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Two further ERC Advanced Grants for IST Austria

Thomas Henzinger and Peter Jonas receive 5 m € for five years

The Institute of Science and Technology Austria (IST Austria) has been informed by the European Research Council (ERC) that two of its professors have been awarded ERC Advanced Investigator Grants. Computer Scientist Thomas Henzinger, the President of IST Austria, will research aspects of “Quantitative Reactive Modeling”; Neuroscientist Peter Jonas will investigate the “Nanophysiology of fast-spiking, parvalbumin-expressing GABAergic interneurons.” Both grants combined amount to approximately 5 million € for five years starting in 2011. These allocations raise the number of ERC Advanced Grants awarded to IST professors to three: Nick Barton (Evolutionary Biology) succeeded in receiving this grant in early 2010. This means that currently more than half of the tenured professors of IST are funded by the ERC. In addition, Assistant Professor Sylvia Cremer (Evolutionary and Behavioral Biology) transferred her ERC Starting Grant from her former position at the Universität Regensburg to IST Austria. As of summer 2010, 18 ERC Advanced Grants have been awarded to scientists working in Austria.

Formal verification is a central field of research of Professor **Thomas Henzinger**. This method aims to improve the quality of software by detecting errors before they do any harm. Henzinger and his group propose to introduce “quantitative fitness measures” for programs, specifically measuring the function, performance, resource use, and robustness of reactive programs such as concurrent software processes. The intention of this approach is to improve current methods based on a boolean partition of software into correct and incorrect programs, which fall short of the practical need to assess the behavior of software in a more nuanced fashion against multiple criteria. Thomas Henzinger explains the approach: “The theory will be evaluated not only in the context of hardware and software engineering, but also in the context of systems biology. In particular, we plan to use the quantitative reactive models and fitness measures developed in this project funded by the ERC Advanced Grant for testing hypotheses about the mechanisms behind data from biological experiments.”

Professor **Peter Jonas** intends to examine elements of fast-spiking, parvalbumin-expressing GABAergic interneurons in the dentate gyrus, a part of the hippocampal formation, which is thought to contribute to new memories. Jonas plans to do this by applying cutting-edge subcellular patch-clamp methods, imaging techniques, and computational approaches. The fast-spiking, parvalbumin-expressing GABAergic interneurons play a key role in the function of cortical neuronal networks. The goal of the project is to obtain a quantitative nanophysiological picture of the signaling in this key type of hippocampal GABAergic interneurons. Peter Jonas summarizes the intention of this interdisciplinary research project: “This has far-reaching implications for our understanding of the contribution of interneurons to neuronal coding and brain energetics. Furthermore, the results will lay the basis for the development of new therapeutic strategies against diseases of the nervous system, in which GABAergic interneurons are impaired.”

ERC Advanced Investigators Grants

The **ERC Advanced Investigator Grant** (ERC Advanced Grant) funding scheme allows exceptional established research leaders in any field of science, engineering, and scholarship to pursue frontier research of their choice. Research proposed for funding to the ERC should aim high, both with regard to the ambition of the envisaged scientific achievements as well as to the creativity and originality of proposed approaches, including unconventional methodologies and investigations at the interface between established disciplines. Proposals should rise to pioneering and far-reaching challenges at the frontiers of the field(s) addressed, and involve new, ground-breaking or unconventional methodologies, whose risky outlook is justified by the possibility of a major breakthrough with an impact beyond a specific research domain/discipline. The evaluation of proposals lies in the hands of 25 peer review panels covering all fields of science, engineering, and scholarship. Each of these panels is composed of 10-15 distinguished researchers acting as independent experts in the subject area of the panel. In June the ERC selected its 1000th grantee (Advanced and Starting Grants) since its launch in 2007.

Set up in 2007 by the EU, the **European Research Council** is the first pan-European funding organization for frontier research. It aims to stimulate scientific excellence in Europe by encouraging competition for funding between the very best, creative researchers of any nationality and age.

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IST Austria

The Institute of Science and Technology (IST Austria) is a PhD granting research institution located in Klosterneuburg, 18 km from the center of Vienna, Austria. Inaugurated in 2009, the Institute is dedicated to basic research in the natural and mathematical sciences. The Institute employs professors on a tenure-track system; postdoctoral fellows; and doctoral students at its international graduate school. While dedicated to the principle of curiosity-driven research, the Institute owns the rights to all scientific discoveries and is committed to promote their use. The first president of IST Austria is Thomas A. Henzinger, a leading computer scientist and former professor of the University of California, Berkeley, and the EPFL in Lausanne, Switzerland.