



FONDATION
WIENER-ANSPACH

ANNUAL REPORT

2018

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WORD OF WELCOME FROM THE PRESIDENT



More than ever, in this period of uncertainty about the future of the relations between British and European higher education institutions, the Fondation Philippe Wiener - Maurice Anspach takes its role seriously.

Historically, the Foundation was created to strengthen a cross-fertilization of curricula through exchanges between the Université libre de Bruxelles and the Universities of Cambridge and Oxford. Gradually, we extended our support to research, convinced that we needed to maintain long-term links between our teams of researchers. More than ever, exchanges between researchers from different horizons are an essential condition for innovation and creativity.

As every year, this report is an opportunity for us to present a precise overview of our wide spectrum of activities: postgraduate, doctoral and postdoctoral fellowships, lectures and chairs, collaborative research projects and short-term research stays.

Students as well as researchers remain deeply attached to our Foundation even after the end of their fellowship period. Our Alumni Network is consequently dynamic and helpful for the next generations of Wiener-Anspach Fellows.

Today there can be no question of limiting our horizon to a local environment, as prestigious as it may be. The Foundation continues its mission as a smuggler in the interest of science and an open world, with efficiency, flexibility and simplicity of application. These criteria must be increasingly taken into account.

I would like to thank warmly Prof. Kristin Bartik and the administrative team of the Foundation for their crucial role in this matter. It is also my pleasure to thank the Scientific Committee, chaired by Prof. Luc Lemaire, that rigorously selects the best candidates and projects to be funded, as this report proves once more. In these times of financial crisis, I also want to thank the Financial Committee of the Foundation, chaired by Eric de Keuleneer, for the special care it takes of our capital, ensuring the effectiveness and success of our mission.

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 her family during the war, Mrs Wiener modified the Foundation's statutes to add his name to her husband's.

OUR ACTIVITIES

- Enabling graduates and researchers from the ULB to study or work at the Universities of Cambridge and Oxford and vice versa
- Supporting two-year collaborative research projects
- Organising lectures and chairs in Brussels, Cambridge and Oxford
- Encouraging contacts between researchers and academics by funding short-term visits

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

Fellowship programme



FELLOWSHIP PROGRAMME

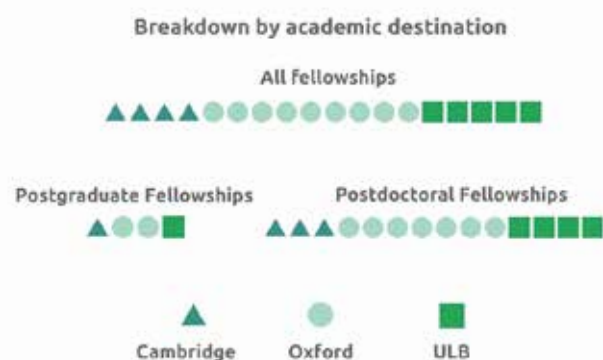


On September 12th, 2018 the Académie royale de Belgique hosted our annual Fellows' meeting. The presentations made by our 2018-2019 Fellows and by the promoters of the new collaborative research projects were followed by a reception, giving our guests - academic authorities and researchers from the ULB, friends and Alumni of the Foundation - the opportunity to spend a convivial evening in the magnificent setting of the Palais des Académies.

In line with its objectives, the Foundation promotes the development of academic activities between the ULB and the Universities of Oxford and Cambridge 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 2018-2019 academic year, the Foundation selected 18 Fellows.





CAMBRIDGE

Postgraduate fellow



Estelle Praet

MA in Arts and Pre-Colombian Archaeology, ULB

Enrolled in an MPhil in Archaeology

Postdoctoral fellows



Michael Jabbour

PhD in Engineering Science and Technology, ULB

Research project entitled "Majorization relations and entropic inequalities for the evaluation of the capacities of bosonic quantum channels", under the supervision of Dr Nilanjana Datta (Faculty of Mathematics).



Ekaterina Ostashchenko

PhD in Linguistics, ULB

Research project entitled "Acquisition of phonetic categories in atypical language development (Autism Spectrum Disorder and Specific Language Impairment)", under the supervision of Dr Napoleon Katsos (Department of Theoretical and Applied Linguistics).



Maria Valdes

PhD in Earth and Planetary Science, ULB

Research project entitled "How to construct the moon", under the supervision of Dr Helen Williams (Department of Earth Sciences).

OXFORD

Postgraduate fellow

Brice De Potter

MA in History, ULB

Enrolled in an MSt in Classical Archaeology



Doctoral fellow

Loïc Borgies

PhD student in History, ULB

Doctoral research on "The ideological foundation of the Augustan Principate Compared to the Qin and Huan Empires", under the supervision of Prof. Nicholas Purcell (Faculty of Classics).



Postdoctoral fellows

David Bauman

PhD in Biology, ULB

Research project entitled "Influence of Climate and soil constraints on the mechanisms of tropical tree metacommunity assembly – a functional and multi-scale approach", under the supervision of Prof. Yadvinder Malhi (School of Geography and Environment).



Christophe Delaere

PhD in History, History of Art and Archaeology, ULB

Research project entitled "Settlement patterns and lacustrine landscape alteration of lake Titicaca during the pre-Columbia periods (800 BC- 1550 AD)", under the supervision of Prof. Damian Robinson (School of Archaeology).





Mara Donato Di Paola

PhD in History, ULB

Research project entitled "Cross-Channel exchanges of ideas and methods in secondary education in 19th century (1850-1920)", under the supervision of Prof. Christina de Bellaigue (Faculty of History).



Coraline Goron

PhD in Political Sciences, ULB

Second year of research on a project entitled "@huanjing : The New Frontiers of the State and the Politics of Environmental Conflict Resolution in China", under the supervision of Dr Anna Lora-Wainwright (School of Geography and the Environment).



Jean-Charles Speeckaert

PhD in History, ULB

Research project entitled "An enduring and cosmopolitan connection? Britain and Britons in the Belgian provinces during the second half of the 18th Century", under the supervision of Prof. Hamish Scott (Jesus College).



Jean Vanden Broeck-Parant

PhD in History of Art and Archaeology, ULB

Second year of research on a project entitled "Economic planning and anticipation strategies for the preservation of built environment in the Greek world in the Hellenistic and Imperial periods", under the supervision of Prof. R.R.R. Smith (School of Archaeology).



Valérie Voorluijs

PhD in Chemistry, ULB

Research project entitled "Modelling of calcium signals in astrocytes during Alzheimer's disease", under the supervision of Prof. Philip Maini (Mathematical Institute).

BRUSSELS

Doctoral fellow

Katie Johnston

DPhil student in Law, University of Oxford

Doctoral research on "Processes of change in the *jus ad bellum*: the implications of overlapping norms for the sources of international law", under the supervision of Prof. Olivier Corten (Centre de Droit international).



Postdoctoral fellows

Irene Bavuso

DPhil in History, University of Oxford

Research project entitled "Shaping the Kingdoms: socio-economic changes in England and Francia in the 5th-7th centuries", under the supervision of Prof. Alexis Wilkin (Faculty of Philosophy and Social Sciences).



Ioannis Chalazonitis

DPhil in Classical Archaeology, University of Oxford

Second year of research on a project entitled "Warriors on the periphery: Early arms and armour in Eastern Macedonia", under the supervision of Prof. Athéna Tsingarida (CReA-Patrimoine).

Alexandra Paulin-Booth

DPhil in Modern History, University of Oxford

Research project entitled "Global temporalities? Time and French colonialism, 1881 – 1945", under the supervision of Dr Amandine Lauro (Faculty of Philosophy and Social Sciences).



Jan Stöckmann

DPhil in History, University of Oxford

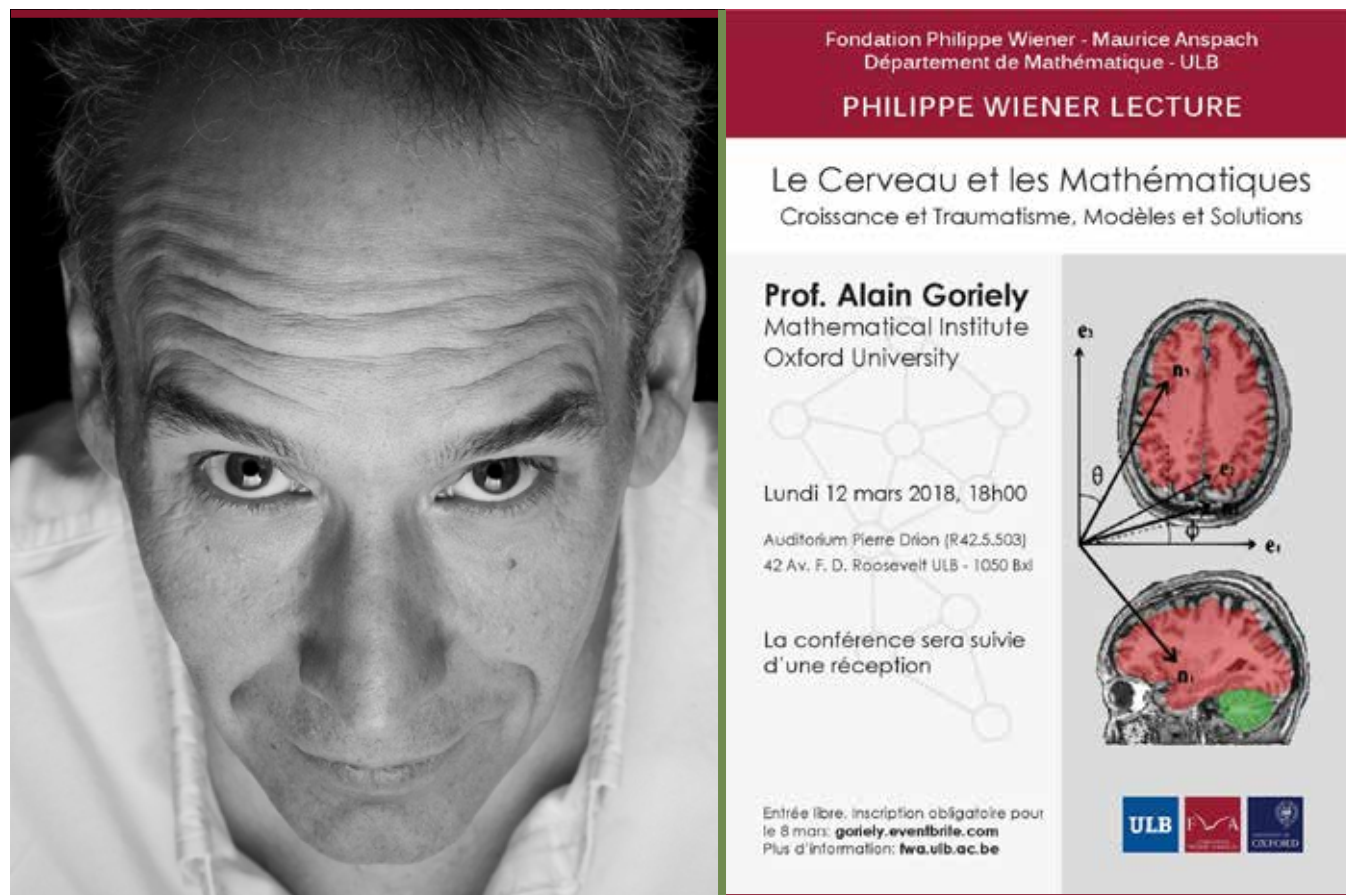
Research project entitled "Whose war and peace? The campaign for democratic control of foreign policy", under the supervision of Prof. Véronique Dimier (Faculty of Philosophy and Social Sciences).

A black and white photograph of a man with a mustache, wearing a dark suit, white shirt, and dark tie. He is sitting on a large, ornate sofa with a floral pattern. His hands are resting on his knees, and he is looking directly at the camera with a neutral expression. The background is dark and indistinct.

Philippe Wiener Lectures

ALAIN GORIELY

Le cerveau et les mathématiques



Fondation Philippe Wiener - Maurice Anspach
Département de Mathématique - ULB

PHILIPPE WIENER LECTURE



Le Cerveau et les Mathématiques
Croissance et Traumatisme, Modèles et Solutions

Prof. Alain Goriely
Mathematical Institute
Oxford University

Lundi 12 mars 2018, 18h00
Auditorium Pierre Drion (R42.5.503)
42 Av. F. D. Roosevelt ULB - 1050 Bxl

La conférence sera suivie
d'une réception

Entrée libre, inscription obligatoire pour
le 8 mars: goriely.eventbrite.com
Plus d'information: fwa.ulb.ac.be

ULB  

Established in 2007, the Philippe Wiener annual lectures are delivered at the Universities of Cambridge and Oxford by academics and researchers from the ULB, and vice versa.

On March 12th, 2018 Alain Goriely, Professor of Mathematical Modelling (University of Oxford), gave a Philippe Wiener lecture at the ULB. He was welcomed by Luc Lemaire, Emeritus Professor of Mathematics, and Didier Viviers, President of the Wiener-Anspach Foundation.

Biographical note

Professor Alain Goriely is the Director of the Oxford Centre for Industrial and Applied Mathematics and Statutory Chair of Mathematical Modelling at the University of Oxford. His current research includes the mechanics of biological growth and its applications to plants and physiology; the modelling of emerging new technologies for renewable energies; the foundations of mechanics; the theoretical description of the brain and, more broadly, the development of mathematical methods for applied sciences. He is the author of *The Mathematics and Mechanics of Biological Growth* (Springer, 2017) and *Applied Mathematics: A Very Short Introduction* (Oxford University Press, 2018).

Abstract of the lecture

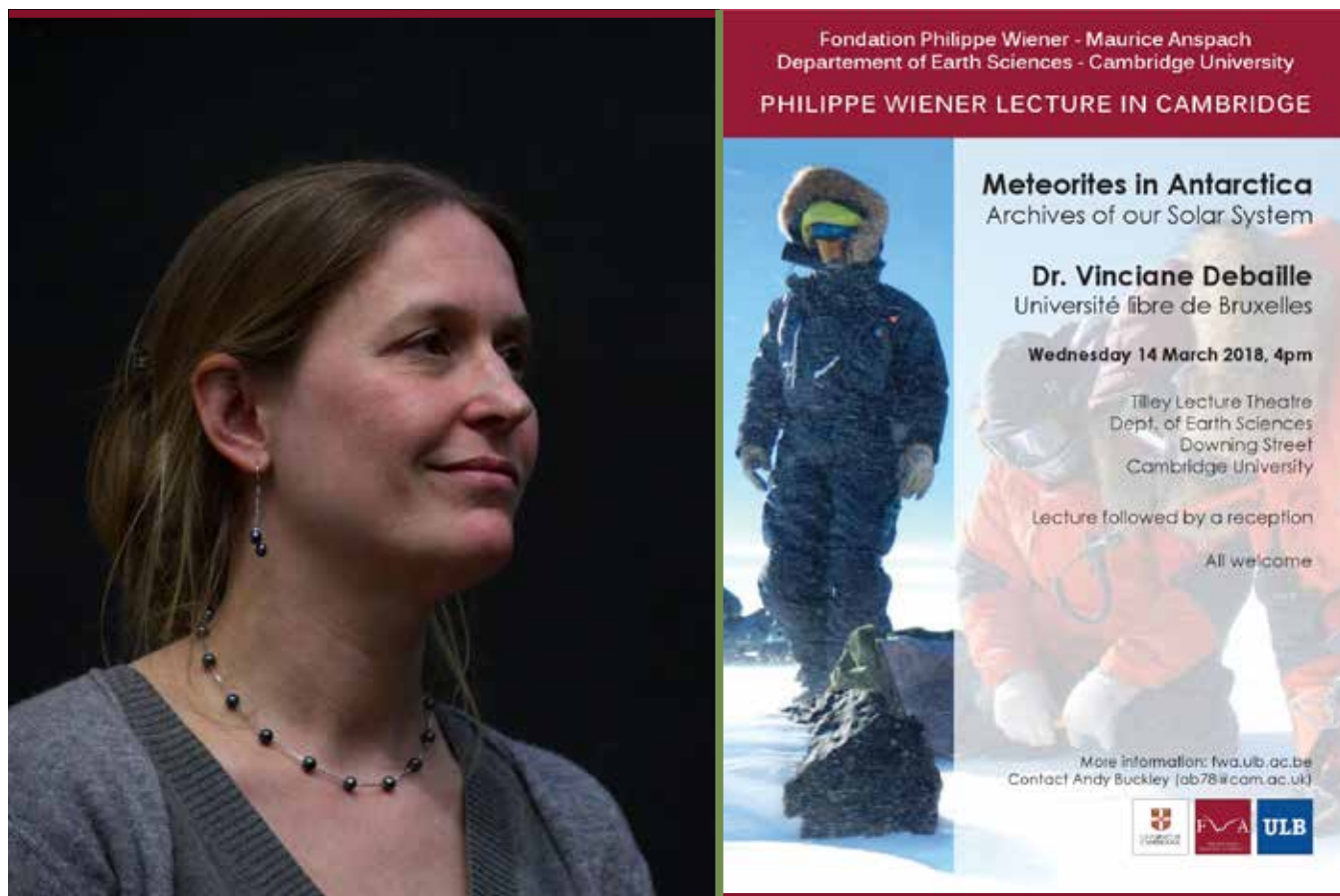
The human brain is the ultimate object of our intellectual egocentrism. It is also an extraordinary source of scientific problems and an organ of such complexity that it is hard to say whether a mathematical approach is possible. We will consider several modelling problems related to the brain. Using numbers and scaling laws, we will try to determine whether the brain is as remarkable as we think. Taking geometry as a starting point, we will see how the brain convolutions develop and how they relate to the development of the cranial vault. Thanks to physics, we will also see that it is possible to develop simple models that can help us understand what happens during a head trauma. Finally we will ask ourselves whether models of dementia can be developed before we lose our mind.



Clockwise, from top left: Luc Lemaire, President of the Scientific Committee of the Foundation, Alain Goriely and Didier Viviers, President of the Foundation; Didier Viviers welcomes the audience; Wiener-Anspach Alumnae Alicia Van Ham-Meert and Julia Binter; Alain Goriely with Michel Cahen.

VINCIANE DEBAILLE

Meteorites in Antarctica



On March 14th, 2018 Dr Vinciane Debaille (Department of Earth and Environmental Sciences, Université libre de Bruxelles,) gave a Philippe Wiener Lecture at the University of Cambridge. She was welcomed by Dr James Bryson (Department of Earth Sciences).

Biographical note

Vinciane Debaille, FNRS research associate at the ULB since 2010, specialises in geochemistry and cosmochemistry. Her research interests encompass the formation of the solar system and the evolution of planets, including the ancient Earth, using the isotopic composition of terrestrial and extraterrestrial rocks. She has participated in three missions to Antarctica, and one mission in the Atacama desert in Chile to collect meteorites. She received an ERC Starting Grant in 2013.

Abstract of the lecture

Every day, several tons of extraterrestrial material fall on Earth, most of it as unnoticed dust. Sometimes larger blocks survive their entry into the atmosphere and can be found as meteorites. Some of them represent the starting blocks of our solar system while others sample remote asteroids, and even planets such as Mars.

We will see how we can try to understand the formation and evolution of our solar system thanks to them. We will also see how these space rocks arrive on our planet and how they are collected on Earth, notably in Antarctica.

Above, from left to right: Luc Lemaire, Graeme Barker, Kristin Bartik, Anne Weyembergh, Christophe Snoeck, Didier Viviers, Vinciane Debaille, Wels Jacques, Irene Wieczorek, Roy Lavendomme, Isabelle Lorge and Jérôme Dohet-Eraly.

Below, clockwise from top left: James Bryson; the audience; Didier Viviers, Kristin Bartik and Luc Lemaire; Wiener-Anspach Fellows and Alumni Jérôme Dohet-Eraly, Roy Lavendomme, Isabelle Lorge and Wels Jacques.





Ganshof van der Meersch Chair

SANJEEV GOYAL

University of Cambridge



In 2018 the Ganshof van der Meersch Chair was held by Professor Sanjeev Goyal on the recommendation of Professors Patrick Legros and André Sapir from the European Center of Advanced Research in Economics and Statistics (ECARES). The opening lecture, entitled "Integration and Diversity", was given on April 23rd, 2018.

Sanjeev Goyal is Professor of Economics at the University of Cambridge and Fellow of Christ's College, Cambridge.

He pioneered and remains a leading international scholar in the study of networks. His early research in the 1990's laid the foundations of an economic approach to the study of networks by providing a framework for the study of the effects of social structure on human behaviour and by developing a model of how the costs and benefits of linking shape the formation of networks.

In subsequent work, he has explored applications of these ideas in the context of industrial organisation, economic development, international trade, finance, the diffusion of innovations, cybersecurity, and conflict. In 2007, Princeton University Press published his book *Connections: an introduction to the economics of networks*.

Sanjeev Goyal is Fellow of the British Academy and was the founding Director of the Cambridge-INET Institute.

The Ganshof van der Meersch Chair was established in 1995 in memory of Walter Jean Ganshof van der Meersch, founder and 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.

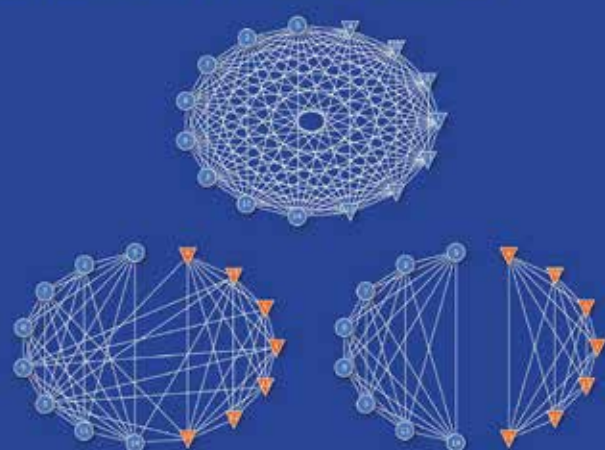
Mr Ganshof van der Meersch, who understood from the very beginning the potential of the Foundation, was its second President after the death of its founder, Mrs Wiener.

The chair is held at the ULB by a visiting professor from Oxford or Cambridge. The course must focus on the economic, historical, political and legal aspects of European integration or on public law.

CHAIRE GANSHOF VAN DER MEERSCH 2017 - 2018
Fondation Philippe Wiener - Maurice Anspach


Professor Sanjeev Goyal FBA
Faculty of Economics, University of Cambridge

Opening lecture
Integration and Diversity
Monday 23 April 6pm
ULB / IEE, Room Spaak, 39 Avenue Roosevelt, 1050 Bruxelles



The lecture will be followed by a reception.
All welcome.
Registration by 18 April at goyal.eventbrite.com

Following lectures:
Tuesday 24 April, 6pm
Wednesday 25 April, 6pm
Thursday 26 April, 6pm

ULB FBA IEE  More info: fwa.ulb.ac.be - fwa@ulb.ac.be

Programme of the 2018 Chair

23 April - Opening Lecture
Integration and Diversity

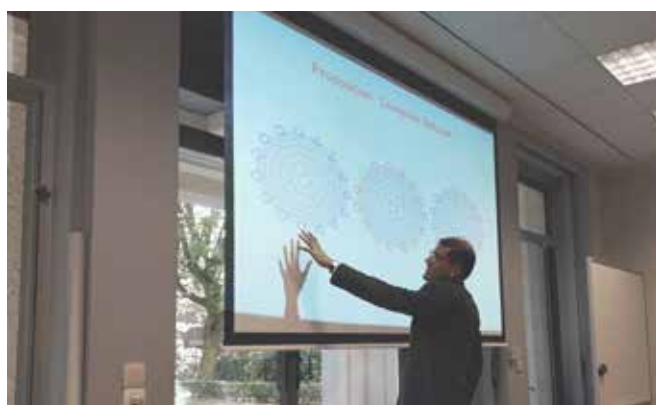
In a liberal society, diversity in norms, values, and modes of behaviour is greatly valued. But in contemporary European politics, diversity is also increasingly seen as a major challenge. In the domains of food, dress, language, education, occupation, and religious belief, the rewards from an action depend on what others - especially those close to us - choose. Group identity creates differing expectations on the preferred course of action. How do individuals navigate their way through the claims of group identity and the pressures of conformism? What are the implications for social cohesion?

24 April
Community Networks and Markets

25 April
Networks and Gender

26 April
Conflict in Networks: Rise and Fall of Empires

Clockwise, from top left: Patrick Legros; the audience; Mathias Dewatripont and Didier Viviers; Sanjeev Goyal.





Le Luxe livré à la Misère .

PARIS.

Research Projects

The Foundation supports two-year collaborative research projects in any field between teams of the Université libre de Bruxelles and the Universities of Cambridge or Oxford. For the 2018-2020 period, eight new projects were selected and three 2016-2018 projects were granted funding for a one-year extension.



The ULB promoters at the 2018 Fellows' Meeting in Brussels. From left to right: Anne Weyembergh, Alessandro Parente, Ramona Coman, Andrés Collinucci, Amandine Crespy, Irene Wieczorek, Alex Webb (University Of Cambridge), Nathalie Verbruggen, Valérie André, Bortolo Magnetti, Nadine Mattielli.

ALCHEMY - MACHINE LEARNING FOR COMPLEX MULTIPHYSICS PROBLEMS

ALChEMY (mAchine Learning for ComplEx MultiphYsics problems) aims to develop a unified modelling approach, to predict the behavior of low-emission combustion devices using a combination of experimental and computational methods, tied together by machine learning techniques. High-fidelity experimental data and simulations for complex multi-scale and multi-physics reacting systems will be processed using advanced machine learning approaches, with the objective of developing reduced-order models able to mimic the behavior of a real system without the computational burden associated to full-scale simulation. The methodology will be demonstrated for the case of a MILD combustion system, for which the world first digital twin will be developed. Moreover, we anticipate large application of the proposed methodology beyond combustion, in process industry, material science and manufacturing processes.

Cambridge Promoter: Nedunchezian Swaminathan (Department of Engineering)

ULB Promoter: Alessandro Parente (Brussels School of Engineering)

Postdoctoral researcher: Golnoush Ghiasi

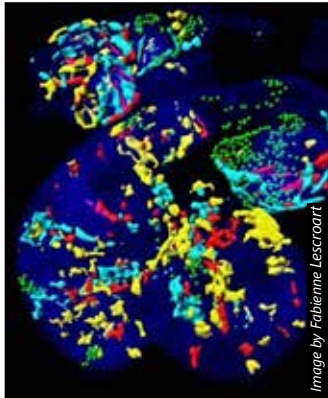
CONFLICTS OF SOVEREIGNTY IN A EUROPEAN UNION IN CRISIS (SOVEU)

Conflicts around sovereignty form the core of the scholarly and political debates on European integration. More integration at the EU level is associated with a transfer of sovereignty from nation states to supranational institutions. Resistance to 'ever closer union' is taken as evidence of a reassertion of national sovereignty. This project is premised upon the original hypothesis that the existential crisis faced by the EU over last decade is not a product of a conflict between national sovereignty and supranational institutions but rather the result of conflicts at the national level between different conceptions of national sovereignty, specifically the struggle between popular and parliamentary visions of national sovereignty. This project will empirically test this hypothesis using three paradigmatic cases: constitutional reform in Poland regarding the rule of law, ratification of the EU Canada Comprehensive Trade Agreement (CETA) in Belgium and the UK's decision to leave the EU (Brexit). The project will combine documentary research and process tracing with semi-structured elite interviews and a qualitative and quantitative analysis of the discourse over sovereignty articulated by the relevant parties.

Cambridge Promoter: Christopher Bickerton (Department of Politics and International Studies)

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

DEFINING THE MOLECULAR CONSEQUENCES OF MUTATIONS THAT DISRUPT EARLY HEART DEVELOPMENT



Cardiovascular disease is one of the major complications requiring medical intervention in infants, yet the molecular mechanisms that cause heart malformation are often not well understood. A major reason for this is that the molecular identity of the earliest cardiovascular cell types in the developing embryo has remained obscure.

In a landmark study, we recently reported the first comprehensive molecular profiles of cardiovascular progenitor cells in early mouse embryos (Science 2018). Building on our highly complementary expertise, we now want to discover the molecular pathways that are dysregulated when major heart development genes are mutated, taking advantage of state-of-the-art mutant models and single cell genomics expertise at ULB and Cambridge respectively.

The expected results will lay the foundation for further mechanistic studies, and be directly relevant to improve our understanding of congenital heart disease in newborn babies.

Cambridge Promoter: Bertie Gottgens (Department of Haematology)

ULB Promoter: Cédric Blanpain (Faculty of Medicine)

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

The calcium ion is used by all cells to decode extracellular stimuli into vital intracellular responses. Efficiency and specificity of Ca^{2+} signals rely on a complex spatio-temporal organization, which has been well characterized by a combination of experimental and modelling approaches. However, the Ca^{2+} signal does not work in isolation but is fine-tuned by other signals, one of which is cAMP.

The laboratory of Colin Taylor has shown that some cAMP-generating stimuli potentiate Ca^{2+} signals via an interaction between cAMP and Ca^{2+} -releasing channels in specialized enzyme-channels junctions. In this project, we aim at combining the expertises of the experimental (Colin Taylor) and the modelling (Geneviève Dupont) group to develop the first model of this interaction.

Such an interdisciplinary approach will improve our understanding of the highly nonlinear coupling between the two pathways, which has functional consequences in important pathologies such as bronchial asthma.

Cambridge Promoter: Colin Taylor (Department of Pharmacology)

ULB Promoter: Geneviève Dupont (Faculty of Sciences)



Image by Prof. Alex Webb/Thomas Regnault

HOW MAGNESIUM SETS THE TIME OF DAY IN PLANTS

The circadian clock is an internal 24 h timing device that allows, plants and animals, including humans to know the time of day. How nutrients interact with the circadian clock is little understood in plants. Magnesium (Mg) literally drives fuel sources as it regulates over 300 biochemical reactions and the chelation to nucleotidyl phosphate forms. In plants Mg is indispensable for photosynthesis as it is the central atom of chlorophyll.

This project aims at dissecting the signalling pathways that allow the circadian clock to respond to Mg nutrition, in particular the interactions that occur between light, sugars and Mg, for which we already have evidence. We will make use of the tools that have been developed in both laboratories to provide mechanistic insight in to the role of magnesium in the circadian clock of Arabidopsis, a cress that is the plant biology equivalent of the mouse, suited to genetic studies and fast growing.

Cambridge Promoter: Alex Webb (Department of Plant Sciences)

ULB Promoters: Nathalie Verbruggen (Interfaculty School of Bioengineering)

Postdoctoral researcher: Annelie Gutsch

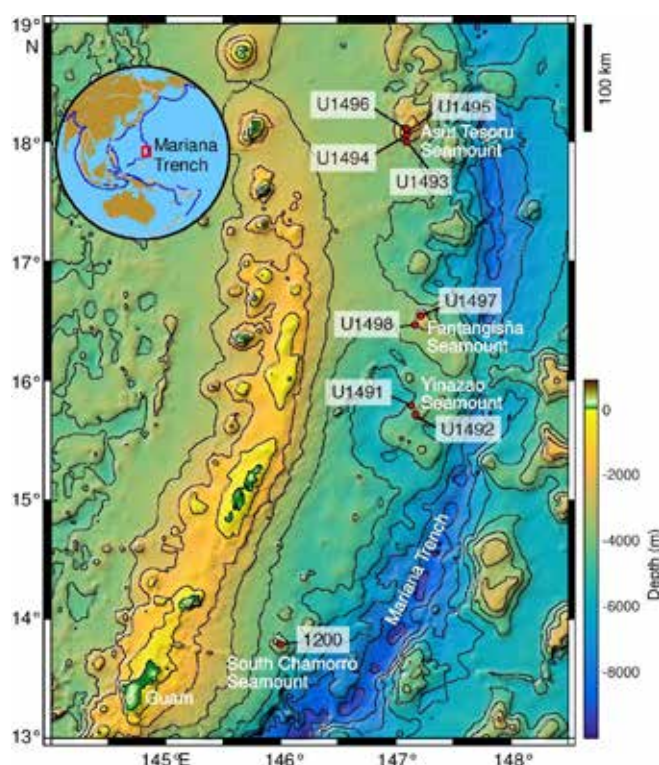
ROLE OF THE MANTLE WEDGE FOR THE FLUID DYNAMICS IN THE SUBDUCTION ZONES: CONTRIBUTIONS FROM THE STUDY OF THE MARIANA AND JAPAN CONVERGENT MARGINS

The subduction zones, convergent plate margins, are the most active tectonic and volcanic zones on Earth and, due to fluid circulation, generate ore deposits and the continental crust. Subduction zones are sites of major chemical exchange between the Earth's surface and deep interior, as fluids released from the subducting plate, the slab, are transferred to the overlying mantle wedge. However, the origin, the chemical composition and redox conditions of fluids remain poorly constrained as well as the exchange rates between slab and mantle wedge.

Through fruitful collaborations between ULB and University of Cambridge, this proposal aims to solve those unknowns by a combination of state-of-the-art analyses (e.g. Fe and Zn isotopes, Fe and S oxidation states) on precious and unique sample collection (serpentine-bearing mantle rocks, originating from the Mariana convergent margin (IODP expedition 366) and the Sanbagawa orogenic belt (a fossil convergent margin, Japan)).

Cambridge Promoter: Helen Williams (Department of Earth Sciences)

ULB Promoter: Nadine Mattielli (Faculty of Sciences)



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

This project seeks to build up a full picture of all aspects of the French-language novel in the early 19th-century, drawing up a comprehensive catalogue and initiating research into formal and thematic trends, authorial identities and publishing practices, materiality, readership (including provenance of located copies), critical reception, and the geographical, social and political trajectories of the novel-as-object.

Concretely, we intend to construct a comprehensive set of data-points covering the Actors, Processes and Forms involved in the production, dissemination and consumption of the French-language novel in the period 1801-1830, and to make the catalogue available to scholars worldwide via an online database. We also aim to initiate research into the data yielded by the project and to disseminate it via conferences and publications.

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

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

Postdoctoral researcher: Chanel de Halleux

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

We propose a collaboration between Oxford and the ULB, with the help of a postdoctoral researcher, to study one of the most fundamental classes of examples of quantum field theories: 4d theories with $N = 1$ superconformal symmetry. The framework for this proposal is non-perturbative string theory: M- and F-theory. The tools originate in Mathematics, in terms of the geometries underlying the string theory vacua, and Theoretical Physics.

At ULB, Collinucci will bring his experience in M-theory at singularities, combined with his new approach to related 3d $N = 2$ theories using mirror symmetry duality.

At Oxford, Schäfer-Nameki will bring her longstanding expertise in F-theory together with her new results on 4d holographic descriptions of these 4d theories, which gives access to the strong coupling regime. These two approaches work in tandem, and the time is ripe in the field to combine them effectively, through this collaboration.

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

ULB Promoter: Andrés Collinucci (Faculty of Sciences)

Postdoctoral researcher: Martin Bies

EXTENDED PROJECTS

MUTUAL RECOGNITION AND CRIMINAL LAW: DO WE NEED A NEW RIGHT TO LIBERTY IN EUROPE?

This project raises the following research question: what is the impact of mutual recognition (MR) on the right to liberty in European Union (EU) law? The main hypothesis is that MR instruments involving deprivation of liberty could result in the need of rethinking the current content of the right to liberty in Union law.

The research focuses on the interaction between the right to liberty and the Framework Decisions (FDs) on: The European Arrest Warrant; the transfer of prisoners; the probation measures; and the European Supervision Order (ESO).

The research investigates what new challenges for the right to liberty exist in a cross-border situation regulated by these mutual recognition instruments, which would not exist in a domestic situation. Furthermore, it investigates whether harmonisation of detention conditions throughout Europe can be a partial solution to such challenges to the right to liberty.

Cambridge Promoters: John Spencer and Nicky Padfield (Faculty of Law)

ULB Promoter: Anne Weyembergh (Institut d'Études européennes)

Postdoctoral researcher: Irene Wieczorek

USE OF MULTIVALENT INTERACTIONS TO ACHIEVE SUPERSELECTIVE TARGETING IN BIOLOGICAL SYSTEMS

The targeting of specific cells amongst a vast cell population is a key step in the development of effective nanocarriers for drug delivery. Multivalent strategies that consist in functionalizing carriers with a large number of identical weakly binding ligands have been developed. These can effectively target cells overexpressing a specific receptor, but their application is limited by the possibility that multiple cell types may display similar levels of expression.

We are developing multivalent interaction schemes that enable the simultaneous targeting of a precise combination of multiple surface receptors, thus drastically reducing the chances of spurious adhesion. Proof-of-concept experiments, supported by theoretical modelling, in which DNA-functionalized liposomes serve as target and DNA-functionalized nanoparticles as probes have been performed and have shown encouraging results but unexpected sensitivity of the proposed targeting strategy to the precise stoichiometry of the ligands grafted on the nanoparticle probes.

The above-described issue has encouraged us to explore a new and exciting research direction, involving the use of lipid-based probes rather than solid nanoparticles. We will then apply our method to the selective targeting a pathogenic strain of *E. coli* in vitro using nanoparticles functionalised with multiple DNA aptamers, reported to efficiently interact with this bacterial strain.

Cambridge Promoters: Pietro Cicuta and Lorenzo Di Michele (Cavendish Laboratory)

ULB Promoters: Gilles Bruylants (Brussels School of Engineering) and Bortolo Mognetti (Faculty of Sciences)

Postdoctoral researcher: Roberta Lanfranco

PAYING ATTENTION TO TIME AND SPACE: A VIRTUAL LESION APPROACH

The aim of this project is to investigate the relationship between lateralised deficits (e.g., hemispatial neglect) and non-lateralised processes (e.g., processing the order of memorised information).

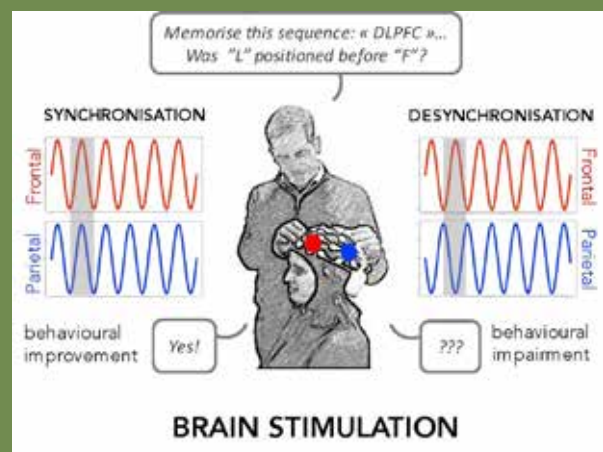
In the first line of research (University of Oxford), we addressed this question in healthy participants using brain stimulation combined with EEG. We found evidence that fronto-parietal synchronisation (as measured by EEG), rather than interhemispheric imbalance (installed by brain stimulation) relates to cognitive performance.

These results provide strong support for the next lines of research (ULB), in which we will aim to modify this fronto-parietal synchronisation to alter more precisely the behaviour of interest. This promising and innovative approach would allow us to unravel the direct involvement of synchronisation on behaviour, and develop more effective neurorehabilitation of braindamaged patients with hemispatial neglect.

Oxford Promoter: Roi Cohen Kadosh (Department of Experimental Psychology)

ULB Promoter: Wim Gevers (Faculty of Psychological Science and Education)

Postdoctoral researcher: Sophie Antoine



A close-up portrait of a Black man with short, dark hair and a light beard. He is wearing a light blue button-down shirt with a white grid pattern. He is looking slightly to the right with a thoughtful expression, and his hands are clasped together near his chin. The background is a warm, out-of-focus brown.

Alumni Network

Wiener-Anspach Alumnus Jonathan Mboyo Esole, winner of a Next Einstein Award

ACTIVITIES AND NEWS

Visit to the British Library and Reception at the Embassy of Belgium London, 4 May 2018

Thanks to Wiener-Anspach Alumna Alison Hudson, a group of current and former Fellows visited the Treasures Gallery at the British Library. Alison completed her DPhil at the University of Oxford in 2014 and was a Wiener-Anspach Postdoctoral Fellow in 2014-2015 for a research project at the Université libre de Bruxelles entitled 'The Social and Political Implications of Sainly Property Ownership in Northwestern Europe, 900-1040'. She is currently a project curator at the British Library. The visit was followed by a reception at the Residence of His Excellency Rudolph Huygelen, Ambassador of Belgium to the United Kingdom, and his wife Marianne Lecleu. It was a wonderful opportunity to further develop the Foundation's Alumni Network.



Clockwise, from top left: Alison Hudson welcomes the group of visitors at the British Library; group picture at the end of the visit; Kimberley Watt and Eva Kurz at the reception; Judith Gleeson and Paul Earlie; group of Alumni; Pierre Vaesen, Coordinator of the Alumni Network, with His Excellency Rudolph Huygelen and his wife Marianne Lecleu.

Visit of the "Adoration of the Mystic Lamb" with our Alumna H       Dubois Ghent, 20 October 2018

On October 20th, 2018 the Wiener-Anspach Alumni Network organised a guided tour of the Ghent Altarpiece ("Adoration of the Mystic Lamb"), under restoration by a team led by H       Dubois, a former Fellow of the Foundation. The visit started at the Fine Arts Museum of Ghent, where H       Dubois highlighted the work carried out on the altarpiece. The tour then continued at St Bavo's Cathedral, where the group was able to admire the Altarpiece itself.

H       Dubois was granted a postgraduate fellowship in 1989-1990 to study History of Art at the University of Cambridge. Since 2016, she is the head of the Conservation project of the Ghent Altarpiece.



The photographed photographer



   Paolo Verz    

Wiener-Anspach Alumna Am       Deblauwe, Senior Digitisation Technician at the University of Cambridge, was among the experts photographed in the December 2018 issue of National Geographic, featuring an article entitled "Inside the cloak-and-dagger search for sacred texts". She was photographed with her colleague B       Mik      from the Cambridge University Library's Digital Content Unit, while they positioned "pages from a 10th-century Masoretic Hebrew Bible on a table in preparation for a high-resolution digital photograph". The Foundation wishes to thank Am      , herself a professional photographer, who kindly accepted that we publish some of her pictures of Cambridge in the present report.

The ULB's Faculty of Law and Criminology pays homage to Marc Sanda Kimbimbi Brussels, 15 December 2018

By a happy chance, we have reconnected with one of our Alumni, Marc Sanda Kimbimbi, who was a postgraduate fellow at the University of Cambridge in 1978-1979. In December 2018 Mr Kimbimbi came to Brussels to receive the first prize of the Faculty of Law and Criminology of the Universit   libre de Bruxelles, awarded to a graduate who, "through his professional activity, his civic or political engagement, has made a remarkable contribution to human emancipation and dignity".

On that occasion, the newspaper La Libre Belgique featured an article on Mr Kimbimbi. After choosing "to put his legal training

at the service of humanitarian law and African refugees", Mr Kimbimbi worked for the United Nations High Commissioner for Refugees from 1981 until 2013. "An outstanding figure", writes Jean-Claude Matgen, "Mr Kimbimbi took the risk of working as closely as possible to the field and to human distress. After completing two years of training at the UN headquarters in Geneva, he did not hesitate to move to areas, mainly in Africa, affected by armed conflicts, xenophobic attacks, famine and other humanitarian crises".

The jury of the prize paid homage to "a man who has risked his life to help those most in need".



Mr Kimbimbi with Prof. Yvon Englert, Rector of the ULB

JONATHAN MBOYO ESOLE

When Science Meets Commitment

Jonathan Mboyo Esole was born in the Congo, studied at the ULB and in Cambridge and is now Assistant Professor in Mathematics at Northeastern University. In March 2018 he was in Kigali to receive the Next Einstein Award, recognising Africa's best young scientists and technologists. Alongside his academic activity, he works to support the education of girls in Africa.



You spent part of your childhood in Brussels – what are your memories of your life at the time?

I was born in Kinshasa, in the Democratic Republic of the Congo (DRC), at the time still called Zaïre. When I was three years old, my family moved to Brussels as my father, Professor Esole Eka Likote, was doing his PhD in sociology and anthropology at the ULB. We were living a few blocks away from the Luxembourg Station. I remember playing in the Parc royal, going for long walks with my father in the Forêt de Soignes. When I was still in Kinshasa, I had a near-death experience which left me with medical problems that I had to deal with as a child in Belgium. I was a little bit slow, had problems talking correctly, and with my body coordination. My hero was my elder brother, Yuna, who is now a doctor in Brussels. He could do all these things I could not do so well: run, fight, drive a bicycle. I also remember falling in love with geometry as a child.

What brought you back here after high school? Your father had also attended the ULB – did you feel at home studying here?

I went back to the Congo in my fourth year of primary school. At the end of high school, we take a national state exam, very much like the baccalaureate exams in France. I finished second in the country and was applying to universities abroad including the ULB. However, in September, I was still in the Congo waiting for a visa. What made my arrival at ULB possible was my encounter with Professor Pierre de Maret, who was visiting the Congo that year. Pierre de Maret was one of my father's mentors at ULB. He was also head of the Faculty of Philosophy and Rector of the ULB. He asked a Belgian professor of engineering to test my skills in mathematics.

They were impressed by the results, and he did all he could to make sure I could finally arrive in Brussels. I would have never attended ULB if it was not for him. Yes, I felt at home at ULB because Pierre was very much a father to me and I had family in the city and friends that I kept in touch with from my childhood. I love ULB also for its spirit, students care about what happens in society and in the world. I can trace my moral compass all the way to the values given by my parents and to the spirit of the ULB.

In 2001-2002 you spent a year in Cambridge as a Wiener-Anspach postgraduate fellow. What can you tell us about the presence of African students, or more broadly speaking of black students, at the ULB and at Cambridge University?

In view of the history of Belgium, you do have many students from Africa at the ULB. I was myself involved with the Circle of Congolese Students. I remember holding a math support group that would serve the African community on campus. We would have students from Rwanda, Burundi, Togo, etc. It was beautiful to see students who were sometimes from countries at war getting together to solve homework and prepare their final exams. In Cambridge, the black community was completely different. You had people coming from the Caribbean, the Commonwealth countries such as Nigeria, Kenya, Uganda, Ghana, etc. It was the first time I met this part of the African diaspora.

What impact did that year in Cambridge have on the course of your professional life?

The effect was tremendous. It gave me the tools to see the world as a village and explore all the opportunities that come with being an Alumnus of one of the most prestigious universities in the world. My supervisor for my PhD, Ana Achúcarro, did her PhD in Cambridge. I did my postdoctoral research in the Department of Physics at Harvard University and then joined the Math Department where I was a junior faculty (Benjamin Pierce Fellow) for three years before getting a tenure-track position in Boston at Northeastern University. When I was at Harvard, I was solicited by several houses (Harvard version of Cambridge Colleges) to join their senior tables given my experience of living in a College in Cambridge.

You often compare mathematics to art, and you have recently described string theory as the most beautiful art in science.

Mathematics is really art because it is about systematically studying structures and relations and using notions of

simplicity, minimality, and symmetries. When you think of why a mathematical theory is beautiful, you find yourself talking as if you were describing a painting or a beautiful cathedral. Mathematics as a whole is really like a cathedral whose stones have a life of their own. They rearrange themselves over time as new concepts reveal that some of the stones are more fundamental than others, and new stones are included to strengthen the overall structure and support different parts of the building in a more harmonious way. Paul Dirac, who is a founder of quantum mechanics and one of the most famous Cambridge Professors, was telling how his inspiration was guided by the beauty he saw in his equations. Many mathematicians and physicists can relate to that experience.

What are, today, the main challenges for researchers working in your field?

I work at the interface of mathematics (algebraic geometry) and physics (string theory). The questions we address are very fundamental and have a tendency to relate to questions asked differently by other communities of mathematicians and physicists. One of the challenges is to be able to communicate across different subfields. Funding and how funding is distributed is also a considerable challenge since some systems promote too much short-term visions. We also need to keep attracting young people and become more diverse as a field. Both mathematics and physics are very much male-dominated, and you do not see much people from Africa for example. I am one of the few in my field who had a female supervisor, and I am lucky to work with very talented graduate students from Harvard University such as Monica Jinwoo Kang and Sabrina Pasterski. I feel a strong responsibility to make my field more gender friendly and more diverse in general.

In March 2018 the second edition of the Next Einstein Forum, held in Kigali, brought together several talented young African scientists. One of the aims of the NEF is to create a network of African scientists, who too often feel isolated. Can you tell us a little more about this network?

What is fascinating about the NEF is that its fellows are not only some of the best from Africa but some of the best in the world. The structure is bringing excellence in research in Africa in a way that was never done before. The Cambridge community is very invested in this effort. The founder of the African Institute of Mathematical Studies (AIMS) is Niel Turok, who was a professor of cosmology in Cambridge and for a time was the chair of the Physics Department in Cambridge. In Kigali, it was a pleasure to meet Fernando Quevedo, who was my academic advisor at Clare Hall College in Cambridge and is now the director of the Abdus Salam International Centre for Theoretical Physics in Italy. The Next Einstein Forum is also organizing master's degrees across Africa and AIMS has now four centers on the continent. Recently, NEF has also started a new scientific publication (Scientific African) in collaboration with Elsevier. The community of African scientists is increasing and working in partnership with initiatives from the African Diaspora. There is clearly something going on, and it is exciting, and the fruits are already visible today.

More and more African scientists who have studied and are working abroad feel the urge to contribute to the scientific and technological development of their countries of origin. You are collaborating with the NGO Malaika, whose aim is to "empower Congolese girls and their communities through education and health programs." What is your role?

I started working with Malaika in December 2017. I was approached by its founder, Noella Coursaris, who is also an Ambassador for the Global Fund to fight AIDS, Tuberculosis and Malaria, on top of her modeling career and her intense humanitarian activities. In Malaika, I help with the STEM (Science-Technology Engineering-Mathematics) curriculum. I also teach a course on mathematics through Skype, and I am a member of the advisory board. The Malaika team is composed of a small group of very talented people from different industries and walk of life, spread across the world (including many in the UK and in Belgium). We volunteer and work together to empower these girls and their communities. Our strength is our local team in the Congo: they work with a dedication and a sense of purpose that is a massive force of motivation for all of us. The school is built in Kalebuka, in an impoverished area of Lubumbashi. We brought clean water to the area and built the Kalebuka Football for Hope Center in collaboration with FIFA. This community center uses health, education, and football programs as social development tools to improve the quality of life of 5,000 people in the region. Some of my students at Malaika are naturally very gifted in mathematics. It will be a dream come true to see some of them excel in sciences at the highest level. I do hope to see them going to study internationally in some of the best schools. We are working on it, and we need partners. Given all the talent we have in the Wiener-Anspach community, I welcome anyone who wants to know more or even get involved in what we are doing.

Your commitment goes beyond your involvement with Malaika.

One of the biggest challenges as a scientist from the Congo is the responsibility to speak out when human dignity is under attack. Since I graduated from high school, my country went through one of the worst wars of recent times followed by permanent insecurity and instability. That war and its aftermath have been characterized by the use of rape as a weapon of war. The body of our mothers and sisters became part of the battlefield. Dr Denis Mukwege, who is also a ULB alumnus, and globally known as the co-winner of the 2018 Noble Peace Prize, has been very vocal about this tragedy. My motivation to put women at the center of my scientific outreach activities in the Congo is also based on the history of abuse of women we have seen in our country. When you are a scientist from the Congo, on top of your research and academic work, you systematically have to decide if you will publicly talk about justice and human rights or if you won't. There are good reasons to stay silent, and there are good reasons to speak out. It is a constant struggle, and it takes a lot of mental energy to balance what you want to do based on your values and the consequences it might bring to the structures you support on the ground, and sometimes even the safety of your family. Martin Luther King Jr said: "Our lives begin to end the day we become silent about things that matter." I personally made a choice to speak out. All the things that make me who I am require me to speak out. Many good-minded people have advised me to focus just on my equations. As an African scientist, I cannot hide behind my equations. They are not thick enough to prevent me from seeing the suffering of my people. There is a line that is drawn on the ground. This is the line of human dignity. When it is crossed, even mathematicians will leave their square roots and will speak out. As we grow the number of scientists in Africa, we need to define our moral compass and values as a community of scholars. We have to determine our responsibility toward society.

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 2018 the prize was awarded to William-James Kettlewell. Mr Kettlewell holds a Master of Engineering Physics and a Master of Law from the Université libre de Bruxelles and is currently Associate at Baker McKenzie Belgium.

From left to right: Kristin Bartik, Executive Director of the Foundation, William-James Kettlewell and Julie Allard, Dean of the Faculty of Law and Criminology.

Short Stays - 2018 Recipients

Academics and researchers from the ULB, Oxford and Cambridge 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.

- **August 2018 to January 2019.** Wiener-Anspach Alumnus **Daniel Zamora**, PhD in Social Sciences from the ULB, received funding for his research stay at the University of Cambridge focusing on the history of universal basic income. He was welcomed by Professors Pedro Ramos Pinto (Faculty of History) and Peter Sloman (Department of Politics and International Studies). Together, they organised the international conference "An Intellectual History of Universal Basic Income", which took place on January 14th, 2019.
- **October to December 2018.** In the framework of his doctoral research at the the University of Cambridge, **Arthur Ghins** came to the ULB, where he was welcomed by Professor Justine Lacroix, Director of the Centre de Théorie politique. Arthur's thesis is entitled "Benjamin Constant and the Hard Birth of Modern Liberalism".
- **3 October 2018.** The Académie royale de Belgique hosted the debate "The UK between isolationism and global Britain" with two academics from the University of Cambridge: **Andrew Gamble** (Emeritus Professor of Politics) and **Robert Tombs** (Faculty of History). They were invited by Professor Anne Weyembergh, President of the Institut d'Études européennes, with the support of the Foundation.
- **3 and 4 December 2018.** **Talita De Souza Dias**, DPhil Candidate in Public International Law and International Criminal Law at the University of Oxford, was invited by Professors Vaios Koutroulis and Damien Scala (Centre de Droit public of the ULB) in the framework of the workshop "The ICC Statute reaches 20 : Critical and interdisciplinary approaches".

Photo credits: Amélie Deblauwe (front cover and table of contents); Pietro Bruni (pages 2, 4-10 and 20); Richard Essex (pages 13, 17-18 and 25); Jean Jottard (pages 26 and 29). The front cover picture was taken in the New Court of St John's College, Cambridge. The photo behind the table of contents is Trinity Hall College, Cambridge.



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