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EU-funded research grants for two researchers from Bern

Two researchers from the University of Bern will receive an *ERC Consolidator Grant* this year. The coveted European Research Council (ERC) grants go to physicist Akitaka Ariga and geographer Chinwe Ifejika Speranza.

An ERC Consolidator Grant from the European Research Council (ERC) provides support to outstanding researchers to establish or maintain their own research team at a public or private research institution within the EU or an associated country. The grants, which are part of the EU research framework program "Horizon 2020", are each endowed with approximately 2 million euros and are awarded for a period of five years.

Relevant for Europe

At the University of Bern, this year's grant will fund the FASERnu project of PD Dr. Akitaka Ariga from the Laboratory for High Energy Physics (LHEP) and the SUSTAINFORESTS project of Prof. Dr. Chinwe Ifejika Speranza from the Institute of Geography.

"The success in this competitive bid in Europe is proof that research which is relevant for Europe is being conducted at the University of Bern," says Daniel Candinas, Vice-Rector for Research at the University of Bern. "It is very important that researchers from Swiss universities are represented in the European setting and that they establish networks there".

FASERnu: studying neutrinos at CERN

Neutrinos are the least studied particles in the Standard Model of particle physics. Given their peculiar features, they are believed to be a key to understanding our universe. In FASERnu, neutrinos will be studied using the Large Hadron Collider (LHC) at CERN in Geneva. "It will be the first experiment using particle colliders for neutrino research, and it will also be the only neutrino experiment to be conducted in Europe with a particle accelerator this decade," says Akitaka Ariga. "We expect to collect data from about 10,000 neutrino interactions in the years 2022-2024". FASERnu should thus represent a breakthrough in neutrino research.

The largest part of this ERC grant will be dedicated to the promotion of early career researchers. "FASERnu is a small project compared to the standard of particle physics experiments, so it will be a valuable experience for PhD students and postdocs as they will be involved in all steps of the experiment: detector construction, data acquisition and physics analyses," says Akitaka Ariga. "The Laboratory for High Energy Physics at the Albert Einstein Center of the University of Bern (AEC)

has a tradition of developing particle detection technologies which are tailored for many physics purposes. In recent decades, this has been increasingly focused on neutrino research".

SUSTAINFORESTS: Forest patches in West African agricultural landscapes

The SUSTAINFORESTS project analyzes the roles of forest patches in the highly fragmented agricultural landscapes of the rainforest and savannah zones of West African countries Togo, Benin, Nigeria and Cameroon. "The innovative potential of these areas as biodiversity habitats, for adapting to climate change and mitigating climate change continues to be neglected," explains Chinwe Ifejika Speranza. The project will investigate how forest patches preserve livelihood functions and even provide new ecosystem services such as food. "I will also investigate the conditions under which these forest patches can have a sustainable future," says Ifejika Speranza. The results should clarify the theories about forest patches in agricultural landscapes and open up paths for new research. The knowledge gained will be incorporated into efforts to conserve forest areas and to promote sustainable agriculture and forest management.

"The funds from the grants will be used to train geographers at the beginning of their careers," says Chinwe Ifejika Speranza. "With my team of researchers from Africa, Europe and other regions of the world, I will conduct field research on selected tropical forest patches in West African forest and savannah regions to understand their dynamics and functions and to learn how they can be managed sustainably". Generating and communicating such knowledge about the shift towards sustainability is an important focus of research and teaching at the University of Bern, says Ifejika Speranza.

More information about the people involved can be found on the next page.

About PD Dr. Akitaka Ariga

During his studies at the University of Nagoya in Japan, Akitaka Ariga started studying neutrino oscillations. He was later involved in the OPERA experiment, which studied neutrino beams from CERN to Gran Sasso, Italy. In 2008 he came to the University of Bern as a postdoctoral fellow of Prof. Antonio Ereditato. Since 2012, Ariga has been Swiss representative in the international OPERA collaboration. Ariga led the analysis in the OPERA project for the discovery of neutrino oscillations, which was awarded the Nobel Prize in 2015. Since 2018 Ariga has been a lecturer. Afterwards, he has been furthering tau-neutrino studies (projects DsTau, FASERnu). Furthermore, Ariga has been involved in interdisciplinary projects using particle physics techniques, namely immunological studies with Theodor Kocher Institute, and glaciological studies with the Institute of Geology.

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About Prof. Dr. Chinwe Ifejika Speranza

Since 2016, Chinwe Ifejika Speranza has been Professor of Geography and Sustainable Development at the University of Bern. She heads the research unit on Land Systems and Sustainable Land Management, is currently Director of the Institute of Geography and board member of the Centre for Development and Environment (CDE). From 2013 to 2015 she was Professor of Geography with a focus on "Environmental Risks and Vulnerability Research" in the joint master's program "Geography of Environmental Risks and Human Security" at the United Nations University in Bonn and the University of Bonn, Germany. Between 2010 and 2016 Ifejika Speranza was Senior Research Scientist at the CDE and the Institute of Geography at the University of Bern. Prior to that she was a senior researcher at the German Development Institute, Bonn and group leader in the Department of Geoinformation and Surveying of the Canton of Lucerne.

Chinwe Ifejika Speranza holds a PhD from the University of Bern. Previously she studied at the University of Zurich and the University of Nigeria, Nsukka, Nigeria.

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