

SCIENCE & TECHNOLOGY DEPARTMENT  
FRENCH EMBASSY



*Liberté • Égalité • Fraternité*

**RÉPUBLIQUE FRANÇAISE**

Celebration of the 40<sup>th</sup> Anniversary of the  
French Government Fellowship at  
Churchill College, Cambridge

Sunday 20 July 2014





# Contents

	<b>Page</b>
<b>Welcome</b>	04
<b>Programme of Events</b>	05
<b>Abstracts and Biographies of French Government Fellows and By-Fellows:</b>	
Champion, Dr Yannick <u>Joint talk with Dr Kevin Knowles</u>	<i>Déformation des métaux à très petits grains</i> 07
Delenne, Professor Jean-Yves	<i>Numerical modelling of granular materials</i> 08
Di Meglio, Professor Jean-Marc	<i>Decision making with the social amoeba</i> 09
Dragomirescu, Professor Daniela <u>Joint talk with Professor Florin Udrea</u>	<i>Smart wireless sensors networks</i> 10
Feuillebois, Dr François	<i>Suspensions of particles in a fluid</i> 11
Garnier, Professor Emmanuel	<b><i>Historic Extremes And HeaLTH</i></b> 12
Génin, Dr Emmanuelle	<i>Genetic diversity of human populations and common diseases</i> 13
Guessasma, Dr Sofiane	<i>Scaffolding as a bioengineering response of living tissues</i> 14
Guiard, Dr Yves	<i>Understanding the trade-off of speed and accuracy in our aimed movements</i> 16
Jami, Dr Catherine <u>Joint talk with Professor Jinajun Mei</u>	<i>Astronomical controversy in Beijing (1664-1669): science, ritual and imperial power</i> 17
Parent, Dr Eric	<i>French feelings about an English College</i> 18
Rouquette, Dr Sébastien	25
Thalabard, Professor Jean-Christophe <u>Joint talk with Prof Nick Mascie-Taylor</u>	<i>A short walk in human reproduction: some methodological aspects</i> 19
Thébaud, Professor Christophe	<i>Evolution on islands: what drives the formation of new species?</i> 21
Thibault-Starzyk, Dr Frédéric	<i>Laser pumping of chemical reactions for time-resolved infrared on catalysts ou Infrarouge Français contre Laser Britannique: football moléculaire sur catalyseur</i> 22

## Other Participants

	<b>Page</b>
Sir John Boyd	23
Mr Mark Gotham	23
Mr Matthew Houlihan	23
Mrs Anny King	28
Dr Kevin Knowles	24
Professor Nick Mascie-Taylor	24
Professor Jianjun Mei	24
Mr Allen Packwood	25
Dr John Sherwood	26
Professor Ken Siddle	26
Professor Florin Udrea	27
Mr Cyrille van Effenterre	27



19 July 2014

We are delighted to welcome our French Government Overseas Fellows and By-Fellows to this celebration of the 40<sup>th</sup> Anniversary of French Government Fellowships at Churchill College.

Please find enclosed in this pack a detailed programme of events, together with the biographies and abstracts of all participants.

We are delighted that fourteen former French Government Fellows and By-Fellows are attending this event, and we are particularly pleased to be able to welcome back Dr Yannick Champion of the CNRS à l'Institut de Chimie et de Matériaux Paris Est de Thais (FGF 1999-2000 and 2000-2001) and Dr Frédéric Thibault-Starzyk, Directeur de Recherche, CNRS, Laboratoire Catalyse & Spectrochimie, Caen (FGF 2003-2004) who participated in the 30<sup>th</sup> Anniversary celebrations in 2004. A special welcome also to Professor Daniela Dragomirescu, of INSA Toulouse (FBF 2013-2014), who is the fortieth holder of one of these prestigious Fellowships.

You may be interested to read more about the scheme in the enclosed 'Petite Histoire du French Government Fellowship at Churchill College' which includes contributions from former French Government Overseas Fellows.

The scheme continues to flourish and you will see from the list of French Government Overseas Fellows and By-Fellows that four new Overseas Fellows and By-Fellows have been elected for 2015.

Tous ensemble, il nous faut continuer à oeuvrer pour que le French Government Fellowship continue à se développer, à attirer jeunes chercheurs et chercheurs chevronnés aussi bien en Sciences qu'en Lettres dans l'esprit du Churchill College et à créer entre nous des liens professionnels, personnels, forts et durables.

Signed by

Ken Siddle, Vice-Master, Churchill College  
Cyrille van Effenterre, Scientific Counsellor, French Embassy

**Celebration of the 40<sup>th</sup> Anniversary  
of the French Government Fellowship  
Churchill College, Sunday 20<sup>th</sup> July 2014**

**Saturday 19 July 2014**

- 19.00 Pre-Dinner Drinks in the SCR
- 19.30 Welcoming Light Buffet Supper in the Fellows' Dining Room

**Sunday 20 July 2014**

- 08.00 – 09.00 Breakfast in the Fellows' Dining Room
- 09.15 Assemble in the Jock Colville Hall
- 09.30 – 09.45 Welcoming Speeches from Professor Ken Siddle (Vice-Master) and Mr Cyrille van Effenterre (Conseiller Sciences et Technologie, Ambassade de France, Londres)
- 09.45 – 10.15 **“Churchill and France” by Mr Allen Packwood, Director of the Churchill Archives Centre**
- Talks chaired by Professor Ken Siddle**
- 10.15 – 10.45 Dr Yannick Champion and Dr Kevin Knowles – *“Déformation des métaux à très petits grains”*
- 10.45 – 11.00 Dr Emmanuelle Génin – *“Genetic diversity of human populations and common diseases”*
- 11.00 – 11.30 Coffee in Buttery
- 11.30 – 11.45 Professor Jean-Yves Delenne – *“Numerical modelling of granular materials”*
- 11.45 – 12.00 Professor Jean-Christophe Thalabard and Professor Nick Mascie-Taylor – *“A short walk in human reproduction: some methodological aspects”*
- 12.00 – 12.15 Professor Emmanuel Garnier – **“Historic Extremes And heaLTH”**
- 12.15 – 14.00 Lunch followed by Coffee in Dining Hall
- Talks chaired by Mr Cyrille van Effenterre**
- 14.00 – 14.30 Professor Daniela Dragomirescu and Professor Florin Udrea *“Smart Wireless Sensors Networks”*
- 14.30 – 15.00 Dr François Feuillebois and Dr John Sherwood – *“Suspensions of particles in a fluid”*
- 15.00 – 15.15 Dr Sofiane Guessasma – *“Scaffolding as a bioengineering response of living tissues”*
- 15.15 – 15.30 Dr Yves Guiard – *“Understanding the trade-off of speed and accuracy in our aimed movements”*
- 15.30 – 16.00 Sir John Boyd – *“Sciences et lettres - frères ennemis”*
- 16.00 – 16.30 Tea in the Buttery

### Talks chaired by Mme Anny King

- 16.30 – 16.45 Dr Eric Parent – ‘*French feelings about an English College*’
- 16.45 – 17.00 Dr Frédéric Thibault Starzyk – “*Infrarouge Français contre Laser Britannique: football moléculaire sur catalyseur*”
- 17.00 – 17.30 Dr Catherine Jami and Professor Jianjun Mei – “*Astronomical Controversy in Beijing (1664-1669): science, ritual and imperial power*”
- 17.30 – 17.45 Professor Christophe Thébaud – “*Evolution on islands - what drives the formation of new species?*”
- 17.45 – 18.00 Professor Jean-Marc Di Meglio – “*Decision making with the social amoeba*”
- 18.45 [Photo near the Hepworth sculpture \(weather permitting\)](#)
- 19.00 Pre-Dinner Reception (on the Master’s lawn, weather permitting)
- 19.30 [Fauré's \*Morceau de Concours\* will be performed by Churchill's Director of Music-Making, Mr Mark Gotham, and Ms Helena Knowles](#)

Formal Dinner in the Fellows’ Dining Room hosted by the Master and Fellows of Churchill College

**Sir David Wallace**, Master of Churchill College, will say a few words of welcome

**Mr Cyrille van Effenterre**, Conseiller Sciences et Technologie, Ambassade de France, Londres, will say a few words to conclude

### Monday 21 July 2014

08.00 – 09.00 Breakfast in the Fellows’ Dining Room

Close

# YANNICK CHAMPION

French Government Overseas Fellow 1999 - 2001

Directeur de Recherche, CNRS, Institut de Chimie et de Matériaux Paris-Est de Thiais

## 'Déformation des métaux à très petits grains'

### Abstrait

Le séjour à Churchill College dans le cadre du French Fellowship a été déterminant pour l'évolution des recherches en métallurgie que je menais depuis mon entrée au CNRS en 1996. Chimiste des matériaux de formation, ma période dans le groupe de Kevin Knowles au Materials Science and Metallurgy m'a fortement orienté vers une approche de physique des métaux. Mon activité de recherche concernait la synthèse de métaux à faible taille de grains (de l'ordre de 0,1 micromètre). Une meilleure connaissance de la structure de cette matière et des défauts produits lorsqu'on la déforme, a permis de décrire puis de comprendre les mécanismes de sa déformation. Des mesures mécaniques que j'ai effectuées par la suite ont conduit à la découverte de l'élasto-plasticité quasi-parfaite et à une publication dans la revue Science (Champion et al Science 2003).

### Biographie



**Yannick Champion** est Directeur de Recherche au Centre National de la Recherche Scientifique (CNRS) depuis 2007 et effectue des recherches dans le domaine de la chimie des alliages métalliques à l'Institut de Chimie et des Matériaux Paris-Est de Thiais. Il est Ingénieur de l'Ecole Nationale Supérieure de Chimie de Paris (1990) et a obtenu un Master (DEA) en Science des Matériaux de l'Université Pierre et Marie Curie de Paris (1990). En 1991, il rejoint le Centre d'Etudes de Chimie Métallurgique (CECM) de Vitry pour y effectuer ses travaux de thèse sur la structure des interfaces dans le système zirconium-bore et obtient un doctorat de l'Université Pierre et Marie Curie en 1994. En 1995, il effectue un post-doc au laboratoire du Prof. Ishida à l'Université de Tokyo où il débute des travaux sur les métaux à très petite taille de grains. Recruté au CNRS en tant que Chargé de Recherche en 1996 au CECM, il poursuit sa recherche sur la synthèse de phases métalliques nanométriques. En 2000, il obtient le French Fellowship de Churchill College et effectue une année de recherche au Department of Materials Science and Metallurgy, accueilli par le Dr Kevin Knowles, Fellow de Churchill. Directeur du CECM de 2005 à 2007. Membre de l'Académie des Sciences Européenne, prix Pierre Favard de la Société Française de Microscopie (1995), Jean Rist de la Société Française de Métallurgie et de Matériaux (2000) et Lavoisier de l'Apprentissage de l'Union des Industries Chimiques (2011).

# JEAN-YVES DELENNE

French Government Overseas Fellow 2011-2012  
Directeur de Recherche, INRA Montpellier

## 'Numerical modelling of granular materials'

### Abstract

Granular materials are ubiquitous in nature and in industrial processes. For example, the triggering of landslides and sediment transport involves dense mixtures of grains and water. The slope stability by vegetation is governed to a large extent by the hydro-mechanical properties of the root-soil matrix. Another important example is the mixing of particles and the agglomeration of ores and powders in process engineering. Despite the wide variety of physico-chemical and morphological grain properties, the discrete granular structure of these materials leads to a very rich phenomenology. During the last twenty years, different particle-scale numerical algorithms have been developed among which the Discrete Element Method (DEM) has emerged as a powerful and reliable research tool for the investigation of the physics and mechanics of granular media.

In this talk, I will illustrate how we try to enrich the DEM and account step by step some for specific features of granular materials such as particle shapes, size distributions, tribological interactions, embedded liquid or solid matrix, in order to get a better understanding of real systems and gain insights about the emergence of generic properties from local interactions between particles.

### Biography



**Jean-Yves Delenne** was born in 1974 in France. His undergraduate and graduate studies were undertaken at the University of Montpellier. His research work concerns the physics and mechanics of granular materials with applications to various fields of science and engineering such as soil mechanics, geology, powder processing, and agronomy. He designed several experimental innovative set-ups and original numerical algorithms for the investigation of the structure and behaviour of granular matter, especially in the presence of liquids and cohesive interactions. From 2003 to 2012 he was Associate Professor at Laboratoire de Mécanique et Génie Civil, Montpellier. In 2012 he joined the Institut National de la Recherche Agronomique as Research Director at Ingénierie des Agropolymères et Technologies Emergentes Laboratoire de Montpellier where he focused his research mainly on

food sciences, soft matter rheology and plant sciences. He founded with Farhang Radjai (CNRS Research Director) the computational granular physics gateway which promotes new developments of numerical approaches for the simulation of granular materials and the MiDi Granular Research Network, a regional multi-disciplinary gathering of researchers dedicated to the study of granular media which hosts different events from academic seminars to public courses for students. From November 2011 to August 2012 he spent rewarding and lovely days at Churchill College, Cambridge with his wife and their two children. This stay was a great opportunity to establish strong links between the Geotechnical and Environmental Research Group of Cambridge and the Physics and Mechanics of Divided Media Group in Montpellier. A PhD work on modeling of underwater granular flows was jointly supervised with Kenichi Soga, Fellow of Churchill College, and Farhang Radjai. Jean-Yves Delenne is also particularly interested in disseminating science in high school. He proposed travelling exhibitions on granular materials and contributed to different pedagogical books, websites and CDRoms.

# JEAN-MARC DI MEGLIO

French Government Overseas Fellow 2011-2012

Professor of Physics, Université Paris Diderot

## 'Decision making with the social amoeba'

### Abstract

The social amoeba *Dictyostelium discoideum* is a unicellular microorganism (about 10 micrometres in size) commonly present in wet soils. It displays an extraordinary behaviour under environmental stress, such as starvation: thousands of different amoebae communicate using chemicals and converge spatially to form a multicellular organism containing about 100,000 cells called a slug (size ~ 1 millimetre). This slug exhibits properties which are absent in individuals (for instance phototaxis); *D. discoideum* is one of the model systems used to understand collective migration, cell signalling and multicellularity. Interestingly, the formation of the slug is associated with a differentiation of the individuals.

We will present results of experiments performed in Cambridge where we have forced slugs to migrate in a network of microfluidic channels and where slugs have been forced to take a decision at T-shape bifurcations (left, right or ... split?). This study started while JMDM was a French Government Fellow at Churchill College, Cambridge and a visitor in the Department of Engineering with Dr. Alexandre Kabla. It is presently being continued by a PhD student co-supervised by A. Kabla and JMDM.

### Biography



**Jean-Marc Di Meglio** is Professor of Physics at the Université Paris Diderot. He gained an engineering degree from the École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris (ESPCI-Paris Tech) and completed a PhD in 1984. After one year of post-doc at the University of Pennsylvania and in the Exxon Research and Engineering Company research centre in New Jersey, he joined the Condensed Matter Physics laboratory of the Collège de France in Paris as a CNRS (Centre National de la Recherche Scientifique) research fellow. He became Professor at the University of Strasbourg in 1994. Following one year at the Australian National University in the Department of Applied Mathematics, he took his present position in 2002 at the University Paris Diderot where he was the founding director of the Matière et Systèmes Complexes Laboratory, one of the largest laboratories in France dedicated to soft

matter and biological physics. His scientific contributions concern soft-matter physics: polymers, liquid crystals, vesicles, capillarity, wetting and foams. He has now partly oriented his current research interests towards biophysics. More specifically, using the nematode worm *C. elegans*, he is interested in the relationship between perception and mechanics in the locomotion and in the description of the ageing of the locomotion performance. He also started a research programme on the collective motions of the social amoeba *Dictyostelium discoideum* in collaboration with Dr Alexandre Kabla (University of Cambridge) while he was an Overseas Fellow of Churchill College in 2011-2012.

Jean-Marc Di Meglio has authored about 80 research publications. He was a member of the Institut Universitaire de France (1998-2002) and is co-editor in chief of the *European Physical Journal E – Soft matter and biological physics*.

# DANIELA DRAGOMIRESCU

French Government By-Fellow 2013-2014  
Professor, INSA Toulouse and LAAS-CNRS laboratory

## 'Smart Wireless Sensors Networks'

### Abstract

Numerous applications for Wireless Sensor Networks (WSN) as part of the Internet of Things and Cyber Physical Systems have been developed in the last decade. To be able to achieve real-world high-scale deployment of Wireless Sensor Networks, one needs low power, small size, linear sensors compatible with CMOS technologies, together with robust and energy efficient wireless communication architectures.

The joint work with the University of Cambridge is based on developing a new platform to accommodate innovative CMOS sensors together with wireless systems to obtain energy efficient, reconfigurable WSN for many different real-world applications. This talk will first present the innovative design of CMOS sensors developed at the University of Cambridge. The talk will also look into the transfer of the technology to the market. The Cambridge CMOS Sensor Company founded by Professor Florin Udrea and Professor Bill Milne (Professorial Fellow of Churchill College) is a spin-off of these research activities. The talk will then cover the innovative design of reconfigurable, energy-efficient communication architecture for wireless sensor networks (WSN) based on Impulse Radio - Ultra WideBand and including new services like clock synchronization or localization. 3D heterogeneous flexible substrate integration of the wireless sensor nodes will also be addressed.

### Biography



**Professor Daniela Dragomirescu** is Professor at INSA Toulouse and LAAS-CNRS laboratory. She is a 2013-2014 French Government By-Fellow at Churchill College, University of Cambridge, UK. Professor Dragomirescu's teaching activities are in the field of System on Chip, electronic circuit design and telecommunications. She is conducting research in the area of wireless communications, with a special focus on Wireless Sensor Networks. In 2005 she received the French National Research Agency grant for Young Investigators which supported her in setting up her team in the Wireless Sensor Network area. She was also involved in many national and European research projects in the area of wireless communication. Daniela Dragomirescu was the leader of the NanoComm (Reconfigurable wireless nano-sensors networks) project, one of nine French Nanolnnov projects funded by the French Government in 2009 to re-launch the economy in the field of nanotechnologies. Professor Dragomirescu is an expert for the French Research Agency (ANR), the French Foreign Office and the French Research Ministry. She has published more than 70 papers in journals and conferences proceedings and she has authored 7 academic courses for students.

# FRANÇOIS FEUILLEBOIS

French Government Overseas Fellow 1981-1982

Dr Es Sciences, retired in 2011

## “Suspensions of particles in a fluid”

### Abstrait

Lors de mon séjour à Churchill College en 1981-1982, mon sujet de recherche théorique proposé par le Professeur G.K. Batchelor à DAMTP, Université de Cambridge, concernait la sédimentation de particules. La sédimentation de particules dans un liquide est un problème d'intérêt très pratique en génie civil, biologie, etc. C'est aussi un problème modèle difficile du point de vue hydrodynamique et statistique si l'on prend en compte les interactions entre toutes les particules par l'intermédiaire du liquide qui les contient. Mes travaux de 1981-1982 ont permis de modéliser la vitesse moyenne de sédimentation dans le cas où la concentration en particules n'est pas uniforme. C'est suite à l'impulsion donnée par ce travail dans le groupe de G.K. Batchelor que mes principaux sujets de recherche ont été orientés vers l'hydrodynamique des suspensions de particules. Les contacts tissés avec les collègues de DAMTP ont été prolongés au cours de ma carrière de chercheur au CNRS. Le Dr. D. Jeffrey m'a invité en 1986 à l'Université Mc Gill, à Montréal. Les interactions thermiques collectives dans une suspension ont été résolues avec R. Keiller (élève du Dr. E.J. Hinch) en 1993. La convection intrinsèque en sédimentation a été modélisée avec le Dr. E.J. Hinch en 1996. Les échanges avec le Dr. J. Sherwood (à Schlumberger Cambridge Research, puis à DAMTP) ont été prolongés tout au long de ces années, ainsi qu'il les présente dans une communication séparée.

### Biographie



**François Feuillebois**, né le 30 mars 1946, marié, 2 enfants. Ingénieur civil des Mines, Nancy 1969, Master of Science, Georgia Tech, USA, 1970, Docteur ès Sciences, Université Pierre et Marie Curie (Paris 6), 1980. Chercheur au CNRS de 1975 à 2011: Chargé de Recherche, puis Directeur de Recherche. À la retraite depuis 2011. Laboratoires au CNRS: Aérothermique (Meudon), Physique et Mécanique des Milieux Hétérogènes (ESPCI, Paris), Laboratoire d'Informatique et de Mécanique pour les Sciences de l'Ingénieur (Orsay).

Domaines de recherche: Mécanique des fluides, thermique, mathématiques appliquées. Sujets de recherche: hydrodynamique des suspensions de particules dans des fluides visqueux, écoulements à petit nombre de Reynolds, interactions collectives hydrodynamiques et thermiques dans les suspensions, interactions hydrodynamiques particules-parois, condition de glissement aux parois, mécanique des gouttes et thermique avec congélation.

Missions de longue durée dans le cadre du CNRS: Churchill College et Université de Cambridge (1981-1982); Université Mc Gill, Montréal, Canada (1986-1987). Collaborations avec différents chercheurs à l'Université de Cambridge. Responsable de programmes de collaboration avec l'Académie des Sciences de Pologne, l'Académie des Sciences de Bulgarie, l'Ecole Polytechnique de Tunisie. Collaborations avec l'Académie des Sciences de Russie. Collaborations industrielles dans le cadre de contrats.

Cours de DEA, Master 2, à l'université Paris 6, l'Ecole Polytechnique de Tunisie. Direction de 25 thèses. Auteur d'une centaine de publications et participation à environ 200 congrès.

# EMMANUEL GARNIER

French Government Overseas Fellow 2012-2013  
Directeur de Recherche, CNRS

## “Historic Extremes And HeaLTH”

### Abstract

This fundamental research project aims at determining meteorological, environmental and health conditions that prevailed over the last 250 years from historical archives and regional model simulations. It is the result of a solid collaboration established with Professor Clive Oppenheimer of the Department of Geography, Dr Peter Baxter of the Public Health (University of Cambridge), Professor Paul Wilkinson of the London School of Hygiene and Tropical Medicine and The Met Office (Exeter). Examples of climate influences on public health are numerous. Those influences can be either direct or indirect. Their consequences are increases in morbidity or excess mortality due to infectious diseases, toxicity, food shortages and social unrest. While modern agriculture is less sensitive to climatic hazard, episodes such as the European heat wave in 2003 have shown that society remains sensitive to extreme climate events. The ambition of this interdisciplinary research project was to identify the causes of health crises in the modern era (18<sup>th</sup> century-1950), and to examine the role of climate and environmental stressors. This research revealed the existence of new and very numerous archives, in particular those from Addenbrooke’s Hospital, the Cambridge Colleges, the Cambridgeshire Archives and the Met Office Archives.

### Biography



**Emmanuel Garnier** undertook his undergraduate and graduate studies at the University of Besançon (Franche-Comté). He is currently a Senior Member of the Institut Universitaire de France (Paris) and Directeur de Recherche, CNRS. He obtained his *Habilitation* degree in History in 2010. His research work concerns the history of climate, health and the environment. His current projects for the FP 7 EU and the Agence Nationale de la Recherche are concerned particularly on extreme events and their effects on ancient societies. He is an invited expert on climate change and climate risks and has been consulted by the Caisse Centrale de Réassurance, the Académie Nationale de Médecine, the CNRS and the parliamentary and senatorial commissions of inquiry set up after the Xynthia storm. He is currently leading six national and international scientific projects through a team of young researchers. He led in 2012-2013 the HEALTH project (Department of Geography, University of Cambridge) as a French Government Fellow at Churchill College, Cambridge.

# EMMANUELLE GENIN

French Government Overseas Fellow 2009-2010

Directrice de Recherche, Inserm UMR1078, CHRU Brest, Université de Bretagne Occidentale, Brest

## 'Genetic diversity of human populations and common diseases'

### Abstract

Genetic variants are not evenly distributed between human populations. There exist some differences in their frequency in the different regions around the world. These differences are the results of human migrations that took place at different periods of time during our history. They could also be some genomic signatures of past selection events on different genes. Taking advantage of the availability of genotype data at hundreds thousands of genetic markers in thousands of individuals from different populations around the world, we study this genetic diversity and the methods to account for them when searching for the genetic factors involved in common diseases.

### Biography



**Emmanuelle Génin** is involved in population and statistical genetics projects to help identify genes involved in diseases. She received her PhD at the University Pierre and Marie Curie of Paris and then trained at the University of California in Berkeley. She contributed to many projects aiming to discover genes causing monogenic diseases - in particular rare recessive diseases by homozygosity mapping. She is an expert in the study of isolated populations and the statistical methods that can be used in this particular context. She is also interested in the study of gene-environment (GXE) interactions and has developed a method to study GXE interactions in genome-wide association studies when no information is available on exposure factors in the controls as is often the case when reference control panels are used. In September 2009, she was awarded a French Government Fellowship at Churchill College, Cambridge and spent a year at the Sanger Institute in the Genome Dynamics and Evolution team where, in collaboration with the team leader, Matthew Hurles, and David Clayton from the University of Cambridge, she studied methods to test for association with rare variants. She also worked with Ele Zeggini from the Sanger Institute to study the stratification of rare variants in the UK population using the Wellcome Trust Case Control Consortium GWAS data. In September 2012, she moved to Brest to start some new projects focusing on the population of Brittany and the characterization of genetic variants in this population. She has authored more than 100 original papers (N=109, total number of citation=2954). She has trained 8 PhD students and is involved in teaching in population genetics at Masters Level. She is Senior Editor of Human Heredity and was an elected member of the Board of Directors of the 'International Genetic Epidemiology Society' from 2004 to 2007.

# SOFIANE GUESSASMA

French Government By-Fellow 2013-2014  
Senior Research Scientist, INRA, Nantes

## ‘Scaffolding as a bioengineering response of living tissues’

### Abstract

Scaffolding is one of the amazing engineering architectures as it combines strength and low density. We all remember the Eiffel tower with its clever assembly of iron beams built a century ago. It is stiff enough to allow visitors to enjoy the elevated views from one of its three levels without feeling any vibration or wind effect. It is also a light weight structure despite its 7300 tons of metals. The apparent density of this structure is 12% iron. Air is even heavier than the Eiffel tower with a weight difference of about 2.6 million kilograms. In 1889, the iron structure was seen as an unusual design but it was a clever response to building huge civil engineering structures sustaining wind effect.

Bioengineering tissues are also a smart response to sustaining large deformation. The idea is simple: Rearranging fibrous network by allowing large structural displacement to occur, thus preventing material failure. This principle explains the remarkable elasticity of placental tissue. Biopolymer structures like gelatine scaffold achieve this level of performance because of the large void reaching 99% of the material volume. The aim of this work is to study the relationship between stiffness and fibre arrangement of very light scaffolds using numerical analysis. We virtually generate controlled biopolymer fibre network of 100 nm in diameter (Figure 1). Spatial arrangement is described by Gaussian distribution of orientation to mimic both ordered and random architectures. Finite element computation is performed to analyse the relationship between Young’s modulus and some key structural attributes such as density and orientation descriptors. We propose to shed more light on those scaffolds of very low density (<2%), which prove to be exciting materials for future bioengineering applications.

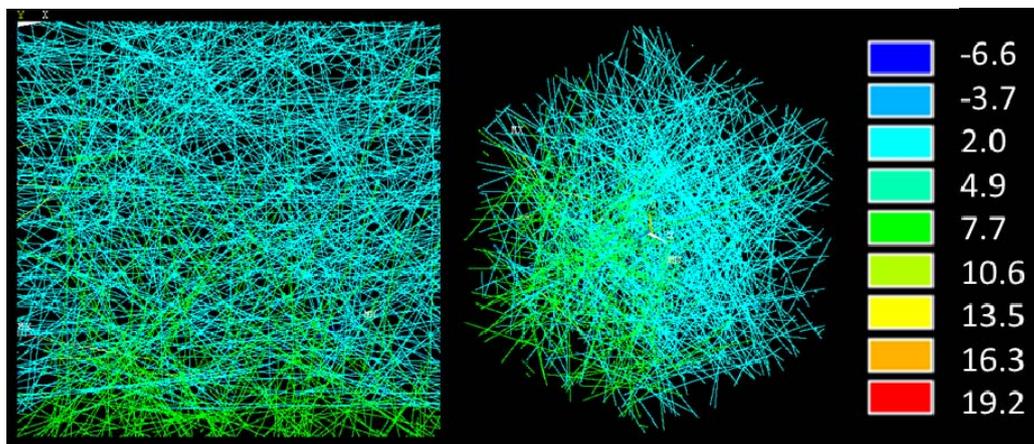


Figure 1 - Typical gelatine scaffold: 2D and 3D views of displacement field.

### Biography

**Sofiane Guessasma** is a senior research scientist working in the field of computation mechanics. He also has a key interest in advanced image analysis, virtual microstructural design, mechanical testing of materials and structural characterisation using micro-tomography.



Sofiane graduated in Solid Physics in 1997, gained two Masters Degrees, one in Metallurgy (1999) and the other in Physics of Semiconductors (2002). He prepared a PhD thesis in surface engineering together with a Masters degree in Project Management in 2003. He joined the French National Institute for Agricultural Research (INRA) in 2005 where he still occupies a permanent research position. Sofiane Guessasma is involved in several scientific and organisational committees related to international scientific events. In 2006 he became a founding member of the International Association for Simulation and Multidisciplinary Design and Optimisation (ASMDO). He has published 85 papers in international journals and participated in more than 50 international meetings. His research activity footprint is known for bridging structural information with physical properties of materials. He has also had numerous contributions, during the past years, in surface engineering applications. He has had great success in implementing artificial intelligence tools in thermal processes. In 2013, Sofiane Guessasma was elected a French Government By-Fellow at Churchill College, Cambridge. He is presently a visiting scientist at the Department of Engineering, University of Cambridge, UK. In 2014, he joined the Bioengineering Laboratory, University of Cambridge where he is developing new computations to understand mechanical properties of bioengineering materials.

# YVES GUIARD

French Government Overseas Fellow 1996-1997

Directeur de Recherche émérite, CNRS Telecom-ParisTech & Laboratoire de traitement et de communication de l'information, CNRS

## 'Understanding the trade-off of speed and accuracy in our aimed movements'

### Abstract

The hastier an action, the more uncertain the outcome. Since 1900 or so, experimental psychologists have been striving to give this truism a precise quantitative law. The first mathematical formulation of the trade-off was proposed sixty years ago by the American psychologist Paul Fitts, who demonstrated that the time it takes people to reach with the tip of a stylus a target of width  $w$  located at distance  $d$  increases linearly with  $\log(d/w)$ . The Fitts law, as it is known today, is remarkably general, holding true in virtually any sort of aiming task — hence its special importance to application domains like human-computer interaction (HCI) and ergonomics.

A mathematician colleague and I are proposing a theory which we believe provides a more thorough and more complete understanding of the subject. One key idea is that a trade-off is a dual phenomenon with an *invariance* facet and a *transformation* facet — an invariance being something to be observed under some transformation. The Fitts law, which just states an invariance, ignores the other half of the story, namely, that humans are able to adapt their response in the face of the speed/accuracy dilemma. I will show with a concrete example from HCI why it is so important to consider both the invariance and the transformation.

### Biography

**Yves Guiard** (b. 1948) is an experimental psychologist specialising in the study of human movement. Initially trained as a cognitive neuroscientist he then gradually moved towards a more physically and mathematically oriented approach. During his career he has studied successively human functional laterality, stimulus-response compatibility, human-computer interaction, and the speed/accuracy trade-off of rapid aiming.



In 1987 he obtained the French equivalent of a PhD (what was then called a 'Doctorat d'Etat'). A lecturer at the University of Marseilles since 1971, he was recruited in 1974 as a Chargé de Recherche at the Centre National de la Recherche Scientifique (CNRS), the largest public research organisation in France. He became a Directeur de Recherche in 1988. In January 2014 he became Emeritus Director. His main research focus over the past few years has been what is known as the Fitts law, a famous quantitative regularity of experimental psychology.

Beside his editorial activity (he is an associate editor of ACM TOCHI, a leading journal in the human computer interaction field), he has been busy developing a new theory of rapid aiming that encompasses the Fitts law as a special case and provides an understanding of both hand and eye movements.

Yves Guiard's deep attachment to Britain is not recent. In 1984-5 he spent a full academic year in Oxford with his family, working at the Department of Experimental Psychology. Twelve years later he returned to Britain with his family for another academic year (1996-7), this time in Cambridge, where he was elected a French Government Fellow at Churchill College, doing his research at the MRC Applied Psychology Unit.

# CATHERINE JAMI

French Government Overseas Fellow 2004-2006  
Directrice de Recherche, CNRS Paris

## ‘Astronomical Controversy in Beijing (1664-1669): science, ritual and imperial power’

### Abstract

The study of scientific controversies has played an important role in the analysis of the historical dynamics of science in early modern Europe. So far we know little about such controversies in that period in other parts of the world. Seventeenth century China, however, does provide some interesting evidence. In 1644, the new Qing dynasty entrusted the Astronomical Bureau to Jesuit missionaries, who used a system based on Western methods to compute the Chinese lunisolar calendar. The calendar was of utmost importance to the state, not least because it served to determine the day and time on which major imperial rituals took place. Twenty years later, the Jesuits were impeached and charged with both seditious activities and faulty calculations. They were replaced at the Bureau by their main accusers. In 1668, the young Kangxi Emperor had the case reopened. Under his close supervision, a series of tests was organised to determine which of the two parties made more accurate predictions. Accounts of this matter of state by all parties concerned enable us to understand what was at stake behind this unusual controversy, in which science, state ritual and imperial authority were closely involved.

### Biography

**Catherine Jami** is a Senior Researcher (Directrice de Recherche) at the French Centre National de la Recherche Scientifique (CNRS) and works at the Centre d'Études sur la Chine Moderne et Contemporaine (EHESS, Paris). She trained as a mathematician at the École Normale Supérieure, and in Chinese studies at Université Paris 7. Her first book *Les Méthodes Rapides pour la Trigonométrie et le Rapport Précis du Cercle (1774): tradition chinoise et apport occidental en mathématiques* was published in 1990 by the Collège de France, Paris.



Since then she has published extensively on mathematics in seventeenth and eighteenth century China, as well as on the Jesuit missionaries and the impact of the sciences they introduced to late Ming and early Qing China. The main work for her recent book, *The Emperor's new mathematics: Western learning and imperial authority in China during the Kangxi reign (1662-1722)* (Oxford University Press, 2012) was carried out while she was doing research at the Needham Research Institute, as a French Government Fellow at Churchill College (2004-2006). She maintains an active interest in studies of the globalisation of science and on the links between science and empire during the modern era. She is presently Secretary General of the Division of History of Science and Technology of the International Union of History and Philosophy of Science (IUHPS, a member of ICSU).

# ERIC PARENT

French Government Overseas Fellow 2013-2014  
Senior Researcher, AgroParisTech, Paris and INRA

## 'French feelings about an English College'

### Abstract

I have been elected a French Government Overseas Fellow at Churchill College for six months during the academic year 2013-2014. In my talk I will try to convey my impressions about this fascinating place and understand what is so special about its scientific and human atmosphere. It is striking to see such an open minded attitude towards scientists from abroad, far beyond the respect of learned people that is still alive here in this every day organisation that favours excellence and interdisciplinarity. It is striking to see how an 800 year old institution has been able to achieve such high levels of education. Since its inception in 1960 Churchill College has made special efforts to compensate the possible pernicious gentrification effects of such a violent competing system by actively seeking a wide recruitment from state schools, in the same spirit as some French 'Grandes Ecoles' do in order to maintain social diversity.

What benefits from my stay will I bring back to France? Cambridge is still to some degree an elitist institution and I don't think that (from my personal experience) I can make any valid general inference about the comparative merits of the English and the French system of education. However, I will be returning to my lab with many ideas to share with my team: promoting interdisciplinarity, favouring sabbatical breaks, building international collaborations... and a burning desire to come back!

### Biography



**Eric Parent**, PhD is a Senior Researcher in Applied Bayesian Statistics, leading a team involved in probabilistic modelling for ecological and environmental engineering. His laboratory belongs jointly to AgroParisTech, Paris, France, an academic institution of the Ministry of Agriculture and INRA, the French National Research Centre for Agriculture. His research interests are in the area of Bayesian statistical methods for analysing biomedical, industrial and environmental models, with special emphasis on systems analysis and risk management in environmental resources and decision making within a stochastic framework.

Eric Parent graduated initially from the French military school - École Polytechnique where he received an intensive education in mathematics and basic sciences, with a particular orientation towards Mathematical Analysis and Probability Theory. This mathematical education was completed with a Masters degree in Probability Theory and Data Analysis under the supervision of Pr. P Deheuvels (University Paris 6). He subsequently graduated as an engineer from the École des Ponts, des Eaux & des Forêts, ParisTech. He received his Ph.D. from the University of Paris-Marne-La Vallée in 1991 and is actively involved in teaching, supervising and mentoring graduate students at PhD and Masters Levels. He has supervised over 20 PhD students and 3 post-doctoral fellows. He has also served as a statistical investigator and consultant for many different research projects funded by various leading private institutions and governmental agencies. He has been a visiting professor at the Institut de la Recherche Scientifique in Québec, Canada; Ecole Polytechnique de Lausanne, Switzerland, and the Institute for Biological Mathematics in Ohio, USA. He is an elected Fellow of the French Statistical Association. He is the author of four books, the editor of three and has published more than 50 articles in refereed journals.

# JEAN-CHRISTOPHE THALABARD

French Government Overseas Fellow 2013-2014

Professor, Université Paris Descartes, and Senior Consultant, Cochin Hospital, APHP

## 'A short walk in human reproduction: some methodological aspects'

### Abstract

The reproductive function represents a unique endocrine function, as it is essential for the survival not of the individual *per se* but of his species or his social group. The regulation of the reproductive function, explored by many prestigious figures of the past [Bynum, 2012] remains complex and so far not completely understood in higher primates including humans, as it is exposed to multiple inputs both endogenous and exogenous. In addition, its physiological endpoint, the pregnancy, depends on the presence of a partner of the opposite gender within a cultural environment. Parameters like the age at menarche, the age at first full term pregnancy, the parity, the sex-ratio and their evolution over the years are important not only for the clinician or the human physiologist but also for the demographer, the sociologist, providing valuable information for the health administrator and the politician, as they are highly connected to the degree of development of a country, as nicely illustrated by [Todd, 1976, Le Bras, 2000]<sup>1</sup>.

An important topic for both the human anthropologist and the clinician is the study of the relationship between the reproductive system and the energetic balance, more particularly in situations where the latter is perturbed, like during the *post partum* period or in intensive training and exercise, like in marathon runners or in situations of chronic infection. Nick Mascie-Taylor<sup>2</sup> and Lyliane Rosetta<sup>3</sup> were able to address this issue in field studies. In addition to the difficulty of carrying out studies in population on a culturally sensitive topic, analysing reproductive data represents an interesting domain from the methodological perspective: the recorded times can be either right, left or interval-censored, the dataset might be sparse, the potential confounders are multiple, some data could be missing, some available dataset through large surveys can be truncated, with a need for implementing adapted methods using flexible research tools and software (R) of the statistical community [R-Core Team, 2014].

We will illustrate outcomes of this collaborative work initiated in 2006, by showing some results concerning the detection of the ovulation time in field studies [Thalabard et al., 2011], which found some recent applications in the French Obseff project [Slama et al., 2012], as well as some preliminary results concerning the selection criteria for mating, which we addressed through the analysis of a large original British cohort [Krzyzanowska et al., 2014].

### Biography



**Jean-Christophe Thalabard**, MD, PhD, graduated initially from the French military school "Ecole Polytechnique" where he received an intensive education in mathematics and basic sciences, with a particular orientation towards Numerical Analysis and Probability theory. This mathematical education was completed with a Masters degree in Probability Theory under the supervision of Pr. J Neveu (Université Paris 6). He subsequently graduated as an engineer from the 'Ecole Nationale des Ponts et Chaussées. He started his professional career as a Junior Lecturer on the probability course in

<sup>1</sup> Professor Hervé Le Bras was a French Government Fellow from 2001-2002

<sup>2</sup> Professor Nick Mascie-Taylor has been a Professorial Fellow of Churchill College since 1980

<sup>3</sup> Professor Lyliane Rosetta was a French Government Fellow from 1993-1996

the same institution and also started working on analysing data for the Transport Research Institute (now IFSTTAR) studying the effects of transportation noises on human health. He then completed a medical cursus followed by a residency at the “Assistance Publique-Hôpitaux de Paris” with a qualification in endocrinology and reproductive medicine. In parallel, he completed training in Biostatistics and defended a PhD thesis (Université Paris Descartes).

In 1985, he joined the Inserm Reproductive Epidemiology Unit headed by Pr. Daniel Shwartz as an Inserm Senior Research Scientist, while maintaining clinical activity at the Necker Hospital. Since one of his main research interests was on the neuroendocrine control of the reproductive axis in humans, he joined the Neuroendocrine Laboratory at the University of Texas, Houston, headed by Pr. E Knobil, where he worked for 2 years - a collaboration he pursued for the following 10 years. On his return to France, he was appointed Professor at the Medical Faculty of the Université Claude Bernard, Lyon I. His research activities developed in the CNRS Neuroendocrinology Unit 1454. During this period, he served on the WHO task force on Human Reproduction, headed by Peter Howie and started collaborative works with Pr. Lyliane Rosetta (CNRS) and Pr. Nick Mascie-Taylor (University of Cambridge). In 1996, he became Professor at the Université Paris Descartes, where he resumed a clinical practice as Senior Consultant in Endocrinology and Reproductive Medicine, in parallel with teaching and research activities in the field of the methodology of clinical research.

He has a joint appointment as Professor of Biostatistics at the Medical Faculty, Université Paris Descartes, and Senior Consultant at the Endocrine Gynaecology unit, Hôpital Cochin, APHP, Paris. His main field of interest is related to both clinical epidemiology and field studies, with an emphasis on the methodological aspects, which are evolving continuously. He has been involved since 1992 in numerous committees (Inserm, APHP, ANRS, AFLD, INCA, HAS, IFSTTAR) in relation to research protocols involving human volunteers, their regulation and corresponding ethical aspects. At the same time, as an active member of the statistical team within the CNRS Applied Mathematics Laboratory (MAP5), he is trying to bridge the gap between mathematicians and, more specifically statisticians, and potential end users in the medical field. He is also involved in various teaching programmes including two MD-PhD programmes in France. The Ecole de l'Inserm, Liliane Bettencourt programme and the Médecine/ Sciences Programme from the PRES, Sorbonne Paris Cité, the Stafav Masters programmes in Africa. Over the past six months he has been teaching an R-initiation course in the Biological Anthropology Department, University of Cambridge (UK), and in the Department of Community Health, Arctic University, Tromso (Norway). His international collaborations are mainly concerned with women's health issues (TICE grant, Pr. E Lund, Univ. Tromso, Norway, Pr. R Slama, Obseff, Pr. N Mascie- Taylor, Cambridge)

# CHRISTOPHE THÉBAUD

French Government Overseas Fellow 2010-2011  
Professor of Evolutionary Biology, Université Paul Sabatier, Toulouse

## 'Evolution on islands: what drives the formation of new species?'

### Abstract

Organisms on remote islands provide some of the best systems to investigate how one species can split into two species - a process called speciation which is central to our understanding of how biodiversity has build up over time. Among islands, those that are of volcanic origin amidst oceans usually provide unique frameworks for deciphering the relative roles of history (and geography) and biology in driving the divergence of island populations from their mainland ancestors. However, for relatively mobile organisms like birds, population divergence on islands has long been somewhat puzzling since, in many lineages, it seems to have happened in conditions where there were ample opportunities for movements between mainland and islands or between islands after an archipelago was initially colonised. Thus, it often remains unclear why the ability of organisms to move over large distances has not counteracted the effect of factors promoting divergence. In this talk, I will report a case of population divergence in an island bird at an unusually small spatial scale (<3000km<sup>2</sup>) and will attempt to illustrate the possible causes of evolution in this bird lineage. I will show that we are now able to recover evolutionary histories in so called non-model systems much faster than just a couple of years ago, as a result of new DNA sequencing technologies. I will also argue, using some data we have recently obtained, that the exploration and testing of ecological and evolutionary ideas to reveal and explain regularities (or irregularities) in nature contribute not only to our understanding of the origin and evolution of organic diversity but can also lead to interesting insights in other, more applied, fields.

### Biography



**Christophe Thébaud** is Professor of Evolutionary Biology at the Université Paul Sabatier in Toulouse. He received his Ph.D in Ecology and Evolution from the University of Montpellier in 1993, and then moved to Ascot (UK) for three years of post-doctoral research in the NERC Centre for Population Biology of Imperial College. He became Lecturer at the University of East Anglia in 1997. He took up his current position in Toulouse in 2000 where he has stayed ever since. Together with others, and with the benefit of strong

support from the CNRS, he has launched a new research unit whose main focus is on Biodiversity Research and Evolutionary Biology. This unit was recently granted two 'Laboratory of Excellence' awards from the French National Research Agency. His main research interests lie in the general area of biodiversity with particular emphasis on pluridisciplinary approaches at the interface between genetics, evolution, and field biology to understand how ecological and evolutionary processes combine to determine changes in biodiversity through space and time. This includes understanding the origin of species using birds and plants living on remote islands as study systems. His current field research is based in the Madagascar region and also in New Guinea.

# FRÉDÉRIC THIBAUT-STARZYK

French Government Overseas Fellow 2003-2004

Directeur de Recherche, CNRS, Laboratoire Catalyse & Spectrochimie – Caen

**'Laser pumping of chemical reactions for time resolved infrared on catalysts  
ou Infrarouge Français contre Laser Britannique: football moléculaire sur catalyseur'**

## Abstract

Heterogeneous catalysis is the science of the transformation of molecules on solid surfaces. Molecules and chemical bonds display bright colours in the infrared, and we can follow the behaviour and transformations of molecules by looking at them with infrared light. I brought to Cambridge a very fast infrared spectrometer, and with David King and his team in the Department of Chemistry, we fired a laser to start a reaction. We then followed on a catalyst the decomposition of toxic nitrogen oxides coming out of a car engine. We observed the transformation of the molecules at 33 nanoseconds time resolution, which means 30 million pictures a second. This was the fastest ever observation of surface chemistry on a real catalyst. At that speed, we could see the individual steps of the movement of molecules on the small silver particles where the reaction happened. Molecules were “flipping over” between silver and the support, and this is exactly where the limit to the reaction was (*Science*, 2009, **324**, 1048-1051). By improving the contact between silver and the support, it was then possible to improve car exhaust catalysts with unexpected efficiency.

## Biography



**Frédéric Thibault-Starzyk** obtained his PhD in Synthetic Organic Chemistry at the Université de Caen in 1992, using supported reagents for preparing new antiviral drugs against AIDS. He then obtained a European fellowship for a postdoctoral stay with Peter Jacobs at the Katholieke Universiteit Leuven in Belgium, and started working on zeolites and inclusion complexes for mimicking enzymes by heterogeneous catalysis. In 1995, he joined the French CNRS and the 'Laboratoire Catalyse et Spectrochimie' in Caen. He worked on infrared spectroscopy in heterogeneous catalysis, mostly on zeolites. In 2000, he was awarded the Catalysis Prize of the French Chemical Society. In 2003, F. Thibault-Starzyk spent 2 years in the group of Sir David King in Cambridge, as a French Fellow at Churchill College in 2004. Back in France, he became Director of Research in the CNRS in 2009. He was President of the French Zeolite Association (GFZ) between 2009 and 2014, and since 2011 he has been the Director of the 'Laboratoire Catalyse et Spectrochimie' at the Université de Caen.

## OTHER PARTICIPANTS



**Sir John Boyd** was British Ambassador to Japan from 1992-1996 and Master of Churchill College from 1996 to 2006. He was Chairman of the British Museum from 2002-2006. He is currently the Chairman of Asia House in London and of the Joseph Needham Research Institute in Cambridge. He is also Trustee of the Yehudi Menuhin International Violin Trust, the GB-Sasakawa Foundation; and of RAND (Europe) UK. Past appointments included UK representative for the ASEM Vision Group, Co-chairman of the Nuffield Languages Inquiry and Trustee of the Wordsworth Trust.

Sir John was a member of the British Diplomatic service from 1962-1996. He served twice in Hong Kong (on the second occasion as Political Adviser to the Governor) and Beijing twice. Other postings included Bonn, Washington, and the UK Mission to the UN. At home he served as Deputy Under Secretary for Defence and subsequently Chief Clerk of the FCO before his posting to Japan. His tenure in Tokyo saw a marked expansion in bilateral exchanges on a wide front. He holds the Grand Cordon of the Rising Sun. Sir John retains a keen interest in Asian languages.



**Mark Gotham** graduated from the University of Oxford with the Gibbs Prize for the highest-ranking first class degree awarded in music. Since then, he has gained a master's degree in composition from the Royal Northern College of Music (with the support of a full scholarship from the Arts and Humanities Research Council) and pursued a richly varied freelance career. He has held the McCann Research Fellowship at the Royal Academy of Music, worked as a composer assistant for the Royal Opera House, and held choral posts including a lay clerkship at Ely Cathedral. He is now working on a PhD at the University of Cambridge in the theory and analysis of metrical structures in music. In addition to his academic work, Mark also continues to keep up his professional activity as a freelance composer and conductor. Recent highlights include conducting members of the London Symphony Orchestra. Mark was appointed to an Artist By-Fellowship and Director of Music Making at Churchill College in 2013.



**Matthew Houlihan** is based at the British Embassy, Paris where he heads up the UK Government's Science, Innovation and Higher Education team for west Europe. Previously, Matthew was 1<sup>st</sup> Secretary at the UK's Permanent Representation to the EU, representing the UK's interests on research, innovation, consumer and telecoms issues in Brussels and has also worked in the UK Commissioner's Cabinet in the European Commission. In London, Matthew has worked in the Cabinet Office European Secretariat where he covered Justice and Home Affairs and future of Europe and in the Home Office where he worked in a number of policy teams. He has a BSc in Sociology and an Msc in European Politics from the London School of Economics.



**Kevin M. Knowles**, M.A. (Cantab), D.Phil. (Oxon) is a Senior Lecturer in the Department of Materials Science and Metallurgy at the University of Cambridge and Editor of the Taylor and Francis journal *Philosophical Magazine*. His main research interests are in inorganic microstructures and the relationship between microstructure and mechanical or electronic properties. Current research interests are (i) devitrite as an optical diffuser, (ii) the joining of engineering ceramics with active metal brazes, (iii) microstructure-property relationships in electronic ceramics such as lead-free piezoelectric materials and zinc-oxide-based varistor materials, (iv) the structure of grain boundaries and interphase boundaries in ceramic materials, (v) the microstructure of crystalline glazes and (vi) twinning in complex crystals. With Anthony Kelly, he has recently written the Second Edition of 'Crystallography and Crystal Defects' published by Wiley in 2012.



**Nick Mascie-Taylor** is Professor of Biology and Health in the Department of Biological Anthropology. His main research interests are in epidemiology, nutrition, growth, reproductive ecology & biosocial studies. Among his current research projects are: investigating methods for the control of disease in Bangladesh, evaluation of the cost-effectiveness of health programmes, and a study of the impact of maternal nutritional supplementation in reducing low birth weights. Professor Mascie-Taylor is also setting up a global database on adult Body Mass Index (BMI) with the World Health Organization (BMI is used as a proxy to define under- or overweight). He teaches students on the Biological Anthropology course, and also lectures advanced undergraduates on a range of subjects. He travels widely as part of his research; recent destinations have included Bangladesh, Thailand, Switzerland, Japan, France, Denmark and Saudi Arabia.



**Jianjun Mei** graduated from Beijing University of Iron and Steel Technology in 1984 with a B.Eng in Metallurgical Chemistry. He obtained an M.Sc in History of Science and Technology in 1988. He first came to Cambridge in 1994 as Li Foundation scholar working at the Needham Research Institute. In 1995 he began his PhD study at the Department of Archaeology, Cambridge University with a scholarship offered by the East Asian History of Science Foundation, Hong Kong. He was awarded a PhD in Archaeology in 2000. After postdoctoral work in Tokyo and Cambridge he returned to China in 2004 as Professor at the Institute of Historical Metallurgy and Materials, University of Science and Technology Beijing, where he is currently Director. In recent years Professor Mei has been a leading member of the team formed to write the volume on non-ferrous metallurgy for the *Science and Civilisation in China* series, founded by the great British sinologist and historian of science Joseph Needham (1900-1995). He is active in a number of international research groups, and is currently President of the International Society for the History of East Asian Science, Technology and Medicine. In February 2013, he was appointed as Director of the Needham Research Institute. Professor Mei was appointed to a Title B (Senior) Research Fellowship at Churchill College from 1 January 2014.



**Allen Packwood** BA, MPhil (Cantab) FRHistS, is a Fellow of Churchill College, Cambridge, and the Director of the Churchill Archives Centre. He is a qualified archivist and has worked at the Centre since September 1995, succeeding Dr Piers Brendon as Acting Keeper in 2001, before being appointed Director in 2002. Allen was co-curator of “*Churchill and the Great Republic*”, a Library of Congress exhibition, which ran from February – July 2004, and of “*Churchill: The Power of Words*”, a display at the Morgan Library in New York from June till September 2012.

Allen has also organised many events and lectures, including the successful conference on “*The Cold War and its Legacy*”, staged over two days at Churchill College in November 2009, and attended by senior representatives from China, Germany, Romania, the Russian Federation and the United States. He is the author of several articles, co-wrote the publication accompanying the Library of Congress display, edited the recent guide to the Churchill Archives Centre, and has lectured extensively on Churchill in the United Kingdom and the United States. Allen’s job has taken him to Bermuda, Cuba, Singapore Hong Kong and in 2011 he accompanied Celia Sandys and Lady Soames on a *Chasing Churchill* Mediterranean Cruise.

The Churchill Archives Centre is located in the grounds of Churchill College, and is home to the papers of Sir Winston Churchill, Baroness Thatcher and almost six hundred of their contemporaries: politicians, diplomats, civil servants, military leaders and scientists of the Churchill era and beyond. It is still collecting. Allen now combines his leadership of the Archives Centre with his role as Executive Director of The Churchill Centre in the United Kingdom.



**Sébastien Rouquette** was a French Government By-Fellow in 2013. He is currently Assistant Professor in the Mechanical Engineering Department of the Institute of Technology of Nimes (University of Montpellier 2, France) since Sept. 2008. He is on the permanent staff of the Welding Group within the Laboratory of Mechanics and Civil Engineering ([http://www.lmgc.univ-montp2.fr/ecrire/AS/eqas\\_en.html](http://www.lmgc.univ-montp2.fr/ecrire/AS/eqas_en.html)). He also teaches courses and practicals in the field of arc welding to undergraduate students. He graduated from the University of Toulouse

3 (France) where he got a BSc in Fluid and Solid Mechanics in 1997 and an MSc in Heat and Mass Transfers in 2000. He then completed a PhD in Applied Sciences in 2003 at the University of Perpignan (France). His PhD research focused on inverse heat transfer problems applied to the study of a Plasma Assisted Chemical Vapour Deposition Process. He worked as Post-doctorate researcher at the University of Lorient (France) from Sept. 2003 to Aug. 2004, then at the University of Technology of Troyes (France) from Sept. 2004 to Aug. 2006. He was recruited as Associate Researcher at Heriot-Watt University (Edinburgh, UK) from Sept. 2006 to Feb. 2008 and as Research fellow at the University of Birmingham (UK) from March 2008 to Aug. 2008. His current research focuses on the mechanisms involved in GTAW weld pool formation, solidification and final metallurgy and as a consequence the weld joint final quality. His research field is mainly based on manufacturing processes that involve high temperature processing such as foundry, welding, quenching ... and which are strongly multiphysics (from an experimental and finite element analysis point of view).



colloidal suspensions.

**John Sherwood** was a student in the Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge, under the supervision of Professor John Hinch. He spent three years working for Unilever Research, followed by twenty-six years with Schlumberger, both in Cambridge and in France, during the course of which he first met François Feuillebois. He is now a visitor in DAMTP, where he continues his research into low Reynolds number hydrodynamics, with a special interest in the effects of electrical charge in



**Ken Siddle** was elected a Fellow of Churchill in 1982, and became Vice-Master in 2012. He studied as an undergraduate and postgraduate at Cambridge University and was awarded his PhD in Biochemistry in 1972. His first appointment was at the Welsh National School of Medicine (as it was then called) in Cardiff, but he returned to Cambridge in 1978 as a member of the University Department of Clinical Biochemistry and, apart from a sabbatical year at Harvard Medical School in Boston in 1989/90, he has remained in Cambridge ever since. He was appointed Professor of Molecular Endocrinology in 1990 and is now based in the Institute of Metabolic Science on the Addenbrooke's Biomedical Campus. His main field of research is the biochemistry of insulin and insulin-like growth factors, including their receptors and intracellular signalling pathways and the dysregulation of their actions in diabetes. He is also heavily involved in the organization and administration of postgraduate programmes in biomedical sciences. His outside interests include mountaineering and cricket, and he has been Senior Treasurer of Cambridge University Cricket Club since 1990.



**Professor Florin Udrea** is Professor in Semiconductor Engineering and Head of the High Voltage Microelectronics and Sensors Laboratory at the University of Cambridge. Since October 1998, Prof. Florin Udrea has been an academic with the Department of Engineering, University of Cambridge, UK. He is currently leading a research group in power semiconductor devices and solid-state sensors that has acquired an international reputation over the last twenty years. Prof. Udrea has published over 300 papers in journals and in international conference proceedings. He holds more than 70 patents in power semiconductor devices and sensors. Prof. Florin Udrea co-founded three companies, Cambridge Semiconductor (Camsemi) in power ICs, Cambridge CMOS Sensors (CCS) in the field of smart sensors and Cambridge Microelectronics in Power Devices. For his 'outstanding personal contribution to Engineering', Prof Florin Udrea was awarded the Silver Medal from the Royal Academy of Engineering in 2012.



**Cyrille van Effenterre** was appointed Science and Technology Counsellor at the French Embassy in London in September 2012.

Mr van Effenterre was born in 1955 and holds diplomas from the École Polytechnique and Engref (National French High Education Institute for Rural Engineering, Environment, Water and Forests). He spent the first part of his career in water and forestry, working as a research engineer at CEMAGREF (national institute focusing on land management) in Grenoble (1979-1984), then directing the mountain terrain restoration and soil conservation service at the ONF (national forestry office) in Gap (1984-1989). In 1989, he joined the French Ministry of Agriculture and Forestry. Moving from a post managing the forest protection office, to technical advisor to the cabinet from 1991 to 1993, then Director of Agriculture and Forestry for the Savoie area (1993-98), he was ultimately nominated Director of Rural Areas and Forestry at the Ministry of Agriculture and Fisheries. Cyrille van Effenterre was then invited to take up management positions in academia and research. He was Director of Engref from 2000 to 2007, and contributes to the launching of the new ParisTech consortium, an official body gathering twelve among the most well-known French engineering and management schools. He was elected as Chairman of ParisTech (Paris Institute of Technology) at its creation in 2007, and assumed three terms of office until July 2012. He also chaired the European academic network *Idea League*, during the years 2010-2011. Decoration: officier du mérite agricole (officer of agricultural merit).



**Paula Halson** has been Registrar at Churchill College since 1991, having first come to the College in 1988 as secretary to the Master, Sir Hermann Bondi. She became an Associate of the Chartered Institute of Personnel and Development in 1999 and in 2001 she graduated from the Open University with an Honours Degree in French and English. Also in 2001 she was awarded a Churchill Fellowship by the Winston Churchill Memorial Trust and undertook an 8 week visit to universities throughout Australia as well as carrying out personal research on the French navigator Lapérouse. She was appointed a Staff By-Fellow in 2006 and in 2008 was awarded a Fellowship of the Royal Society of Arts. Her memoir of Sir Hermann Bondi, entitled 'Flying Roast Ducks', has recently been published by the College and is available from

the Porters' Lodge for £8.99! Along with Anny King, Paula has taken a keen interest in the French Government Fellowship scheme during her time at the College and is responsible with Anny for the administration of this 40<sup>th</sup> Anniversary event. Paula is taking early retirement from her full-time role on 31 July 2014 but will be returning in September to work one day a week in the College Archives, so enabling the College to take advantage of her institutional memory!



**Anny King** retired as Executive Director of the Cambridge University Language Centre in 2010. On her retirement the University bestowed upon her the title of Emeritus Director for her 'outstanding contribution to the work of the University'. She is a Fellow at Churchill College, Cambridge where she was Director of Studies in Linguistics for many years, has been a Tutor for the last 14 years and has been involved with Paula Halson with the French Government Fellowship Scheme at Churchill since 1994. In 1990 she was awarded the distinction of Chevalier dans l'Ordre des Palmes Académiques.

Anny is an applied linguist who studied Modern Languages and translation studies at the Sorbonne in Paris, and Linguistics in Cambridge. Anny is a specialist in innovative, face-to-face and online language teaching and learning methods and the use of audio-visual media. She is also a teacher trainer.

In 2000 Anny developed the innovative integrated face-to-face teaching & online learning Cambridge University Language Programme (CULP) in French, German, Italian, Mandarin Chinese, Russian and Spanish. In 2004 she started the Junior CULP programme for schools, based on CULP methodology. In 2004 Anny developed the English for Academic Purposes pre and in-session programmes.

Anny has led several development projects for the production of online language learning materials, such as *Languages at Your Fingertips* in French and Spanish, in cooperation with the BBC; *CUTE* (Chinese University Teacher Training in English) – in collaboration with Tsinghua University and also *English at Your Fingertips*. In 2009 she directed Open School for Languages, a major DFE funded project aimed at providing on-line language learning resources in French, German, Spanish and Chinese for secondary schools.

She has authored many textbooks for Longman and CUP and support material in collaboration with the BBC, Thames TV, and the French Ministry for Foreign Affairs. Recently she has been a Senior Consultant for STAR TV in India developing a major English language TV course *STAR English* with her Anglo-Indian Team.

Over the years, Anny and her team won many distinctions and awards for their learning programmes and online learning support material. *Junior CULP* was commended by Lord Dearing in his 2007 Languages Review for its innovative approach, its flexibility and its appropriate use of technology.

Over the last 20 years Anny has been advising many Languages Departments on the design of their language programmes and on their training needs, both here in the UK (e.g. Royal Holloway, University of London, King's College London, Queen Mary College, University of London and Reading University) and abroad (e.g. Tsinghua University, China; Sultan Qaboos University, Oman; Tbilisi State University, Georgia).