ETH zürich

Press Release

Success with ERC Consolidator Grants

Three ETH projects funded

Zurich, 19 December 2016

Three ETH Zurich researchers have received ERC Consolidator Grants from the European Research Council (ERC). Their projects will each receive approximately 2 million Swiss francs in funding.

Three projects from researchers at ETH Zurich have been awarded ERC Consolidator Grants based on their scientific excellence. The projects will each receive funding of up to 2 million Swiss francs and address topics including the security of wireless digital networks, partial differential equations and "frequency combs" (see brief descriptions). Detlef Günther, ETH Zurich Vice President for Research and Corporate Relations, is very pleased by the European Research Council awards: "These are exceptional research projects that will generate essential basic knowledge in their respective fields. The research funding awards are very well deserved."

Horizon 2020 has a positive impact

Swiss researchers have long faced doubts as to whether they would continue to receive funding from the ERC. Switzerland would only retain its full association in Horizon 2020, the largest European research programme, if the Federal Council ratified the Croatia protocol in time – and it did, confirming the ratification to the EU on Friday. Günther is relieved: "After a long period of uncertainty, researchers in Switzerland now know what to expect and can once again head up major European research projects and apply for ERC grants. I have no doubt that Switzerland's renewed full association in Horizon 2020 will have a positive impact on our international research collaborations."

High success rate again this year

Of the seven ETH Zurich projects put forward for ERC Consolidator Grants, three were approved, equating to a success rate of 42.8 percent. By comparison, the average success rate for Consolidator Grant applications in the rest of Europe was 15 percent. The three award-winning projects continue ETH Zurich's successes over the past few years: since Switzerland became a partially associated country in 2014, ETH Zurich has received a total of 11 Advanced Grants, 4 Consolidator Grants and 15 Starting Grants from the ERC, generating around 63 million Swiss francs in ERC funding for the University.

An overview of the three projects:

Srdjan Capkun (*1976) is a Full Professor for Information Security in the Department of Computer Science. His research aims to make computer systems and networks more secure. One of his main focus areas is the security of wireless digital networks that cyber-physical systems like autonomous cars and drones use in order to navigate independently and communicate with each other. In order to be successful, these systems need continuously sound information on their own locations as well as on the positions of others – but today's positioning systems are vulnerable to location spoofing and manipulation. In his project, Capkun plans to design a positioning system that takes security requirements into account from the very start, and also accounts for the way that positioning systems are built and used.

Italian-born **Alessio Figalli** (*1984) has been Full Professor in the Department of Mathematics since September 2016. He works on the theory of optimal transportation and is an expert on functional and geometric inequalities. He plans to use his ERC Grant to attack fundamental problems in the field of partial differential equations and the calculus of variations, including the problem of how to transport resources most efficiently from one place to another. He is also interested in the long-time behaviour of solutions to partial differential equations that can be used to model tumour growth, as well as the fine properties of solutions to partial differential equations in quantum mechanics and plasma physics, such as the Schrodinger and the Vlasov–Poisson equations.

Giacomo Scalari (*1972), Senior Research Scientist at the Institute for Quantum Electronics, is interested in the terahertz (THz) portion of the electromagnetic spectrum. THz builds a bridge between optics and electronics and acts a gate to sensing applications and spectroscopy. Scalari's research addresses "frequency combs", which act as rulers in the frequency domain and can measure the frequency of electromagnetic radiation – including light – very precisely. Scalari will use his ERC Consolidator Grant to create on-chip, self-referenced frequency combs operating in the THz spectral range, where there is currently no compact comb source available. These devices will be appealing for metrology and material inspection, non-invasive imaging for medical applications, and wireless communication.

Further Information

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ERC Consolidator Grant
The European Research Council (ERC) offers several funding schemes, such as the ERC Starting Grant for talented young researchers and the ERC Advanced Grant for established leading researchers. The ERC Consolidator Grant provides support to emerging leading researchers with 7 to 12 years of experience since completing their PhDs who can demonstrate a promising track record and a desire to consolidate the successful work of their research group. The projects are selected on the basis of their scientific excellence and are funded with up to 2 million Swiss francs over five years.
ERC Consolidator Grant→