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Pressedienst

Four out of four!
Outstanding success for Universität Hamburg

The German Research Foundation (Deutsche Forschungsgemeinschaft, DFG), the German Council of Science and Humanities (Wissenschaftsrat, WR), and the Joint Science Conference in Bonn have just announced that Universität Hamburg has been granted 4 clusters of excellence. An outstanding success for the University: all 4 of its cluster applications have now been awarded excellence status.

Exploring fundamental and topical scientific questions and conducting world-class research: clusters of excellence are interdisciplinary and cross-institutional research collaborations in which numerous scientists and scholars focus on especially relevant related topics. That Universität Hamburg was granted funding for 4 clusters of excellence is a major achievement in and of itself; more astounding is this success with regard to the fact that Universität Hamburg's applications were submitted as single institution applications and not completed within a university network. When the competition began, 195 applications were submitted to the DFG, of which only 88 advanced to the last round. 57 will be funded as clusters of excellence. In the next few days the DFG will inform the University of the amount of total funding.

Naturally, the University's president Prof. Dr. Dr. h.c. Dieter Lenzen, who followed the announcement on the big screen with researchers and many other staff members involved in the process at his side, is thrilled. "I am utterly delighted that the scientific community and policy makers alike recognize the quality of research being conducted at Universität Hamburg! The funding will enable us to conduct intensive, world-class research on 4 extraordinarily pressing environmental and social issues in the upcoming 7 years. I would like to thank all participating scientists and scholars as well as our administrative staff, who invested a great deal of time and energy into the elaborate application process. It is quite an achievement!"

The announcement that all 4 applications have been successful and will be funded from January 2019 onward is also an occasion for celebration as it means that Universität Hamburg fulfills the requirement to submit an application to the WR for the title of "University of Excellence."

Download images of Prof. Dr Dr. h.c. Lenzen, cluster spokespeople, and scientific images at: http://uhh.de/download-exstra

For queries or requests for interviews with Prof. Dr. Dr. h.c. Dieter Lenzen contact:

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The clusters of excellence

Photon and Nanosciences: Advanced Imaging of Matter

The cluster focuses on questions such as "What makes atoms move the way they do?" and "How does this create new structures with special functions?"

Examples include superconductors in certain crystals or the movements of molecule groups in proteins that lead to molecular recognition in biological processes. These special functions are not inherent in the individual building blocks. They only arise when the building blocks interact.

To understand such complex processes, researchers in physics, chemistry, and structural biology work together. For their research, they can make use of internationally unrivaled infrastructure that has emerged in the last 10 years on the Bahrenfeld campus, especially the equipment that allows them to see the movement of atoms in real time. The researchers now want to discover the principles behind the evolution of special features and how to control them. This would enable us, for example, to develop new medicines, computers with enormous performance potential, or material for the loss-free transmission of electricity.

Cluster spokesperson Prof. Dr. Prof. Dr. Klaus Sengstock: "This is very good news for the larger metropolitan region of Hamburg as a locus of science and research. We are pursuing pioneering work and laying the groundwork for future innovation, for example in the material sciences and medicine. The Advanced Imaging of Matter Cluster of Excellence now has an opportunity not only to continue, but also to advance its research."

A total of 160 people will work in the cluster, including researchers in the fields of physics, chemistry, and structural biology.

Participating faculties: Faculty of Mathematics, Informatics and Natural Sciences

Other participating institutions: Helmholtz Association DESY, Max Planck Institute for the Structure and Dynamics of Matter, European XFEL GmbH

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Climate research: Climate, Climatic Change, and Society (CliCCS)

The cluster focuses on questions such as "Is it possible to limit global warming to 2 degrees or, even better, 1.5 degrees? If yes, how?" and "What could the future look like physically and which scenarios are plausible in a larger social context?"

To answer these questions, we need to know how people perceive climate change, what effective long-term decisions are being made, and how these impact and are impacted by the physical climate. There is a clear global climate trend. At the same time, climate variability is so great that the effects in some places seem milder than expected at first or even contradictory. This makes it difficult to make predictions and to motivate people to change. Furthermore, it is not just the climate that is so dynamic; societies change, too, generally and in some cases in response to climate change itself, which in turn further impacts the climate.

The cluster's climate research covers natural and societal aspects, and develops and reviews adaptation scenarios for sample cities and coasts. It yields important knowledge for policy makers and contributes to a purposeful climate policy. In addition to the University, the Max Planck Institute of Meteorology, the Helmholtz-Zentrum Geesthacht, and the Deutsches Klimarechenzentrum are participating. Climate research has proven than human beings contribute to climate change. The Paris Agreement has resulted in new challenges for scientists.

Cluster spokesperson Prof. Dr. Detlef Stammer, Center for Earth System Research and Sustainability (CEN): "The Paris Agreement brings new scientific challenges: How can we limit the warming of the Earth to 2 or, even better, 1.5 degrees Celsius? What are the likely and what are the plausible climate scenarios of the future? Against this backdrop, it is both good and necessary that we can now pursue this research project. How do people perceive climate change, what effective long-term decisions can we make, and how will these impact the climate in turn? The Climate, Climatic Change, and Society (CliCCS) Cluster of Excellence can provide policy makers and society at large with this information and it will significantly advance international climate science."

Roughly 230 people from 15 disciplines (including oceanography, meteorology, biology, sociology, economics, humanities) are involved in the cluster.

Participating faculties: Faculty of Mathematics, Informatics and Natural Sciences; Faculty of Business, Economics and Social Sciences; Faculty of Humanities

Participating institutions: Max Planck Institute for Meteorology, Helmholtz-Zentrum Geesthacht, Deutsches Klimarechenzentrum, 8 further scientific institutions—many of which are members of the KlimaCampus Hamburg.

Queries:

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Mathematics, Particle Physics, Astrophysics, Cosmology: Quantum Universe

The cluster focuses on questions such as “How can particle physics and gravity help us understand the development of the universe after the Big Bang?”

The discovery of the Higgs boson and the first observation of gravitational waves are among the most spectacular scientific achievements of the last several years. They confirm 2 basic principles of physics: the mass generation of elementary particles in quantum physics and Einstein’s Theory of General Relativity. Astrophysical observations, however, show that previous descriptions of nature are incomplete. Most mass in the universe consists of unknown or “dark matter” while anti-matter known from lab experiments does not appear in the cosmos. Furthermore, the observed accelerated expansion of the universe needs to be described using a new type of energy, namely “dark energy.” All of these observations are related to the physics of the Big Bang. Thus, the research team consists of leading scientists from the fields of mathematics, particle physics, astrophysics, and cosmology. The mysteries of mass and gravity will govern research in the coming decades.

Cluster spokesperson: Prof. Dr. Jan Louis “This is a great success for all of the involved researchers from physics and mathematics at Universität Hamburg and DESY. We are excited to work with the cluster of excellence to advance research in particle physics and gravity so that we might better understand the development of the early universe after the Big Bang. There will also be several public outreach opportunities. Everyone is invited to think about the basic issues of particle and astrophysics.”

Roughly 400 researchers in mathematics and physics (particle, astro-, and mathematical physics) work in the cluster.

Participating faculties: Faculty of Mathematics, Informatics and Natural Sciences

Other participating institutions: Helmholtz-Association DESY

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Manuscript Research: Understanding Written Artefacts

The cluster focuses on questions such as “Why do we need to sign contracts?”

Understanding Written Artefacts researches the development and function of written artefacts in manuscript cultures around the world, from their beginnings in ancient Mesopotamia to the digital era. The starting point is always the organic or inorganic written object consisting of hard or flexible material containing or bearing writing as well as traces of an object’s production, use, and, if applicable, conversion. The goal is to systematically record and examine the cultural diversity of written artefacts on the basis of their materiality. This will allow us, on the one hand, to recognize recurring patterns and, on the other, to document and preserve the diversity of manuscript cultures,

especially in Asia and Africa. Fifty scientists and scholars from greater Hamburg pursue this research collaboratively. This unique cooperation between natural scientists and humanities scholars will investigate the phenomenon of writing from a global perspective for the first time. The team will also enjoy the support of an international network of experts.

Cluster spokesperson Prof. Dr. Michael Friedrich: "Manuscript research has a decade-long tradition in Hamburg. Over the course of the past fifteen years a growing group of researchers from both the humanities and natural sciences has worked together investigating manuscript cultures of the past and the present. Core to this research area is the Collabarative Research Center 'Manuscript Cultures in Asia, Africa and Europa' as well as a number of European Research Council grants, long-term research projects as well as individual projects. The funding of the cluster will allow us to investigate all phenomena surrounding handwriting, not only with regard to manuscripts, but also inscriptions or the role of handwriting in the digital age. A good day for science, a good day for Hamburg!"

Roughly 300 scientists and scholars from a variety of fields will work in the cluster. Participating disciplines: Asian, African, and European philologies, art history and historical musicology, information and material sciences, human movement and psychology

Participating faculties: Faculty of Humanities, Faculty of Mathematics, Informatics and Natural Sciences

Other participating institutions: Helmut Schmidt University, Hamburg University of Technology, Universität zu Lübeck

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