

## The European Research Council at "Summer Davos",

Annual Meeting of the New Champions, World Economic Forum

27-29 June 2017, Dalian, China

ERC participants & programme

### ERC President & 10 ERC grantees take part in 11 sessions

#### **PRESS BRIEFING on "Science under attack":**

- Prof. Jean-Pierre Bourguignon, European Research Council President
- Prof. Lu Bai, Medical School, Tsinghua University, China
- Prof. Maria-Elena Torres-Padilla, AMNC2017 Co-Chair; Mexican ERC grantee
- Prof. Vanessa Wood, American ERC grantee

**Wednesday 28 June 11.45 -12.15**

Dalian International Conference Center, Media Centre

ERC Press Contact: Madeleine Drielsma, [madeleine.drielsma@ec.europa.eu](mailto:madeleine.drielsma@ec.europa.eu) (mobile: +32 498 98 43 97)



## President of the European Research Council (ERC)



### **Prof. Jean-Pierre Bourguignon**

#### **PRESS BRIEFING: "Science under attack"**

Wednesday 28 June 11.45 -12.15

Dalian International Conference Center

#### **Ideas Lab: Exploring Epigenetics with the European Research Council** (introduction)

Tuesday 27 June, 16:45 - 18:00

Dalian International Conference Center, IdeasLab

#### **Dragon Science**

Tuesday 27 June, 17:15 - 18:15

Dalian International Conference Center, Studio

#### **Enabling Scientific Breakthroughs across Borders**

Wednesday 28 June, 13:00 - 14:00

Dalian International Conference Center, xChange

#### **Science with(out) Borders**

Thursday 29 June, 12:00 - 13:00

Dalian International Conference Center, Studio

Professor Jean-Pierre Bourguignon was the Director of the Institut des Hautes Études Scientifiques (IHÉS) from 1994 till 2013. This international research institute located near Paris, France, was built as the European counterpart of the Institute for Advanced Study in Princeton. He was also the first ERC Panel Chair in Mathematics, for Starting Grants. A mathematician by training, he spent his whole career as a fellow of the Centre National de la Recherche Scientifique (CNRS). He held a Professor position at École polytechnique from 1986 to 2012. From 1990 to 1992, he was President of the Société Mathématique de France and President of the European Mathematical Society from 1995 to 1998. He is a former member of the Board of the EuroScience organisation (2002-2006) and served on EuroScience Open Forum (ESOF) committees since 2004.

Professor Bourguignon received the Prix Paul Langevin in 1987 and the Prix du Rayonnement Français in Mathematical Sciences and Physics from the Académie des Sciences de Paris in 1997. He is a foreign member of the Royal Spanish Academy of Sciences. In 2005, he was elected honorary member of the London Mathematical Society and has been the secretary of the mathematics section of the Academia Europaea. In 2008, he was made Doctor Honoris Causa of Keio University, Japan, and, in 2011, Doctor Honoris Causa of Nankai University, China.

## ERC grantees



### Co-chair AMNC 2017

## Prof. Maria-Elena Torres-Padilla

Director, Institute of Epigenetics and Stem Cells,  
Helmholtz Center Munich (DE)  
ERC Starting Grant holder

### Ideas Lab: Exploring Epigenetics with the European Research Council

Tuesday 27 June, 16:45 - 18:00

Dalian International Conference Center, IdeasLab

### Shaping the Future of Science

Wednesday 28 June, 16:15 - 16:45

Dalian International Conference Center, BetaZone

### Leading a Human-Centred Revolution

Thursday 29 June, 14:00 - 15:00

Dalian International Conference Center, Studio

Prof. Torres-Padilla's research aims to understand how epigenetic cues are established at the beginning of embryonic development and how it supports totipotency, which refers to the largest plasticity that a mammalian cell can have; it also examines the way in which early mammalian development is regulated by epigenetic information. Her work will also allow new insights in understanding the biology of the pluripotent stem cells, as well as early aspects of embryonic development, human reproduction and stem cell biology.

With her degree in biology, Prof. Maria-Elena Torres-Padilla left Mexico and embarked on an international career in epigenetics. She completed her PhD at the Pasteur Institute in Paris and then moved to Cambridge University. In 2006, she joined IGBMC in Strasbourg working as a group leader. She has just been appointed Director of the Institute of Epigenetics and Stem Cells of the Helmholtz Zentrum in Munich. Supported by an ERC grant, she studies the mechanisms controlling embryonic cellular plasticity with the aim of shedding new light on today's fertility issues.



## **Prof. Gerardo Adesso**

**Professor of Mathematical Physics, University of Nottingham (UK)**

**ERC Starting Grant holder**

Gerardo Adesso obtained his PhD in Physics in 2007 from the University of Salerno, Italy, and has been a permanent faculty member at Nottingham since 2009. His main expertise is in the characterisation and quantification of quantum coherence and all forms of quantum correlations in composite systems, such as entanglement, steering and nonlocality. He contributed significantly to the development of quantum information theory with continuous variable systems. His research is mainly devoted to the identification and exploitation of genuinely quantum resources for robust quantum information technology. His current interests further include mathematical foundations of quantum dynamics and thermodynamics, and applications of metrology techniques to quantum-enhanced magnetometry, thermometry, and imaging.

Prof. Adesso's research addresses issues of fundamental and technological importance in quantum information science and its applications. The main aim of his project is to provide a new paradigmatic foundation for the characterisation of quantumness in cooperative phenomena and to develop novel platforms for its practical utilisation in quantum technology applications, such as secure communication, sensing and metrology.



## **Prof. Ueli Grossniklaus**

**Professor of Plant Development Genetics, University of Zurich (CH)**

**ERC Advanced Grant holder**

### **Ideas Lab: Exploring Epigenetics with the European Research Council**

Tuesday 27 June, 16:45 - 18:00

Dalian International Conference Center, IdeasLab

Prof. Ueli Grossniklaus' research interests turned to plant development with a focus on cell specification, cell-cell communication and differentiation. He led a research group, Cold Spring Harbor Laboratory, USA, for 6 years. In 1999 he became Full Professor, University of Zurich. His research focuses on the elucidation of the genetic basis and the molecular mechanisms underlying four major areas of plant reproduction: (i) gametogenesis and fertilization, (ii) the engineering of clonal seeds (apomixis), (iii) maternal control of seed development, which is largely mediated through epigenetic regulation, and (iv) the role of epigenetic variation in ecology and evolution. His interest lies in developmental genetics and gene regulatory changes underlying complex processes.

Prof. Grossniklaus' research touches upon both fundamental and applied aspects relevant to plant breeding and seed production, with the potential to transform agriculture. He is the head of a PhD programme at the interface between science and policy, Life Science Zurich Graduate School and currently on the Forum for Genetic Research of the Swiss Academy of Science.



## **Prof. Michael Häusser**

**Wellcome Trust Principal Research, Fellow and Professor of Neuroscience, University College London (UK)**

**ERC Advanced Grant holder**

### **The State of Neuroscience**

Wednesday 28 June, 16:00 - 17:00

Dalian International Conference Center, Arena

What is the fundamental unit of computation in the brain? Prof. Häusser's research aims to better understand the cellular basis of information processing in our nervous system. His group has helped pioneer optical approaches for probing single neuron computation in the intact brain. With his ERC grant, he focuses on how dendrites, the receiving elements of neurons, act as computing devices. His aim is to reveal how the cellular and molecular machinery of the nervous system helps the brain to solve computational problems, and what changes take place within these elements during learning. Prof. Häusser trained at the University of Oxford, the Max-Planck-Institute for Medical Research in Heidelberg and the Ecole Normale Supérieure in Paris. He established his own laboratory at UCL in 1997.

Prof. Häusser is interested in understanding the cellular basis of neural computation, focusing how single neurons contribute to solving computational tasks relevant to behaviour. He has a longstanding interest in how dendrites, the receiving elements of the neuron, help define the information processing capabilities of single neurons, using a combination of experiments and theory. His group has also helped to pioneer new optical and electrophysiological approaches for probing individual neural circuit elements in the intact brain in order to link their function with behaviour.

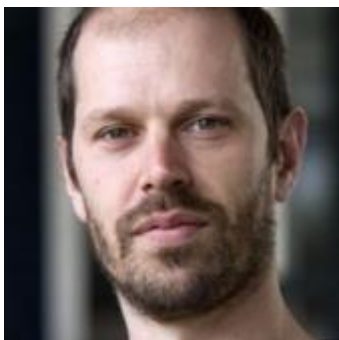


## **Prof. Nicole Joller**

**Assistant Professor, Institute of Experimental Immunology, University of Zürich (CH)**

**ERC Starting Grant holder**

Nicole Joller is Assistant Professor at the Institute of Experimental Immunology at the University of Zurich, where she studies the mechanisms that lead the immune system's decision to initiate a harmful or beneficial response. Professor Nicole Joller is investigating regulation by so-called T helper cells, which are responsible for producing messengers and thus regulate the immune response. Prof. Joller was awarded a Starting Grant in 2015. In her research, she addresses the question of how the immune response to one pathogen alters the body's ability to respond to a second infectious agent or the susceptibility to autoimmunity or cancer. She focuses on infection-induced changes in regulatory T cells (Tregs) as they may lead to biased suppression and changes in the nature of subsequent immune responses.



## **Prof. Sander van Kasteren**

**Assistant Professor, Faculty of Science, Leiden University (NL)  
ERC Starting Grant holder**

Prof. van Kasteren research focuses on immune therapies. To reinvigorate the immune reaction against tumours, the right type of immune cells must be activated against a tumour-specific antigen. One method to achieve this is by targeting tumour antigens to certain cross-presentation-promoting receptors on antigen presenting cells. One of these receptors is glycoprotein-binding mannose receptor (MR). The main objective of his study is to determine what structural parameters of the glycoprotein antigen result in enhanced cross-presentation upon MR-ligation.

The research of Prof. van Kasteren focuses on understanding and improving the immune system. Through careful application of new chemical approaches he aims to provide new insights into the interaction of the immune system with vaccines, but also with some of the devastating pathogens that hijack it. These fundamental new insights may well contribute to the development of more effective immune therapies against cancers and pathogenic diseases. For his work he was awarded the Early Career Award of the British Biochemical Society, as well as fellowships from the ERC, Wellcome Trust and NWO.



## **Prof. Magdalena Król**

**Professor, Faculty of Veterinary Medicine, University of  
Warsaw (PL)  
ERC Starting Grant holder**

Magdalena Król is Professor at the Faculty of Veterinary Medicine of the Warsaw University of Life Sciences (SGGW) in Poland. She specialises in cancer research. Since 2006, prof. Król and her team have been investigating canine mammary cancer focusing particularly on cancer metastasis and tumour microenvironment. Currently, she develops innovative cell-based method of drug delivery to solid tumours. Her discoveries about interactions between immune cells and cancer cells may one day revolutionise the treatment of cancer.

She discovered a mechanism in which the immune cells transfer special proteins that have a box-like structure, in which we can put various anti-cancer drugs. Immune cells transport these protein boxes to cancer cells, and they act like a Trojan horse, because they naturally go to the tumour mass and they transfer the drug to cancer cells, killing the tumour. They also reach the unreachable sides of the tumour. In her research, she aims to find out why immune cells transfer these protein boxes to cancer cells, because it can open a new door for immunology.



## **Prof. J. Andrew Pospisilik**

**Group Leader Max Planck Institute of Immunobiology and Epigenetics (DE)**

**ERC Starting Grant and Consolidator Grant holder**

### **Ideas Lab: Exploring Epigenetics with the European Research Council**

Tuesday 27 June, 16:45 - 18:00

Dalian International Conference Center, IdeasLab

### **Ask About: Epigenetics**

Wednesday 28 June, 12:15 - 12:45

Dalian International Conference Center, Science Hub

Prof. Pospisilik holds a PhD in Physiology. His work demonstrated therapeutic potential of DPIV-inhibition, which helped launch development and clinical use of DPIV inhibitors today. In 2003, his postdoctoral work used mouse genetics to tackle a long enigmatic link between mitochondrial dysfunction and diabetes, showing that mitochondrial inefficiency prevents type-2 diabetes and obesity, a concept now being more broadly leveraged for clinical use.

Concurrently, he joined a team of IMBA-IMP researchers screening the world's first transgenic-RNAi fly library, a genome mining expedition to search for novel regulators of pain, heart disease, behaviour and obesity. These efforts led to the discovery of one of the first known controllers of good (brown) versus bad (white) fat and revealed an unexpected mechanism underlying side-effects of basal cell carcinoma therapy. His team's efforts focus on understanding the mechanisms underpinning phenotypic variation and how these processes steer evolution, adaptation and disease. He is a member of international consortia on epigenetics and on metabolic disease and the recipient of several awards and honours.



## **Dr. Marianna Obrist**

**Associate Professor in Interaction Design, University of Sussex (UK)**

**ERC Starting Grant holder**

Dr. Marianna Obrist is Associate Professor in Interaction Design at the School of Engineering and Informatics at University of Sussex and received her PhD in Human-Computer Interaction (HCI) from the University of Salzburg in 2007. Marianna is leading the Sussex Computer Human Interaction Lab (SCHI 'sky' Lab), a research group dedicated to the investigation of multisensory experiences. The interdisciplinary SCHI Lab team explores tactile, gustatory, and olfactory experiences as novel interaction modalities. Before joining Sussex, Marianna was a Marie Curie Fellow at Newcastle University and prior to this an Assistant Professor for HCI at the University of Salzburg, Austria. More details on her current work can be found at: <http://www.multi-sensory.info>

Her ERC Starting Grant project, SenseX: Sensory Experiences for Interactive Technologies has the grand challenge and vision to gain a rich and integrated understanding on touch, taste, and smell experiences for interactive technologies.



## **Prof. Vanessa Wood**

**Professor, Department of Innovation and Technology and Electrical Engineering, ETH Zürich (CH)**

**ERC Starting Grant holder**

### **The Transformation of Energy Storage**

Tuesday 27 June, 17:30 - 18:15

Dalian International Conference Center, Future Hub

### **Demystifying Quantum with ETH Zurich**

Wednesday 28 June, 13:15 - 14:30

Dalian International Conference Center, IdeasLab

### **Ask About: Batteries**

Wednesday 28 June, 18:15 - 18:45

Dalian International Conference Center, Science Hub

Vanessa Wood currently heads the [Laboratory for Nanoelectronics](#) at ETH Zürich. Previously, she was a postdoctoral associate in the laboratory of Prof Yet-Ming Chiang and Prof Craig Carter at MIT performing research on novel lithium-ion battery systems. She received her PhD from the Department of Electrical Engineering and Computer Science at MIT. Her graduate work was done in the group of Prof Vladimir Bulovic and focused on the development of optoelectronic devices containing colloiddally synthesized quantum dots. She also holds a MS in Electrical Engineering from MIT and a BS in Applied Physics from Yale College. With the support of an ERC Starting Grant, Vanessa Woods studies the relationship between the structure of lithium-ion batteries - from the atomic to the cell level - and their electrochemistry in order to understand the origins of



performance limitations in batteries and develop guidelines to improve the performance and safety of lithium-ion batteries. Based on these guidelines, she works to develop economically viable technical solutions. Today, lithium-ion batteries are in widespread use and offer great potential for fields such as electromobility and the storage of electricity from renewable energy sources.

## European Research Council

The European Research Council (ERC), celebrating its [tenth anniversary](#) in 2017, is the first funding organisation for excellent frontier research. Set up by the EU in 2007, the ERC stimulates scientific excellence in Europe by encouraging competition for funding between the very best, creative researchers of any nationality and age. The ERC is already seen as a success story for Europe. Since its launch, the ERC has funded more than 7000 researchers.

The ERC actively promotes global research collaboration. It also contributes to making Europe a hub for top talent and strives to attract ambitious researchers from anywhere in the world. To date, over 20 Chinese top researchers have been awarded ERC grants to do their cutting-edge research in Europe. Some 1500 Chinese are also working as team members in ERC-funded projects, according to estimates. In the context of EU-China cooperation, an initiative was launched in 2015 to encourage Chinese scientists, supported by National Natural Science Foundation of China (NSFC), to come on research visits to Europe joining the teams of ERC grantees. The ERC has such initiatives with a handful of countries around the world, including the US, Korea, Japan.

The ERC has become a "benchmark" for competitiveness of national research systems. With a budget of over €13 billion from 2014-2020, as part of the EU's Research Framework Programme Horizon 2020, the ERC supports leading researchers and their innovative ideas with up to €2.5 million per grant. It operates by an 'investigator-driven', 'bottom-up' approach, which allows researchers to identify new opportunities in any field of research.

The ERC is based in Brussels and, since 2014, Prof. Jean-Pierre Bourguignon is the ERC President.

This is the sixth time that the ERC participates in the Annual Meeting of the New Champions, "Summer Davos". Since 2013, the ERC also attends the World Economic Forum meetings in Davos, Switzerland to promote the central role of science at the frontiers of knowledge in today's societies.