this has been especially the case of our Alumni **Marius Gilbert** and **Simon Dellicour**, from the ULB Spatial Epidemiology Lab, and of our Trustee **Michel Goldman**, Founder of the I3h Institute for Interdisciplinary Innovation in healthcare.

Following a special call for research projects on Covid-19, the ULB launched 18 new research projects. Two are led by Wiener-

Anspach Alumni **Emmanuel Slautsky** (Centre for Public Law, project entitled "Belgian public and social law and the Covid-19 health crisis: facing the present and thinking about the future") and **Gilles Bruylants** (Engineering of Molecular NanoSystems laboratory, project entitled "Covid-19 Immunoglobulin tests").

Our Alumnus **Jonathan Mboyo Esole** was at the heart of a project to contain the epidemic in his home country, the DRC. Assistant Professor in Mathematics at Boston's Northeastern University and a member of the NGO Malaika, supporting the education of girls in the DRC, Jonathan launched the Covid19DRC project with a group of scientists and technologists. They created a website providing data, information and predictions on the pandemic. Following a successful crowdfunding, 3D printers were bought to produce face shields for Congolese healthcare professionals. Students from the University of Lumumbashi and the school of Malaika were among those contributing to the production of the shields in four cities (Kinshasa, Goma, Bukavu, Lumumbashi).



Marius Gilbert and Simon Dellicour; Emmanuel Slautsky, Gilles Bruylants; Jonathan Mboyo Esole; students from the Malaika school.

PERMANENT ACADEMIC APPOINTMENTS

Sébastien Clesse has been appointed Lecturer in the Theoretical Physics Department of the ULB. He has also been awarded a Francqui Start-up Grant (2020-2023). He will lead new research on gravitational waves and primordial black holes, in the context of the international collaborations LIGO/Virgo, Einstein Telescope, LISA and Euclid.

Clément Dessy has been appointed FNRS Research Associate in the Department of Languages and Literature of the ULB. His research project is entitled "Translating by Art. A Literary History of Translation and Writers-Translators in the French-speaking Area (1840-1914)."

Nibedita Mukherjee has joined Brunel University London as a Lecturer on Global Challenges. She has also been invited by UNEP (United Nations Environment Programme) to be a part of the review of the future of the Global Environment Outlook.

Violette Pouillard has been appointed CNRS Research Fellow at the LARHRA (Laboratoire de recherche historique

Rhône-Alpes), where she will continue her research on wildlife conservation and management in Central Africa (Congo and Uganda), from the 19th century to present.

Vasiliki Saripanidi has been appointed FNRS Research Associate at the ULB Research Centre in Archaeology and Heritage (CReA-Patrimoine). Her research project is entitled "Dawn of Macedon: The Formation of the Temenid Kingdom and its Sociopolitical Organization Before the Reign of Philip II."

Christophe Snoeck has been appointed Research Professor in Archaeological Sciences at the Vrije Universiteit Brussel. Christophe is among the 2020 ERC Starting Grantees. His project – LUMIERE – Landscape Use and Mobility in EuRoPE (erclumiere.be) – will "shed light on changes in mobility, migration patterns and landscape use of early populations in Europe by bringing together information obtained directly from both cremated and inhumed individuals using state-of-the-art bioarchaeology" (VUB press release, September 2020).



CHRISTOPHER VAJDA ON HOW A WIENER-ANSPACH FELLOWSHIP PAVED HIS WAY TO THE EUROPEAN COURT OF JUSTICE

Brexit will close many chapters. One of these, as noted by Kees Groenendijk (Radboud Universiteit) on the blog [EuLawAnalysis](#), is the contribution by British judges and advocates general of the European Court of Justice to EU law, especially EU migration law.

The last British judge was **Christopher Vajda**, a Wiener-Anspach Alumnus. In a 2018 [interview](#) to the British journal *Counsel* magazine, he mentioned his career-changing fellowship at the Université libre de Bruxelles in 1977/1978. "My plan on graduating was for postgraduate studies in America. But Professor Hamson, the Emeritus Professor of Comparative Law at Cambridge, advised me: 'Go where the future is: Europe.' He recommended me for a scholarship at the ULB, a course in EU law, all in French. This was career-changing. It led me to consider specialising in EU law, even though it was still in its infancy." Reacting to this interview, Prof Jean-Victor Louis, former President of the Foundation, wrote: "Prof C. J. Hamson – a friend of the Foundation's second president W. J. Ganshof van der Meersch – played an important role in promoting the Foundation and 'recruiting' several candidates, including Christopher Vajda, one of his most brilliant students."

Christopher Vajda has now returned to his former chambers, Monckton Chambers, where another Wiener-Anspach Alumna, Valentina Sloane, works as a barrister. Here are a few excerpts from the farewell speech that Judge Vajda gave at the ECJ on 12 February 2020.

"The UK joined the EEC, as it was then called, on 1st January 1973. I was 17 at the time so you will understand that neither EEC law nor this Court formed any part of my life at that time. However, after my law degree in Cambridge I was persuaded to do a postgraduate degree in Brussels in EEC law by the Emeritus Professor of Comparative Law at Cambridge, Jack Hamson. In the 1950s he had written a pioneering English textbook on French administrative law at a time when the

concept of administrative law did not yet exist in English law. I went to Brussels way before any Erasmus scheme was in existence and readily confess that one of the attractions of going there was the award of a very generous scholarship which enabled me to divide my time between the University and the bars and restaurants of that city in a manner that I believed did full justice to the principles of diligence and proportionality."



"It is not surprising that since 1982 I have seen significant change in the working methods of the Court. I am happy to say that most of them have been for the better. The most significant change, and the one most visible to the outside world, is that oral hearings are no longer a formal procedure where the lawyers read out their pleadings, there are no questions from the Bench, and the lawyers then go home. [...]. Although it may be said that questioning from the Bench was something that the British legal tradition brought to the Court I am confident that this is now so embedded in the DNA of the Court that it will continue after Brexit."

"I think the time has come for this Court to embrace live streaming. This would enable many more people to see the Court in action and bring the Court closer to the individual citizen. For my part, I look forward to the day when I can watch my former colleagues in action from the comfort of a sofa anywhere in the world."

FELLOWSHIPS, PRIZES AND OTHER GOOD NEWS

Olivia Angé, Associate Professor at the LAMC (Laboratory of Anthropology of Contemporary Worlds, ULB) was awarded a European Research Council Starting Grant for her project *SeedsValue* (flourishingseeds.eu), which will analyse the relationship between ethical values and farmers' commitment to agrobiodiversity, focusing on three different crops (potatoes in Peru, corn in Mexico and rice in Laos).

David Bauman was granted a Belgian-American Educational Fondation Fellowship to join the Quantitative Ecology Lab of the Smithsonian Environmental Research Center.

Guillaume Delhaye has been appointed postdoctoral researcher at the Royal Botanic Gardens, Kew.

Michael Depreter, Lecturer in History at Harris Manchester College, Oxford, has been appointed Research Associate

in the framework of the ERC Project "The European Fiscal-Military System, 1530-1870" led by Prof. Peter Wilson.

Ruadhaí Dervan, Research Fellow in Mathematics at Gonville & Caius College, Cambridge, was granted a Royal Society University Research Fellowship.

Maxence Draguet has been awarded the Hoare Prize for the best project in the MSc in Computer Science, University of Oxford. Following his Wiener-Anspach postgraduate fellowship, Maxence has stayed in Oxford to start a DPhil in Particle Physics.

Mathias Lamberty has been appointed as *Référéndaire* in the Cabinet of Thomas von Danwitz, Judge at the European Court of Justice, as from November 2020.



OTHER FUNDED INITIATIVES

The Ganshof van der Meersch Prize



Established in 1994, the **Ganshof van der Meersch Prize** rewards a student from the Faculty of Law and Criminology of the ULB who achieved academic excellence in the study of public law and who obtained a Master's degree in this field with at least a "Grande Distinction" (magna cum laude).

In 2019 the prize was awarded to **Helena Placentino**. Helena studies law, with a focus on European law, public international law, and their interaction. She has taken part in projects such as the ULB Equality Law Clinic, specialized in non-discrimination law, and has spent six months in China in 2019 in the framework of an exchange programme. She is now enrolled in the Specialized Master in European Law at the Institute for European Studies at the ULB.

Short Stays - 2020 Recipient

Academics and researchers from the ULB, Cambridge and Oxford who wish to conduct research for a limited period of time or participate in conferences organised by one of these universities can apply for funding.

Due to Covid-related restrictions, applications were limited in 2020 and most recipients decided to postpone their stay abroad. The Foundation only supported the research stay of **Isabelle Migeotte** (Institute of Interdisciplinary Research in Human and Molecular Biology, ULB), who was invited by the Sainsbury Laboratory of the University of Cambridge (March 2-16, 2020). Dr Migeotte sent us the following report.

"Although my research stay was shortened due to the lockdown, it enabled me to acquire new skills in microscopy and computer modeling, and to initiate several collaborative projects.

I had the privilege to meet Professor Ottoline Leyser, the leader of Sainsbury Laboratory, a renowned researcher in plant development biology and a scientist involved in many important social and ecological causes. I worked with the team of Dr Sarah Robinson, who studies the role of mechanical properties of tissues in cell division and morphogenesis. I used an atomic force microscope and learned the basics required to carry out a reliable study and quantify data.

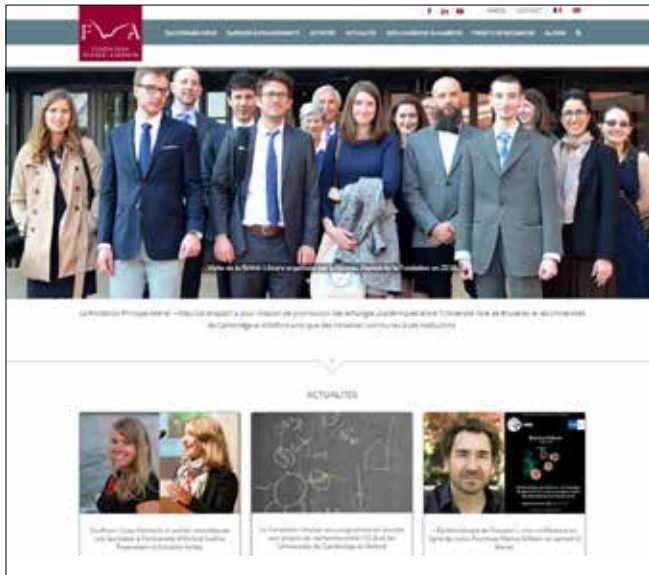
Thanks to Dr Ray Wightman (Microscopy Core Facility Manager), I was able to test different last generation versions of confocal, spinning disk, light sheet and scanning electron microscopes. I initiated collaboration with two computational modeling teams specialized in cytoskeleton (Prof. François Nedelec) and mechanics of biological materials (Prof. Alexandre Kabla), respectively.

Finally, Dr Kate McDole from the Laboratory of Molecular Biology showed me the assembly process of the advanced light sheet microscope that she has developed. Together, we have identified existing data from which we could extract quantitative information, as well as the real time imaging experiments to be planned in the future."



COMMUNICATION

Website restyling and Twitter launch



In September 2020 we launched our new website (fwa.ulb.be), designed by Swingtree.be. Our aim was to refresh the website design, give more space to images, and provide an easy-to-navigate platform presenting our activities. It was also an opportunity to finalise our Alumni list, which will now be gradually enriched with detail pages about our former fellows. We hope you like this website as much as we do. Should you have any comments or suggestions, feel free to drop us a line at fwa.relations@ulb.ac.be.

In our communication frenzy, we also decided to throw ourselves into Twitter. You can find us at [@wieneranspach](https://twitter.com/wieneranspach).

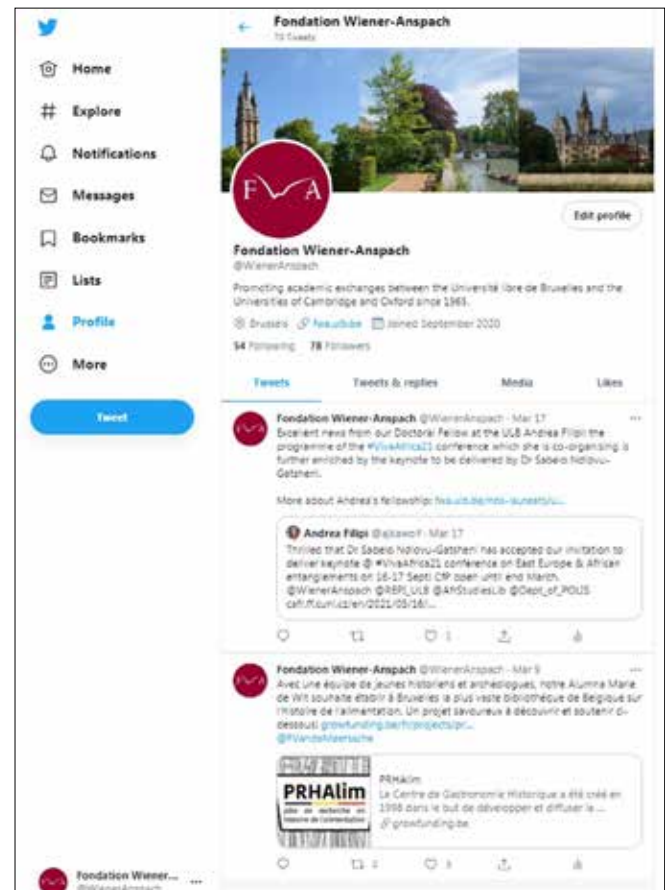
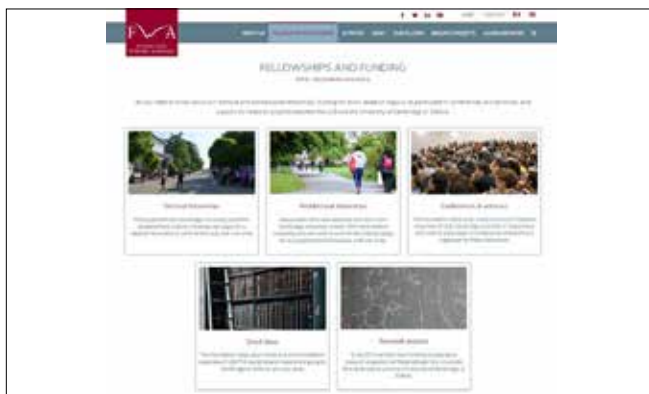


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Cover picture: *Building A and statue of Pierre-Théodore Verhaegen (Solbosch Campus, ULB, 2018)*

Picture illustrating the table of contents: *A bee orchid (*Ophrys apifera*), native to Europe but extremely rare in the Brussels region (Campus de la Plaine, ULB, 2015)*

