

Cross of the Order of Merit for Britta Nestler

KIT Scientist Receives Cross of the Order of Merit in a Ceremony on the Occasion of the Day of German Unity



Federal President Frank-Walter Steinmeier presents the Cross of the Order of Merit of the Federal Republic of Germany to Britta Nestler of KIT. (Photo: Federal Government / Gero Breloer)

“Mut zur Zukunft: Grenzen überwinden” (looking boldly into the future: crossing borders) – under this heading, Federal President Frank-Walter Steinmeier presented the Cross of the Order of Merit of the Federal Republic of Germany to 25 citizens on the occasion of the Day of German Unity. One of the honored citizens is Professor Britta Nestler, who conducts research and teaches at both Karlsruhe Institute of Technology (KIT) and Karlsruhe University of Applied Sciences. She received the Cross for her scientific merits and in particular for her pioneer role in combining fundamental with applied research.

Federal President Frank-Walter Steinmeier presented the Cross of the Order of Merit to actors of the Peaceful German Revolution as well as to highly committed representatives of the arts, culture, and science. The KIT scientist was honored for her pioneer work in materials research. It is stated in the Federal President’s Office’s laudation

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that “Britta Nestler is two times a pioneer: The professor for informatics works at both Karlsruhe University of Applied Sciences and Karlsruhe Institute of Technology. She is building bridges between fundamental and applied research. Her computer models and simulations calculate the service life of materials and enable a more efficient and sustainable use of resources for everyday objects, industry production, or space research.”

Prior to the ceremony, Professor Britta Nestler commented: “I am very happy about this valuable recognition and consider the cross a confirmation of my understanding of science and its application in our effort to shape new materials along with the needs of society through modern multiphysics simulations. Science first of all is team work and in this sense, the Cross of the Order of Merit also is a distinction of my excellent colleagues and staff.”

“Professor Britta Nestler is an exceptional scientist and at the absolute top of her discipline. In 2001, she was Germany’s youngest professor and since then has been granted a number of prizes, including the renowned Gottfried Wilhelm Leibniz Prize in 2017,” says the President of Karlsruhe Institute of Technology (KIT), Professor Holger Hanselka. “Britta Nestler’s work in the area of computational materials science and her tireless commitment to collaboration across disciplines are of crucial importance to science and of high practical use for society. I cordially congratulate her on this highly deserved honor.”

“The Cross of the Order of Merit of the Federal Republic of Germany honors Professor Britta Nestler’s outstanding pioneer achievements in the area of computational materials science, an innovative research field largely shaped by her. The Cross equally acknowledges her personality and her sense of responsibility,” comments Professor Frank Artinger, President of Karlsruhe University of Applied Sciences.

About Britta Nestler’s Research and Career

Since 2010, Britta Nestler has been conducting research and teaching at Karlsruhe Institute of Technology (KIT), where she is member of the collegial management of the Institute for Applied Materials. Since 2008, she additionally has been Director of the Computational Materials Science and Engineering Department of the Institute of Materials and Processes of Karlsruhe University of Applied Sciences (HsKA), today’s Institute for Digital Materials Science. In 2008, she also established the Steinbeis Transfer Center “Materials Simulation and Process Optimization” headed by her. Since 2001, Britta Nestler has been professor of HsKA. Before, she spent several research periods abroad. She has four children.



*Britta Nestler, Professor for Microstructure Simulations in Materials Technology at KIT and for Digital Materials Science at Karlsruhe University of Applied Sciences.
(Photo: Sandra Goettisheim/KIT)*

How does the microstructure of a material evolve during manufacturing processes, such as casting of rolling or metal sheets? What is the influence of heat or mechanical stress on the service life of materials, e.g. in power plant boilers or solar facilities? To answer these questions, Britta Nestler studies the microstructures of materials by computer-aided simulations. In this way, the scientist gains insight into processes that could not be visualized before. By combining disciplines, she succeeds in developing realistic, three-dimensional models of materials.

Theoretical findings obtained from microstructure modeling on supercomputers are incorporated in close-to-practice research projects with industry to improve brake disks, corrosion prognoses, and medical diagnostics, among others. Her studies focus on the structure of crystals, fabrication processes, porous media, crack propagation, and the phase transition between liquid and solid when alloys solidify. As a materials researcher, she cooperates with geologists, e.g. to analyze the formation of grain structures in rock, and helps to better understand the processes of geologic history and the use of geothermal energy. In cooperation with energy researchers, she develops foam structures with integrated phase transition materials for the use in latent heat storage systems.

In 2000, Britta Nestler was conferred her doctorate by RWTH Aachen University, where she previously obtained her diplomas in physics and mathematics. As a third subject, she studied pedagogics and passed the first state examination. Among the prizes she has received so far is the DFG Leibniz Prize (2017) and the State Award for Applied Research (2007) of the Baden-Württemberg Ministry of Science, Research, and the Arts. Together with the HsKA Faculty of Computer Science and Business Information Systems, she received the State Teaching Award (2009). In addition, Nestler was granted the Research Prize of the Karlsruhe University of Applied Sciences in 2014, the Materials Science and Technology Prize of the Federation of European Materials Societies (FEMS) in 2004, and the Richard von Mises Prize of the Society for Applied Mathematics and Mechanics (GAMM) in 2002. Since 2010, Nestler has succeeded in acquiring funding for research and education in the amount of more than EUR 10 million.

About the Cross of the Order of Merit

The Cross of the Order of Merit is awarded by the Federal President to German and foreign citizens for political, economic-social, and intellectual achievements as well as for special services to the Federal Republic of Germany, e.g. in the social and charitable areas. It is the only general award recognizing merits in Germany and the highest acknowledgement of services for the public benefit by the Federal

Republic of Germany. The Cross of the Order of Merit is not associated with any financial allowance.

More information in German on the presentation of the Cross on October 02, 2019: www.bundespraesident.de/SharedDocs/Berichte/DE/Frank-Walter-Steinmeier/2019/10/191002-Verdienstorden-TdDE.html?nn=2236336



About HsKA:

With about 7850 students, Karlsruhe University of Applied Sciences is one of the largest universities of this kind in Baden-Württemberg and has a strong focus on research. The research profile of HsKA covers the areas of energy, mobility, and infrastructure; intelligent systems; and materials and processes. Scientific interconnection of research and education and intensive dialog with industry do not only sharpen the university's profile, they also guarantee a high quality of education and technology transfer to industry.

About KIT:

Being "The Research University in the Helmholtz Association," KIT creates and imparts knowledge for the society and the environment. It is the objective to make significant contributions to the global challenges in the fields of energy, mobility and information. For this, about 9,300 employees cooperate in a broad range of disciplines in natural sciences, engineering sciences, economics, and the humanities and social sciences. KIT prepares its 25,100 students for responsible tasks in society, industry, and science by offering research-based study programs. Innovation efforts at KIT build a bridge between important scientific findings and their application for the benefit of society, economic prosperity, and the preservation of our natural basis of life.

This press release is available on the internet at http://www.sek.kit.edu/english/press_office.php.

This year's **anniversary logo** recalls the milestones reached by KIT and its long tradition in research, teaching, and innovation. On October 1, 2009, KIT was established by the merger of its two predecessor institutions: the Polytechnic School and later University of Karlsruhe

was founded in 1825, the Nuclear Reactor Construction and Operation Company and later Karlsruhe Research Center in 1956.