
Charles University gets two prestigious ERC starting grants

PRESS RELEASE

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Prague, July 27th, 2018 – Two scientists associated with Charles University, Matyáš Fendrych from the Faculty of Science and Ondřej Pejcha from the Faculty of Mathematics and Physics, have received the prestigious scientific awards of the European Research Council, the so-called ERC Starting Grants (ERC StG).

Matyáš Fendrych, Ph.D., studied Biology at the Faculty of Sciences of Charles University and completed his PhD at the Institute of Botany of the Czech Academy of Sciences. Since he returned to the Czech Republic after having worked for several years with research institutes in Belgium and Austria, he has been building a research team at the Faculty of Sciences of Charles University. "The ERC Starting Grant will allow me to build a team and attract top students and researchers not only from abroad", hopes Dr Fendrych.

Information on CELLONGATE Project:

While cell migration plays a crucial role in animal cell development, plants build their bodies through careful cell division and precise cell growth control. The reason is that the plant cells are encased by a solid cell wall that resists the hydrostatic pressure inside the cells. Even though the control of cell growth is in the epicenter of plant development and their response to the ambient environment, the molecular pathways steering the developmental cell growth onset, coordination and termination remain elusive. This is also the case with the plant hormone auxin; although it is the central regulator of cell growth, the molecular mechanism of its effect is unknown. The aim of the project is to unravel this molecular mechanism and understand how plants grow at the molecular and cellular level. "Our model system is the root of the thale-cress (*Arabidopsis thaliana*), in which we will combine the search for genes and proteins with special microscopy that will allow us to see physiological processes in high spatio-temporal resolution. A detailed understanding of plant growth mechanisms opens the door to understanding one of the essentials of the plant life", explains Dr Fendrych.

Mgr. Ondřej Pejcha, Ph.D., is a graduate of Bachelor's and Master's Studies at the Institute of Theoretical Physics of the Faculty of Mathematics and Physics of Charles University. He continued his studies at Ohio State University, where he completed his PhD. Subsequently he worked for four years as a postdoctoral Hubble and Lyman Spitzer Jr. Fellow at Princeton University. Currently he is working on a joint Primus project at the Institute of Theoretical Physics of the Faculty of Mathematics and Physics of Charles University and the Astronomical Institute of Charles University. "I think that Primus is a unique programme in the Czech Republic that gives the researcher a great freedom of scientific research", adds Dr Pejcha.

Information on Cat-In-hAT Project:

The project, called in full The Catastrophic Interactions of Binary Stars and Associated Transients, will deal with interactions between binary stars that significantly change their parameters such as weight or orbital time. In some cases, these interactions may also conclude in the merging of the two stars into one exotic object. These processes are important for explaining the origination of a number of interesting objects in astronomy, such as tight binary stars composed of white dwarfs, neutron stars and black holes. This category may also include binary black holes which can eventually merge emitting gravitational waves, as recently discovered within the LIGO and Virgo projects. "The specific objective of my project is the development and application of new modelling methods to investigate this issue", explains Ondřej Pejcha. "With the ERC grant, I want to expand my existing team by postgraduate and postdoctoral students who will deal directly with this problem. Personally, I will be able to dedicate myself fully to scientific research for up to 5 years thanks to the grant", concludes Pejcha.

Both scientists admit that the training provided by the ERC University Coordinator Prof. Zdeněk Strakoš helped them substantially through the grant procedures. "The newly earned ERC grants are a confirmation of the successful and effective support that University employees receive and, above all, the high level of scientific research at the University", said Prof. Tomáš Zima, the Rector of Charles University.

In addition to the ERC grants, Matyáš Fendrych and Ondřej Pejcha are also holders of the Primus projects. Primus is a Charles University programme which aims to support young scientists in setting up new scientific teams and laboratories. In highly competitive environment of dozens applications, a panel of experts select twenty top-ranked projects of young researchers, consequently supported by a grant amounting up to three million CZK per year. One of the long-term goals of the competition is to increase the University's success in obtaining international grants, which now proves to be a successful model. Matyáš Fendrych has received the Primus project for the years 2019–2021 for Unraveling the molecular network that steers cell growth in plant cells. Ondřej Pejcha has earned the Primus project titled Theory and observations of astronomical transients: core-collapse supernovae and stellar mergers, which runs from September 2017 to 2020 and deals with discoveries of “new” stars in the sky.

The European Research Council (ERC) funds the “frontier research”, i.e. research leading beyond the current horizons of knowledge, across all disciplines. It supports individual investigators (Principal Investigator, PI) and their research teams. The only evaluation criterion is scientific excellence of both the project design and the researcher him- or herself. This, in addition to previous results in the field, assumes that the researchers set an entirely new and revolutionary hypothesis (that is not just a continuation of their earlier achievements) which can greatly influence the given field of study, move its frontiers, or open new research perspectives. In recent years, the number of ERC grants has become an informal measure of the quality of European research institutions.

For further information, please see

<https://erc.europa.eu/>

<https://erc.europa.eu/news/mini-organs-ultrafast-filming-erc-invests-early-career-researchers>

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