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Ute Kehse

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University of Oldenburg celebrates sensational success after securing funding for three Clusters of Excellence

It has been a resounding victory for the University of Oldenburg: all three top-level research projects that submitted proposals to be Clusters of Excellence in the Excellence Strategy of the German federal and state governments have been approved and will receive funding for seven years. The Clusters focus on hearing research, animal navigation and marine sciences.

This is already the third time the hearing researchers of the Hearing4all Cluster have succeeded with their application. The total requested funding amount was 53.5 million euros. The Oldenburg team had once again joined forces with hearing researchers from Hannover to compile their application. The NaviSense initiative led by the Oldenburg experts in animal navigation research will receive funding as a Cluster of Excellence for the first time, after applying for a total of 54.7 million euros. And in the field of marine research, the University of Oldenburg can also celebrate after jointly applying with the University of Bremen and receiving approval for a total of 54.2 million euros in funding for the Ocean Floor Cluster of Excellence.

"As a young university, we are especially proud to see that all the Clusters of Excellence we applied for were able to convince the international reviewers. This proves once again that top-level research is conducted at the University of Oldenburg," said University President Prof. Dr Ralph Bruder. "Our scientists are achieving outstanding research results and will now continue their work in research fields with high social relevance under excellent conditions."

Today's successful performance in the Cluster of Excellence funding line also paves the way for the University of Oldenburg to receive funding as a University of Excellence from 2027 onwards. The Universities of Oldenburg and Bremen have decided to apply jointly as partners for this funding line.

"Our two universities have a tradition of close collaboration and have set themselves the goal of further boosting their impact and appeal at the national and international level. We are now underscoring this mission by submitting a joint application for the University of Excellence funding line, and thus forging ahead with our ambitious plans in a targeted manner," University President Bruder explained. As recently as the beginning of this year, the Universities of Oldenburg and Bremen founded the Northwest Alliance, a joint research and transfer centre in Germany's northwest region.
The Clusters of Excellence

Hearing Research: Hearing4all

The Cluster aims to improve the prediction, diagnosis, and treatment of hearing loss. Hearing4all (H4a) has already achieved significant results over the course of two previous funding periods since 2012. Now, under the new guiding theme Hearing4all.connects, the research alliance encompassing the University of Oldenburg, Hannover Medical School, and Leibniz University Hannover will expand to include additional disciplines, enabling an even more comprehensive investigation of hearing loss. In the coming years, researchers will pursue new genetic approaches to

predicting, diagnosing, and treating hearing loss. They will also explore how artificial intelligence can enable hearing aids and cochlear implants to distinguish more effectively between important and irrelevant sound sources.

Another key area of research involves the development of shared data standards. These standards will enable the training of AI-based systems that can predict an individual's probability of hearing loss. Researchers also aim to transform hearing aids into comprehensive hearing health systems, using sensor data collected at the ear to provide long-term health data and early indicators for declining health.

Hearing4all also seeks to better understand the real-life challenges people with hearing loss face. Researchers will investigate the role of multilingualism in hearing, conduct studies outside the lab in real-world environments, and explore the importance of hearing in social interactions. Close collaboration with non-university partners remains a central component of the cluster's work, supporting the rapid transfer of research findings into practical applications.

Cluster spokesperson Prof. Dr Christiane Thiel: "Over the past 13 years, the three participating universities and external partners have built a unique ecosystem for hearing research. This now enables us to apply new technologies – in areas such as genetics or AI – to achieve hearing restoration that comes as close as possible to natural hearing and empowers those affected to fully participate in diverse communication settings. Together with our outstanding team, I'm excited to initiate a new era of hearing health research, one that addresses hearing holistically: from ear, to brain, to society."

Applicant Universities: University of Oldenburg (coordinating institution), Hannover Medical School (MHH), Leibniz University Hannover

Other Partner Institutions: Hörzentrum Oldenburg gGmbH, Fraunhofer Institute for Digital Media Technology, IDMT, Oldenburg Branch for Hearing, Speech and Audio Technology HAS, Jade University of Applied Sciences Wilhelmshaven / Oldenburg / Elsfleth, Laser Zentrum Hannover e.V.

Animal navigation: NaviSense

The mission of the NaviSense team is to gain a thorough understanding of how animals navigate over long distances. Its findings will be incorporated into nature conservation strategies and technological innovations such as quantum technologies and autonomous navigation systems. The team's research is divided into four research foci: in the first, the underlying mechanisms of magnetoreception and other senses that animals use to navigate are investigated. The magnetic and celestial compass as well as the processing of sensory information in the brain are also studied in detail. As the magnetic sense of birds seems to be based on a quantum effect, the second research focus is on quantum physical phenomena – in particular phenomena which occur at ambient temperature, like magnetoreception. Most of today's quantum technologies can only be implemented at extremely low temperatures. Therefore, it would be a major step forward if we can understand how quantum physical processes can be controlled at higher temperatures.

In the third research focus, the team aims to use the findings from navigation biology research in nature conservation. Migratory animal species are particularly affected by climate change and habitat loss, however, efforts to rewild endangered species in new and suitable locations often fail. The goal is to develop better, science-based conservation strategies. In the fourth research focus, the NaviSense scientists will develop and test models and algorithms for virtual and real-world robotic systems that are inspired by animal navigation, for instance sensors or autonomous navigation systems.

Cluster spokesperson Prof. Dr Henrik Mouritsen: "I am very happy that our research has been evaluated to be world class. The new Cluster of Excellence "NaviSense" will enable us to perform cutting edge research with major impact on science, society and conservation. Animal migrations move millions of tonnes of biomass across the globe, making

navigating animals essential for global ecosystems. Thus, understanding how they use their senses to navigate over long distances is therefore of vital importance. The positive cluster evaluation also confirms that the decade-long strategic planning and hiring of world class scientists from a wide range of fields has paid off. What I am personally most proud of is the very special Oldenburg interdisciplinary and collaborative spirit we have developed and which was an essential part of this success. Now we can take the next big steps together as a team."

Applicant university: University of Oldenburg

Other participating institutions: University of Bayreuth; Institute of Avian Research (IAR) in Wilhelmshaven

Marine research: Ocean Floor

Oldenburg researchers have been involved as a partner in the University of Bremen's Ocean Floor Cluster of Excellence ("The Ocean Floor – Earth's Uncharted Interface") since 2019. The Universities of Oldenburg and Bremen jointly submitted the current application for renewal of funding. In the Cluster, they will pool their expertise with the aim of further advancing our understanding of the role of the ocean floor in biogeochemical cycles and biodiversity under changing climatic conditions. With its research, the Cluster will contribute to a scientific basis for the protection and sustainable use of the oceans.

The ocean floor acts as a dynamic interface and fulfils wide-ranging functions for the entire Earth system. The researchers in the Cluster investigate the processes that control global matter fluxes towards, above and in the ocean floor. This involves deciphering the processes that regulate the transport of biogenic particles to the ocean floor and their transformation under changing environmental conditions, analysing the transfer of carbon and other elements between the ocean floor and seawater, and understanding how ecosystems on the ocean floor react to environmental changes. In view of the scientific and technological complexities, these objectives can only be achieved in the context of an interdisciplinary research network.

The Ocean Floor Cluster of Excellence has been based at the University of Bremen's MARUM – Center for Marine Environmental Sciences since 2019. While Bremen focuses on the geology and paleoecology of the ocean floor, including a strong focus on technology development for investigating these environments, the University of Oldenburg contributes primarily expertise in the areas of biodiversity research, biogeochemistry, modelling and microbiology.

In total, around 160 scientists at various stages of their careers and from a variety of disciplines such as marine and geosciences, palaeoclimatology, palaeoceanography, micropalaeontology, marine (bio)geochemistry, geobiology, palaeoecology, petrology, hydrology, data science and statistics will conduct research in the Cluster.

Spokesperson for the Cluster (University of Oldenburg) Prof. Dr Helmut Hillebrand: "Processes on the ocean floor play a key role in the Earth's climate and all important biogeochemical cycles. We very much look forward to shedding further light on these exciting processes together with our partners from Bremen and Bremerhaven over the next seven years in the prolonged Cluster of Excellence. The University of Oldenburg's expertise in the fields of marine biodiversity, data science and Earth system modelling contributes decisively to completing the Cluster of Excellence's interdisciplinary profile."

Applicant universities: University of Bremen (Managing University); University of Oldenburg

Participating institutions: Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI) in Bremerhaven; Constructor University in Bremen; Hanse-Wissenschaftskolleg Institute for Advanced Study (HWK) in Delmenhorst; Helmholtz Institute for Functional Marine Biodiversity (HIFMB) at the University of Oldenburg; Max Planck Institute for Marine Microbiology (MPI-MM) in Bremen; Leibniz Centre for Tropical Marine Research (ZMT) in

Bremen

wissenschaftliche Ansprechpartner:

Contact Hearing4all: Prof. Dr Christiane Thiel, *49-441-798-3641, christiane.thiel@uol.de
Contact NaviSense: Prof. Dr Henrik Mouritsen, *49-441-798-3081, henrik.mouritsen@uol.de
Contakt Ocean Floor: Prof. Dr Helmut Hillebrand, *49-4421-944-102 or *49-471-4831-2542, helmut.hillebrand@uol.de

URL zur Pressemitteilung: https://uol.de/exzellenz/presse
URL zur Pressemitteilung: https://hearing4all.de/
URL zur Pressemitteilung: https://navisense.org/
URL zur Pressemitteilung: https://www.marum.de/en/The-Ocean-Floor.html

Happy about the success (from left to right) University President Ralph Bruder, Christiane Thiel, Hearing4all spokesperson, Henrik Mouritsen, NaviSense spokesperson, and Helmut Hillebrand, Ocean Floor spoekesperson for Oldenburg.
University of Oldenburg / Markus Hibbeler