

The European Research Council (ERC)
at the Annual meeting of the World Economic Forum

22 - 25 January 2019 - Davos, Switzerland

PROGRAMME & SPEAKERS

The ERC will participate in some 13 sessions (several open to the press) and one press conference, and will bring 8 top scientists.

- ❖ **Prof. Jean-Pierre Bourguignon**, President of the European Research Council
- ❖ **Prof. Flemming Besenbacher**, Chairman of the Supervisory Board, Carlsberg A/S, Aarhus University
- ❖ **Dr Constantinos Demetriades**, Research Group Leader, Max Planck Institute for Biology of Ageing
- ❖ **Prof. Virpi Lummaa**, Academy Professor, Department of Biology, University of Turku
- ❖ **Prof. Jeremy O'Brien**, Co-founder and CEO PsiQuantum Corporation
- ❖ **Prof. Dame Linda Partridge**, Managing Director, Max Planck Institute for Biology of Ageing
- ❖ **Prof. Johan Rockström**, Director, Potsdam Institute for Climate Impact Research
- ❖ **Prof. Martin Vetterli**, President, Swiss Federal Institute of Technology of Lausanne
- ❖ **Prof. Eyal Weizman**, Professor of Spatial and Visual Cultures, Goldsmiths, University of London

As the programme may still change, please also consult the WEF official programme.

ERC speakers are available for interviews.

Press contact:

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Tuesday 22 January

08.30 - 09.00

Ask About: Smarter Drug Design

Science Hub, Congress Centre, level -1

ERC Speaker: **Constantinos Demetriades**

Only one in 5,000 discovery-stage drug candidates obtain approval to be used to treat patients. Come to the Science Hub to explore the latest research on improving drug candidate success by understanding the basic science of cell function.

13.30 – 14.00

The Big Picture on a Hothouse Earth

Global Situation Space, Congress Centre, level -1

ERC Speaker: **Johan Rockström**

From scorching temperatures to extreme weather events, explore the causes and consequences of a “Hothouse Earth” now and through time. The Global Situation Space combines NASA time-lapse satellite imagery and geospatial and econometric data with predictive modelling to provide the big picture on important issues.

12.30 - 14.00

Nurturing Positive Research Culture

Symondpark 1, Ameron Swiss Mountain Hotel

ERC Speaker: **Jean-Pierre Bourguignon**

Extreme competition and narrow definitions of success in scientific research are fuelling a culture that stifles innovation and wastes talent. How can academic and business leaders create a culture that recognizes and rewards the full range of activities that characterize high-quality research?

Wednesday 23 January

10.00 – 10.30

The Big Picture on a Hothouse Earth

Global Situation Space, Congress Centre, level -1

ERC speaker: **Johan Rockström**

From scorching temperatures to extreme weather events, explore the causes and consequences of a “Hothouse Earth” now and through time. The Global Situation Space combines NASA time-lapse satellite imagery and geospatial and econometric data with predictive modelling to provide the big picture on important issues.

14.30 - 15.30

Computing Technology at a Tipping Point

Salon, Congress Centre

ERC Speaker: **Jeremy O'Brien**

The emergence of next-generation computing technologies from quantum to neuromorphic, photonic and more, represents an estimated market value of over \$8 billion, or nearly 25% growth by 2024. How are government and business players seizing opportunities to invest in digital infrastructure as we tip from monoculture to multiplicity?

[Livestreamed](#)

15.15 - 15.45

Ask About: Social and Biological Drivers of Ageing

Science Hub, Congress Centre, level -1

ERC Speaker: **Virpi Lummaa**

Life-long disease, stress and reproduction affect how we age at a cellular level. Come to the Science Hub to explore the latest research on how social drivers affect the biology of ageing.

Thursday 24 January

12.30 – 13.00

PRESS CONFERENCE
The Science of Healthy Ageing

Media Village, Press Room

Speakers:

- **Carlos Moedas, European Commissioner for R&I**
- **Jean-Pierre Bourguignon, ERC President**
- **Dame Linda Partridge**
- **Constantinos Demetriades**
- **Virpi Lummaa**

Three top scientists will share their latest findings in the field of healthy ageing. They will highlight the topic from different perspectives; from treating several ageing-related diseases simultaneously with a “polypill” and tackling such diseases through molecular and cellular mechanisms, to uncovering the mechanisms behind human longevity.

[Live-streamed](#)

14.30 – 15.00

Searching for Truth

Betazone, Congress Centre, level -1

ERC Speaker: **Eyal Weizman**

As notions of the “truth” are becoming increasingly distorted and disguised, join architect Eyal Weizman to explore how forensic architecture helps tracing down and reconstructing crimes and catastrophes.

[Live-streamed](#)

13.30 - 14.00

The Big Picture on a Hothouse Earth

Global Situation Space, Congress Centre, level -1

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14.30 – 15.45

ERC Ideas lab: The Secrets to Healthy Longevity with the ERC

Ideas Lab, Congress Centre

ERC Speakers: **Dame Linda Partridge, Constantinos Demetriades, Virpi Lummaa,**
Introduced by **Jean-Pierre Bourguignon**

Discover new ideas and insights with leading researchers in the IdeasLab.

- Treating multiple diseases of ageing simultaneously with a "polypill"
- Fighting ageing-related disease through the cellular nutrient sensing machinery
- Social drivers of human longevity

Available on demand on the Forum YouTube channel/TopLink after the meeting.

Friday 25 January

09.00 – 09.45

Preparing for Future Migration Scenarios

Situation room, Congress Centre, level -1

ERC Speaker: **Eyal Weizman**

More than half of global population growth between now and 2050 will occur in Africa, increasing pressure on economic and environmental systems and challenging the management of borders. How can economic and political leaders collaborate and prepare today for future migration scenarios?

[Live-streamed](#)

09.00 - 10.30

Bridging Science with Society

Auditorium, Open Forum

ERC Speaker: **Jean-Pierre Bourguignon**

From climate change denial to vaccine scepticism, there is an increasing divide between scientific evidence and public opinion. How can the gap between science and society be bridged?

[Live-streamed](#)

09.45 - 10.15

Ask About: Mechanisms of Ageing

Science Hub, Congress Centre, Level -1

ERC Speaker: **Dame Linda Partridge**

Since 1900, the global average life expectancy has more than doubled but the number of healthy years enjoyed has not kept up. Come to the Science Hub to explore the latest research the promise of a "polypill" to treat multiple diseases of ageing simultaneously.

ERC SPEAKERS' BIOGRAPHIES



Prof. Jean-Pierre Bourguignon

President of the European Research Council

Jean-Pierre Bourguignon is the President of the European Research Council and took office in 2014. Prior to that, he 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.

Prof. 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.



Flemming Besenbacher

**Chairman of the Supervisory Board, Carlsberg A/S,
Aarhus University (DK)**

ERC Advanced Grant

Flemming Besenbacher is a professor of nanoscience at Aarhus University, and he was the founding director of the Interdisciplinary Nanoscience Center (iNANO) from 2002-2012. Prof. Besenbacher is Chairman of the Carlsberg Group, the Carlsberg Foundation, the Tuborg Foundation, and Aarhus Vand A/S. Prof. Besenbacher is also deputy chairman of Innovation Fund Denmark and board member of Unisense A/S. In 2016, Prof. Besenbacher was appointed both chairman of the Danish Government's Advisory Board for Circular Economy, member of the Danish Government's Digital Growth Panel, and member of the Danish Ministry of Taxation's advisory panel for succession planning in commercial foundations. Prof. Besenbacher sits on several advisory boards related to the UN Sustainable Development Goals and he is chairman of the non-profit organization UNLEASH.

Prof. Besenbacher is an international leading scientist within the field of **nanoscience**, and he has published more than 700 scientific articles in international journals such as Science and Nature. He is one of the most cited Danish scientists with 36, 000 citations and an H-factor of 98. Furthermore, Prof. Besenbacher is honorary doctor at 13 Chinese universities, and he has received several distinctions in Denmark and abroad for his research, for instance "The Chinese Government Highest International Scientific and Technological Cooperation Award" of the People's Republic of China.

He is foreign member of the Chinese Academy of Sciences (Academician) and holds the title of Commander of the Order of Dannebrog.



Constantinos Demetriades

Research Group Leader, Max Planck Institute for Biology of Ageing (DE)

ERC Starting Grant

Dr Constantinos Demetriades is a Molecular Cell Biologist. Since January 2017, he holds a Max Planck Research Group Leader position (Associate Professor level) at the Max Planck Institute for **Biology of Ageing** (MPI-AGE) in Cologne.

The vision of the Demetriades research group is to understand how cells sense the presence or the absence of nutrients in their environment to adjust their growth and metabolism accordingly; how the dysregulation of these cellular mechanisms contributes to the development of human diseases (cancer, diabetes, neurological disorders) and the ageing process; and how we can intervene pharmacologically to target these mTOR-related conditions.

His work focuses on the intricate molecular and cellular mechanisms of nutrient sensing and growth control, mainly via the regulation of the master cellular nutrient sensor and growth coordinator – the mTOR kinase. Dr Demetriades' work has clarified the mechanistic details of mTOR inactivation in response to nutrient starvation and has revealed how information from multiple, diverse, cellular stresses is integrated to control cellular physiology.

Dr Demetriades obtained his Biology Degree from the Aristotle University of Thessaloniki, and pursued his PhD at the Biomedical Sciences Research Center 'Alexander Fleming' in Athens, and the Aristotle University of Thessaloniki, Greece. He then joined the lab of Aurelio Teleman at the German Cancer Research Center (DKFZ) in Heidelberg, Germany, as a Postdoctoral Researcher. He holds an ERC Starting Grant.



Virpi Lummaa

Academy Professor, University of Turku (FI)

ERC Starting Grant; ERC Consolidator Grant

Virpi Lummaa holds an Academy of Finland Professorship at the University of Turku. She received her PhD in Biology in Turku, thereafter holding positions in Cambridge, Sheffield in the UK and Berlin, Germany, before returning to Finland in 2016 with her two young sons.

Her research is on **ageing, lifespan and natural selection in contemporary human societies.**

Prof. Lummaa studies how life-long disease patterns, stress and investment in reproduction affect how we age at the cellular level. At present, she also focuses on biological ageing patterns of the Asian elephant, a long-lived mammal that offers unique opportunities to reveal the mechanisms of ageing in a way highly relevant to humans. Her first findings of her Consolidator Grant highlight the significant role that elephant grandmothers play to ensure the survival of the calves, providing vital baby care comparable to childcare in human communities across the world. Such important contribution of the older generation to the success of the younger ones has meant that natural selection has favoured exceptional longevity in both species. Her ERC Starting Grant used historical church records in an innovative way to look at evolutionary, ecological and demographic factors influencing birth and death rates during the past 300 years.



Jeremy O'Brien

Co-founder and CEO PsiQuantum Corporation (CQP)

ERC Starting Grant; ERC Consolidator Grant;
ERC Proof of Concept Grant

Professor Jeremy O'Brien is focused on **bringing quantum computing into reality** and the market to transform artificial intelligence, healthcare, energy, finance, cyber security and the internet. He is the co-founder and CEO of PsiQuantum Corporation. Prior to founding PsiQuantum he headed the Centre for Quantum Photonics that his ERC Starting Grant helped establish.

Jeremy O'Brien is co-founder and CEO of PsiQuantum. PsiQuantum is building a large-scale general-purpose silicon photonic quantum computer to solve the many important problems that will forever be beyond the capabilities of any conventional computer. Prior to founding the company, Jeremy was Professor of Physics and Electrical Engineering at Stanford and Bristol Universities, and Director of the Centre for Quantum Photonics. He has spent more than 20 years working towards scalable quantum computing, including: micro-, nano- and atomic-scale design, fabrication and operation of superconducting and semiconductor devices; design, construction and operation of cryogenic and ultra-high vacuum systems; design, construction and application of low-noise electrical measurement to organic-, super- and semi-conductor (nano)structures; and the theory of quantum computing.

Prof O'Brien was awarded an ERC Starting Grant (2009) that established the field of integrated quantum photonics. He received an ERC Proof of Concept Grant (2011) for a project that developed quantum secure mobile communication systems. He also received an ERC Consolidator Grant.



Dame Linda Partridge

Managing Director, Max Planck Institute for Biology of Ageing (DE)

Two ERC Advanced Grants

Professor Dame Linda Partridge is Director of the Institute of Healthy Ageing at University College London. She is also the founding director of the Max Planck Institute for Biology of Ageing in Cologne. She has received two ERC Advanced grants.

Her research on the **biology of ageing**, is directed to understanding both how the rate of ageing evolves in nature and the mechanisms by which healthy lifespan can be extended in laboratory model organisms. There is thus a major scientific opportunity to use model organisms to discover how to ameliorate ageing and hence to protect against ageing-related disease in humans. Her work has focussed in particular on the role of nutrient-sensing pathways, such as the insulin/insulin-like growth factor signalling pathway, and on dietary restriction.

Prof. Partridge is also a Fellow of the Royal Society, the Academy of Medical Sciences and the American Academy of Arts and Sciences. She is the recipient of numerous awards, including the Royal Society's Croonian Prize Lecture, and was honoured with a DBE for Services to Science in 2009.



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Johan Rockström

Director, Potsdam Institute for Climate Impact Research (DE)

ERC Advanced Grant

Johan Rockström's research focuses on **global sustainability** and **Earth resilience**. His work on global sustainability issues has gained him international recognition and, in 2009, he led an international team of academics, who advanced the planetary boundaries framework for sustainable development in the Anthropocene. He is one of the leading scientists behind the **Global Carbon Law** and the **Hothouse Earth** research, and a principle of the **Global Commons Initiative**.

After completing a PhD at Stockholm University's Systems Ecology Department in 1997, Rockström spent nearly two decades working on applied water research in tropical regions. From 2004 to 2012 he was Executive Director of the Stockholm Environment Institute, and up until 2018 he was the founding Director of the Stockholm Resilience Centre. He chairs the EAT-Initiative on healthy and sustainable food, the Earth League, and is co-chair of the advisory board of Future Earth. He is the Editor-in-Chief of Global Sustainability.

He also acts as an advisor to several governments and business networks and meetings, including the United Nations General Assemblies, the World Economic Forum, and the UN Framework Convention on Climate Change Conferences.

He has published over 100 research articles, including papers in *Science* and *Nature*, as well as 20 book chapters and four books. In recognition for his work communicating climate science to decision-makers, in 2009, Focus magazine named him Swede of the year. For his scientific contributions towards the Paris Climate Agreement he was given the French distinction as Knight of the Legion of Honour. He is the 2017 Hillary Laureate, and recipient of the Cosmos Prize and the German Environment Prize.

Johan Rockström is, together with Ottmar Edenhofer, joint Director of the Potsdam Institute for Climate Impact Research and holds an ERC Advances Grant based at the Stockholm Resilient Centre, Stockholm University.



Martin Vetterli

President, Ecole Polytechnique Fédérale de Lausanne (CH)

ERC Advanced Grant

Martin Vetterli works in the areas of **electrical engineering, computer sciences and applied mathematics**. Supported by the ERC, he developed a theory and framework for signal processing and communications with wide ranging applications. He showed that we can “hear” the shape of a room, using a microphone and algorithms that make sense of echoes. This could have applications for indoor location devices or assistive devices for both the visually and hearing impaired people.

Prof. Vetterli received a *Diplome d'Ingénieur* from *Eidgenössische Technische Hochschule* (ETHZ) in 1981, a Master of Science from Stanford University in 1982, and a Doctorate in Sciences from the Ecole Polytechnique Fédérale de Lausanne (EPFL) in 1986. After his dissertation, he was an Assistant and Associate Professor in Electrical Engineering at Columbia University in New York, and in 1993, he became an Associate and then Full Professor at the Department of Electrical Engineering and Computer Sciences at the University of California at Berkeley. In 1995, he joined the EPFL as a Full Professor. He held several positions at EPFL, including Chair of Communication Systems and founding director of the National Competence Center in Research on Mobile Information and Communication systems (NCCR-MICS). From 2004 to 2011, he was Vice President of EPFL for international affairs, and from 2011 to 2012, he was the Dean of the School of Computer and Communications Sciences. From 2013 to 2016 he was President of the National Research Council of the Swiss National Science Foundation. He is the current president of *École Polytechnique Fédérale de Lausanne* (EPFL) in Switzerland."

His work won him numerous prizes, like best paper awards from EURASIP in 1984 and of the IEEE Signal Processing Society in 1991, 1996 and 2006, the Swiss National Latsis Prize in 1996, the SPIE Presidential award in 1999, the IEEE Signal Processing Technical Achievement Award in 2001 and the IEEE Signal Processing Society Award in 2010. He is a Fellow of IEEE, ACM and EURASIP, was a member of the Swiss Council on Science and Technology (2000-2004), and is a ISI highly cited researcher in engineering.



Eyal Weizman

Professor of Spatial and Visual Cultures Goldsmiths,
University of London (UK)

ERC Starting Grant; ERC Consolidator Grant

Eyal Weizman is Professor of Spatial and Visual Cultures and founding director of the Centre for Research Architecture at Goldsmiths, University of London. In 2010, he founded the research agency Forensic Architecture and directs it ever since. The work of the agency is documented in the exhibition and book *Forensis* (Sternberg, 2014), as well as in *Forensic Architecture: Violence at the Threshold of Detectability* (Zone/MIT, 2017) and in numerous exhibitions worldwide. In 2007, he set up, with Sandi Hilal and Alessandro Petti, the architectural collective DAAR in Beit Sahour/Palestine. This work is documented in the book *Architecture after Revolution* (Sternberg, 2014). In 2013 he designed a permanent folly in Gwangju, South Korea which was documented in the book *The Roundabout Revolution* (Sternberg, 2015). His other books include *The Conflict Shoreline* (Steidl and Cabinet, 2015), *Mengele's Skull* (Sternberg, 2012), *The Least of all Possible Evils* (Verso, 2011), *Hollow Land* (Verso, 2007), *A Civilian Occupation* (Verso, 2003). Weizman is on the editorial board of *Third Text*, *Humanity*, *Cabinet* and *Political Concepts* and is on the board of directors of the Centre for Investigative Journalism (CIJ) and on the Technology Advisory Board of the International Criminal Court (ICC) in The Hague. He previously sat on the advisory boards of the ICA in London and B'Tselem in Jerusalem, amongst others. He graduated in architecture in 1998 from the Architectural Association in London and completed his PhD at the London Consortium/Birkbeck College in 2006.

He was awarded with ERC Starting Grant in 2010 which helped him to develop a new field of research: **forensic architecture**. ERC further supported his work with a Consolidator Grant in 2015, which enabled his team to respond to new challenges in the field of forensic architecture, i.e. the **media environments of conflict**.

Background

The European Research Council, set up by the EU in 2007, funds the very best, creative scientists and their boldest ideas. The ERC helps to make Europe more competitive and more attractive to scientific talent from anywhere in the world. To date, some 9,000 top researchers, both young and more senior, have been backed via ERC grants. ERC-funded research has led to some 80% breakthroughs/major scientific advances, according to a recent independent study. It has also been shown that, since the ERC's launch, Europe has narrowed the gap with the USA regarding highest impact research.

The ERC is led by an independent governing body, the Scientific Council, chaired by ERC President Jean-Pierre Bourguignon. The overall ERC budget from 2014 to 2020 is over €13 billion, as part of the EU's Horizon 2020 programme, for which European Commissioner for Research, Innovation and Science Carlos Moedas is responsible.

INTERVIEW OPPORTUNITY

Members of the ERC delegation are available for interviews.

For scheduling, please contact:

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PRESS CONFERENCE

The Science of Healthy Ageing

Thursday 24 January 2019

12.30 – 13.00

Media Village, Press Room

with

[Carlos MOEDAS](#), European Commissioner
Jean-Pierre BOURGUIGNON, ERC President
Constantinos DEMETRIADES
Dame Linda PARTRIDGE
Virpi LUMMAA

[Live-steamed](#)
