Deutsche Forschungsgemeinschaft
University Alliance Ruhr
HSE University

Leibniz Lecture

Prof. Dr. Dr. h. c. Onur Güntürkün

Biopsychology
Faculty of Psychology
Ruhr University Bochum

Gottfried Wilhelm Leibniz Prize 2013
Communicator Award 2014

Date & Time: **Friday, December 6, 2019, 17:00**
Venue: **HSE University**
Myasnitskaya 11, Moscow

The lecture will be held in English

Cognition without a Cortex

About the lecture:

Corvids and parrots have the same cognitive abilities as apes. How is it possible that birds without a cortex and just about a 12g brain can cognitively compete with an ape that has a 400g brain and a large cortex? The lecture will show that bird brains have astonishingly similar forebrain circuits, although their brains look at the first glance radically different from our mammalian brains. Possibly, most of these similarities evolved in convergent manner during 300 million years of evolution. Thus, evolution repeatedly invented similar neural solutions both in birds and mammals. This is only possible, when nature faces limited degrees of freedom to craft neural circuitries for complex cognitive operations. Despite these similarities, there is one glaring difference: Birds achieve the same cognitive abilities with far less neurons. Thus, birds evolved an up to now unknown mechanisms for neural computations that are more efficient than what we have in our mammalian brain.

About the speaker:

In 2013 Onur Güntürkün received the Leibniz Prize as one of the pioneers of biological psychology and one of the most important representatives of his field. Güntürkün's work is characterized by the joining of psychological, biological, and neuroanatomical questions, concepts, and findings from comparative behavioural and neurosciences. One of his main areas of interest is the evolution of thought. Güntürkün has radically modified the established view that the evolution of thought followed a gradual evolutionary path, primarily linked to the development of the neocortex. Güntürkün also exhibits extraordinary creativity in his methods, such as in his research into functional brain asymmetries in pigeons.

In 2014 he was awarded the Communicator Award, conferred by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) and the Donors' Association for the Promotion of Sciences and Humanities in Germany. The jury was impressed by the way in which Güntürkün combined high academic quality with a dedication to communication with the general public and the media.

Born in Izmir in Turkey, Onur Güntürkün attended school in Baden-Baden and Izmir, returning to Germany to study psychology in Bochum and earn his doctorate. He has held research posts in Paris and San Diego. He habilitated in Konstanz and was appointed Professor of Biopsychology at Bochum in 1997.

The **Deutsche Forschungsgemeinschaft (DFG, German Research Foundation)** is the largest independent research funding organisation in Germany. It is an association under German private law. Its member organisations include German universities, non-university research institutions, academies of sciences and humanities, and scientific associations. It serves all branches of science and the humanities by funding research projects and facilitating cooperation among researchers.

The DFG facilitates national and international cooperation among researchers, provides scientific policy advice and fosters relations with the private sector. It also promotes gender equality in the German scientific and academic communities and encourages the advancement and training of early career researchers.

The **Gottfried Wilhelm Leibniz Prize** has been awarded by the DFG every year since 1986 to exceptional scientists and academics for their outstanding achievements in the field of research. This most prestigious research award in Germany aims to improve the working conditions of outstanding scientists and academics, expand their research opportunities, relieve them of administrative tasks, and help them employ particularly qualified early career researchers. A maximum of €2.5 million is provided per award.

The Leibniz Lecture is a format used by the DFG to invite Leibniz Prize laureates for lectures, seminars and visits abroad in order to stimulate dialogue between the laureates and the research community, as well as with the broader public in the host country.

The DFG organises **Leibniz Lectures** in different regions around the world in order to promote German science, especially at locations where it has its own foreign representations, such as in Brazil, Russia, India, China, Japan, and the USA. Germany's scientific relations with Russia are part of a lively, centuries-old tradition. Russia is particularly significant for the German scientific system and is a priority country in the DFG's international activities. The DFG has maintained an intensive scientific dialogue with Russia for decades and, since 2003, has supported the development of bilateral cooperation through its own representative office in Moscow, the **DFG Office Russia/CIS** (http://www.dfg.de/ru). As well as being the DFG's liaison office, it functions as a local point of contact for Russian scientists, providing advice and supervising in cooperation programmes.

In 2012, the DFG Office organised the first Leibniz Lecture in Moscow. Since then, the following lectures have been held annually in the Russian Federation:

- 2018: Wolfgang Ertmer (Institute of Quantum Optics, Leibniz Universität Hannover), "Quantum Metrology at the Quantum Frontiers", Peter the Great St. Petersburg Polytechnic University;
- 2018: Frank Allgöwer (Institute for Systems Theory and Automatic Control, University of Stuttgart), "Networked Cybernetics: From the Classical Feedback Loop to the New Cybernetics of the 21st Century", German-Russian Institute of Advanced Technologies, Kazan;
- 2017: Wolfgang Ertmer (Institute of Quantum Optics, Leibniz Universität Hannover), "Cold Atom Based Quantum Metrology", Faculty of Physics, Lomonosov Moscow State University (MSU), Moscow;
- 2016: Hartmut Leppin (Goethe-Universität Frankfurt/Main), "Antikes Christentum und Religiöse Gewalt" (Античное христианство и религиозное насилие), Scientific Library of Lomonosov Moscow State University (MSU), Moscow;
- 2015: Hartmut Leppin (Goethe-Universität Frankfurt/Main), "Demut und Macht: Die christlichen Kaiser der Spätantike (Смирение и власть: императоры-христиане позднего Рима)", Russian State University for Humanities, Moscow;
- 2014: Günter Ziegler (Freie Universität Berlin), "Sugar Cubes, Soap Bubbles, A Revolution and A Star: Some Stellar Images between Mathematics and Physics", Steklov Institute of Mathematics, Saint Petersburg Branch;
- 2013: Günter Ziegler (Freie Universität Berlin), "Cannons at Sparrows: Cutting Polygons via Configuration Spaces", Library Hall, Hotel Balchug, Moscow;
- 2012: Matthias Kleiner (DFG President), "Strategic Research in Engineering – Advanced Light Metal Extrusion for Low Energy Design", Lomonosov Moscow State University, Moscow.