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Four researchers from the University of Bern are awarded EU research prizes

Four of the highly-regarded “ERC Consolidator Grants”, the research prizes of the European Research Council (ERC), have been awarded to researchers at the University of Bern. This reflects the excellence of the research in Bern – especially in the fields of medicine, as well as in space and climate research.

With an ERC Consolidator Grant from the European Research Council (ERC), outstanding researchers are provided with support in the development of, or the continuation of, their own research team at a public or private research institute in either an EU member state or an associated country. The ERC Consolidator Grants support excellent researchers who can demonstrate an impressive previous record of achievement and are interested in creating their own research groups. With a value of approximately 2 million euros, the “ERC Consolidator Grant” is exceptionally generous, and is awarded for a time frame of five years.

Confirmation of excellent research

All of the candidates at the University of Bern who submitted a research project at the European Research Council and were invited to Brussels for an interview, were awarded the highly regarded research prize. “The fact that all of the candidates from the University of Bern have secured this funding highlights the excellent, internationally acknowledged work which is completed here each day,” explains Daniel Candinas, Vice-Rector for Research. “The international support of the ERC reinforces our work in the development of solutions for current societal challenges in the areas of medicine, space and climate research,” continued Candinas.

The funding will enable more than a dozen doctoral students and post-docs to be appointed during a five-year period and therefore support the advancement of talented young staff. “The University of Bern strongly supports the promotion of young scientists. We are very happy to have been given this opportunity to advance more talented young staff,” explained Candinas. This success is also attributable to the support provided by the University of Bern: “At our Grants Office, we offer our researchers professional advice, networking opportunities and coaching with funding applications.”

Countering environmental change with satellite observations

The Earth is subject to continuous environmental changes. Satellite observations provide the required data basis for being able to record such changes, to quantify them, to understand the

underlying mechanisms and finally, to become aware of the societal challenge presented by the observed environmental changes. “The Astronomical Institute of the University Bern (AIUB) has many years of experience in the high-precision analysis of satellite geodetic data,” explains Adrian Jäggi, manager of the SPACE TIE project, which has been awarded an ERC grant. The objective of the project is to develop new paths for the determination of a long-term stable reference frame, which is needed for a best possible recording of climate-relevant changes with amplitudes of 1 to 3mm per year, such as sea level rise. “The Bernese GNSS Software, which will play a key role for the developments of the SPACE TIE Project, has been under development at the AIUB for many years,” continues Jäggi.

Cardiac regenerative capacity in the zebrafish

The TRANSREG project (Transgenerational epigenetic inheritance of cardiac regenerative capacity in the zebrafish), which is supported by the ERC, is researching the impact of previous wounds on the cardiac regenerative capacity of the zebrafish. The issue of whether previous wounds affect the healing and regeneration of tissue is a general question in regenerative medicine and is expected to be of importance also for the development of therapies in humans – especially in the area of cardiac regeneration. According to Nadia Mercader of the Institute of Anatomy, who is leading the project, in this respect, the interdisciplinary environment of the University of Bern and the contacts between clinical and basic research is of importance. The project will also benefit from the long-term planning for doctoral students and post-docs: “It is often the case that researchers only have short-term appointments, which only allows the research to be planned over the short and medium term. The TRANSREG project requires long-term planning – and the University of Bern provides us with this possibility, of which we are very appreciative,” explains Mercader. For Mercader, it is the second time she has received support from the European Research Council: As a junior researcher, she was awarded an [ERC Starting Grant](#).

Improving the measurement of the climate performance of the ocean

The third project to be funded by the ERC, SCrIPT (Stable Chromium Isotopes as a Productivity Tracer), which is being led by Samuel Jaccard of the Institute of Geological Sciences and the Oeschger Centre for Climate Change Research (OCCR), aims at providing insights into the future of the oceanic carbon cycle in the light of global warming. To this end, a new geochemical tool is being developed to quantify the strength of the “biological carbon pump” based on stable chromium (Cr) isotopes. The biological carbon pump is one of the key mechanisms for the removal of CO₂ from the atmosphere and its subsequent sequestration in the ocean interior. During photosynthesis, phytoplankton convert dissolved inorganic carbon dioxide in the ocean into organic material. The combination of a variety of additional complex processes leads to a net transfer of carbon from the Earth’s surface to the depths of the sea. However, despite its predominant role in the global carbon cycle, the biological carbon pump remains poorly constrained. For Samuel Jaccard, being able to conduct his research at the Institute of Geological Sciences and the Oeschger Centre is a major benefit: “The Institute of Geological Sciences has a cutting-edge infrastructure for isotope analyses, which is a key requirement for the project. The considerable variety of expertise in the Oeschger Centre for Climate Change Research will also be of important benefit for the successful completion of the research program,” explains Jaccard.

The impact of volcanic eruptions on climate stability

Volcanic eruptions are a global environmental risk, and have had a major impact on the history of the Earth, the climate, and humanity. As volcanoes send high volumes of greenhouse gases into the atmosphere, they can cause droughts, crop failure and famines. To be able to forecast the likelihood and consequences of extreme events of this kind, it is necessary for us to gain a superior understanding of the impact of volcanic eruptions on the development of the climate in the past, the present and the future. This is the objective of the THERA (Timing of Holocene volcanic eruptions and their radiative aerosol forcing) project, which is being led by Michael Sigl, who is moving from the Paul Scherrer Institute (PSI) to the Oeschger Centre for Climate Change Research at the University of Bern. With the use of drilled ice cores, the goal is to reconstruct global volcanic activity since the last ice age. "The multi-disciplinary structure of the Oeschger Centre enables synergies with the research into volcanic activity and the climate," explains Sigl. The University of Bern is playing a world-leading role in reconstructing the history of our climate.

The ERC Grants

The "European Research Council" (ERC), which was founded by the European Union in 2007, is the first pan-European funding agency for leading-edge basic research. The role and mission of the ERC is to support the independent research of the best scientists in Europe. Researchers in Bern have now been awarded a research prize 21 times.

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