New episodes of the podcast "exzellent erklärt"

Start Time: Tuesday, July 1, 2025

End Time:

Every month, the podcast “exzellent erklärt” presents a research topic from one of the 57 clusters of excellence in Germany. The journey goes right across the country, and the topics are just as diverse as the locations.

Here, we give a little recap of the last ten episodes. An absolute recommendation for anyone who likes podcasts and is interested in science (and understands German)! Find it wherever you get your podcasts, and here: www.exzellent-erklaert.podigee.io

The texts for the individual episodes have been translated into English from the “exzellent erklärt” website.

Interlinked paths to energy

Released on 01 July 2025

What will we be fueling in the future? Probably no more fossil fuels - but biohybrid fuels that protect the climate, are produced sustainably and can be used in existing engines. In this episode of Exzellent erklärt - Spitzenforschung für alle, we talk to two leading scientists from the Cluster of Excellence "The Fuel Science Center": Prof. Dr. Dörte Rother and Prof. Dr.-Ing.

Andreas Jupke.

They explain how plant residues, CO_2 or even plastic can be turned into sustainable fuels - and what enzymes, microorganisms and new chemical processes can do. It's about interdisciplinary research, energy-efficient processes, interlinked catalysis and realistic future scenarios beyond the electric car. An exciting journey to the filling station of the future.

The Fuel Science Center – Adaptive Conversion Systems for Renewable Energy and Carbon Sources is an interdisciplinary research cluster involving RWTH Aachen University, Forschungszentrum Jülich and other institutions such as the MPI CEC in Mülheim. The aim is to develop alternatives to fossil fuels - so-called biohybrid fuels - that are based on renewable raw materials, CO_2 or recycling streams. Researchers from biotechnology, chemistry, process engineering and other disciplines are working together on innovative, sustainable material conversion and separation processes. In addition to fuels, they are also developing new platform chemicals for industry.

Precision medicine for chronic inflammatory diseases

Released on 01 June 2025

What if therapies were no longer prescribed according to the principle of “trial and error”, but were precisely tailored to your body? This episode is about precision medicine for chronic inflammatory diseases. This modern approach should make it possible to find the most suitable therapy for each individual - with the help of biomarkers, artificial intelligence and lots of data.

The Cluster of Excellence PMI (“Precision Medicine in Chronic Inflammation”) combines basic research and clinical application in a particularly interdisciplinary way. The aim is to better understand chronic inflammatory diseases such as rheumatism, psoriasis and chronic inflammatory bowel disease - and to develop tailored therapies for each patient. Doctors, bioinformaticians, molecular biologists and other specialist areas are working closely together, supported by modern data analysis and AI technology. The focus is on the vision of detecting inflammation at an early stage, treating it better and curing it in the long term.

Quantum computers: a precision game with boxing gloves

Released on 01 May 2025

The episode provides insights into current developments in quantum research and quantum computers. Prof. Tommaso Calarco talks about the challenges of practical implementation and the role of networks such as ML4Q. He will also emphasize how interdisciplinary collaboration and strategic funding can help Europe to keep up with the global race for quantum innovations.

Particularly exciting is the discussion about the synergies between machine learning and quantum technologies, which open up new opportunities for optimization and scaling.

ML4Q (Matter and Light for Quantum Computing) is a Cluster of Excellence dedicated to the research and development of quantum computing technologies. The network brings together researchers from solid-state physics, quantum optics and quantum information to push the boundaries of quantum information technology. ML4Q connects several universities and research institutions in Germany and plays a key role in the development of innovative approaches for quantum processors and networks.

Life in the deep sea: Secrets of the ocean floor

Released on 01 April 2025

In this episode, we dive deep into the unexplored world of the deep sea. Larissa Vassilian talks to scientists Dr. Florence Schubotz and Dr. Michael Seidel about life in the deep biosphere, the global carbon cycle and the fascinating black smokers - hot springs on the sea floor that provide extreme habitats for specialized organisms. The focus is on the adaptability of microorganisms, the role of the oceans in climate change and the effects of human influences such as microplastics and deep-sea mining. A journey to the last unexplored regions of our planet!

The Cluster of Excellence "The Ocean Floor - Earth's Uncharted Interface" at MARUM at the University of Bremen is dedicated to researching processes on the ocean floor, one of the last unknown regions of our planet. This is where geological, biological, chemical and physical processes come together that are of crucial importance not only for marine life but also for the global climate. Among other things, scientists are investigating the role of the deep sea in the carbon cycle, hydrothermal vents and the unique habitats on the seabed. The aim is to gain a better understanding of these complex systems in order to better assess the impact of humans on the oceans and develop sustainable protection strategies.

Financial science: How fair is spousal splitting?

Released on 01 March 2025

This podcast episode is about spousal splitting - a tax procedure that has been debated in Germany for decades. Together with Felix Bierbrauer, Professor at ECONtribute at the University of Cologne, we take a look at the economic and political implications of splitting, shed light on questions of fairness, efficiency and social incentives and discuss why reforms are so difficult to implement.

ECONtribute Markets & Public Policy is the only Cluster of Excellence with a focus on economics and related disciplines, supported by the Universities of Bonn and Cologne. It has set itself the goal of advancing the analysis of markets and public policy against the backdrop of fundamental social and technological challenges such as digitalization, global financial crises, rising inequality, political polarization and climate change.

Neuroscience: Repair mechanisms in the brain

Released on 01 February 2025

This episode focuses on the Munich Cluster of Excellence SyNergy. Topics include research into common neurological diseases such as Alzheimer's, multiple sclerosis and stroke, the self-healing powers of the brain and the cluster's interdisciplinary approach. Current advances in repair mechanisms, the importance of neuronal plasticity and the use of modern technologies such as AI for research will be discussed.

The SyNergy Cluster of Excellence brings together leading scientists from various disciplines to conduct interdisciplinary research into common neurological diseases such as Alzheimer's, multiple sclerosis and stroke. The focus is on understanding the common mechanisms of these diseases and developing innovative approaches for diagnosis and therapy. SyNergy specifically promotes collaboration between basic research and clinical practice in order to bring together findings from different disciplines.