

## Four new episodes of "exzellent erklärt - Spitzenforschung für alle"

Start Time: Thursday, September 15, 2022

End Time:



57 Clusters of Excellence - one podcast: "Exzellent erklärt" reports regularly from one of the research networks that are funded as part of Germany's Excellence Strategy. All clusters of excellence share a common motivation: they address important topics of our time, work on unusual questions and conduct research for the society of tomorrow.

Five new episodes of the podcast "exzellent erklärt" were released from May to July. Listen in and follow us!

<https://exzellent-erklaert.podigee.io/>

### [Archaeology - Learning from yesterday for today](#)

Released on 15. July 2022

[Prof. Johannes Müller](#) and [Dr. Katharina Fuchs](#) conduct research on various issues that affect our roots. Their research is about climate change, sustainability, inequality & identity, mobility & migration and conflicts. It is astonishing that on closer examination our current topics are not as

new as they seem to us. Humans have been changing their environment for thousands of years, for example through hunting. And migration has also always existed, as Prof. Johannes Müller points out.

The Cluster of Excellence "[ROOTS - Social, Environmental and Cultural Connectivity in Past Societies](#)" is located at Christian-Albrechts-Universität zu Kiel. It investigates the roots of social, ecological and cultural phenomena and processes that have significantly shaped human development in the past. In addition to archaeologists and historians, numerous natural science disciplines are involved, including genetics, botany, geography, geology and climate research. Philosophical and sociological aspects are also being examined. The basic assumption is that humans and the environment have profoundly shaped each other, creating socio-ecological relationships that persist to this day. A better understanding of the intertwined socio-ecological dynamics of the past offers perspectives on how to deal with today's economic, environmental and social challenges and crises.

## [Cancer research - Getting to the heart of cancer with modified T-cells](#)

**Released on 01. August 2022**

Cancer is the second most common cause of death in Germany. Among 45- to 65-year-olds, cancer is even the most common cause of death. The Cluster of Excellence "[iFIT](#)" is therefore researching new and innovative treatment options to get a grip on this insidious disease. An important part of this is our immune system. How do we get our own immune system to take control of cancer?

T-cells play a crucial role. They recognise foreign proteins when they are presented on an endogenous cell. However, they cannot always perceive the tumour cells as a threat. In order for T-cells to be able to recognise and kill tumour cells, junior research group leader [Dr. Judith Feucht](#) and her team are investigating a new possibility: with the help of a genetic engineering procedure, the body's own T-cells can be converted in the laboratory into chimeric antigen receptor T-cells, or CAR T-cells for short, and then transferred back into the human organism. Equipped with these antigen receptors, the T-cells are then able to detect and fight the tumour cells in the body.

But how can we check whether the therapy is actually effective? This is where [Prof. Dr. Bettina Weigelin](#) and her research group come in. Equipped with state-of-the-art intravital microscopes, they bring to light what would not be visible to the human eye alone: How the modified T-cells fight the tumour cells. Working together, the two scientists can precisely observe whether the modified T-cells are doing their job and decide whether they need to be improved in the laboratory.

In the Tübingen Cluster of Excellence „[Image-Guided and Functionally Instructed Tumor Therapies](#)” (iFIT), more than 130 researchers are working to better understand fundamental tumour biological processes in order to develop new and innovative cancer therapies. Scientists from the research areas "Functional Target Identification and Molecular Tumour Therapies", "Immunotherapies" and "Molecular and Functional Multiparametric Imaging" work hand in hand in an interdisciplinary environment.

## [What is our future made of? Active materials and bio-inspired design](#)

**Released on 01. September 2022**

The Cluster of Excellence "[Matters of Activity](#)" is about the question of active materiality. The interdisciplinary approach they have created themselves gives researchers the opportunity to look at the central questions from different angles: How do we deal with materiality in the age of digitalisation? Can other understandings of materiality lead to other modes of production or other ways of living? Other topics include sustainability and bio-inspired design, for example textiles that use mechanisms from nature to become active materials themselves.

"[Matters of Activity](#)" investigates the intrinsic activity of materials, which can be discovered as a new source for innovative strategies and mechanisms for rethinking the relationship between analogue and digital and for developing sustainable and energy-efficient technologies. In the process, biology and technology, mind and material, nature and culture intertwine in novel ways.

## [The "ORIGINS of Life Lab": Searching for the origin of life](#)

**Released on 15. September 2022**

How did life come into being? Very little is known about the beginnings of life. The [Cluster of Excellence ORIGINS](#) in Munich is trying to create life in the laboratory. The researchers do not want to trace the biological evolution reflected in the family tree of animals, plants and microorganisms. They are thinking rather of very rudimentary forms of life: of the first molecules that were able to reproduce themselves and pass on information independently. Such units must have developed in an evolution of molecules from far simpler building blocks.

What is dark matter? Where do stars and galaxies come from? How did life arise on Earth and is there life elsewhere in the universe? These and other questions are precisely what the [Cluster](#)

[of Excellence ORIGINS](#) is researching with more than 120 working groups from the fields of astrophysics, biophysics and particle physics. ORIGINS is a joint project of the Ludwig Maximilian University (LMU) and the Technical University of Munich (TUM). The Max Planck Institutes for Plasma Physics, Astrophysics, Extraterrestrial Physics, Physics and Biochemistry, the European Southern Observatory, the Leibniz Computing Centre and the German Museum are also involved. The spokespersons for the cluster are Professor Andreas Burkert (LMU) and Professor Stephan Paul (TUM). The interdisciplinary research network has been funded under the Excellence Strategy of the German federal and state governments since January 2019 and builds on the globally acclaimed research achievements of the Universe Cluster of Excellence (2006-2018).