

CELEST Member Short Profile



Britta Nestler

Since 2010, Britta Nestler has been a full professor for Microstructure Simulation in Materials Engineering at KIT as well as director of the Institute for Applied Materials – Materials Modelling and Simulation. In double position, she has been director of the Institute of Digital Materials Science (IDM), at the Karlsruhe University of Applied Sciences (HKA) since 2017. Before, she founded the Institute of Materials and Processes at HKA in 2008, which she directed executively until 2017. From 2006 to 2010, Britta Nestler was a professor (W3) at the Faculty of Computer Sciences of HKA. The direction of research is on microstructure simulation in materials science. She has developed material models and a simulation framework Pace3D to describe phase transformation and microstructure formation processes on the micrometer length scales and incorporating multiple physics such as mass and heat transfer, thermo-chemo-mechanics, fluid flow and electro chemistry. The aim is to achieve an accelerated material design by the support of high performance computations. Recently she is involved in the development of data science methods as integral part of the novel research data infrastructure Kadi4Mat. Her extraordinary research success was honored with a number of awards, the Order of Merit of the Federal Republic of Germany in 2019, the Gottfried-Wilhelm Leibniz prize of DFG in 2017, the research prize 2007 of the state Baden-Württemberg, the Materials Science and Technology Prize 2005 of FEMS and the Richard-von-Mises prize 2002 of the GAMM society. Britta Nestler is PI in Program 3, Topic 1, PI in the Joint Labs VMD and MDMC, and PI in MTET (KIT).

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Research areas

Her main research subjects are phase-field modeling of multicomponent and multiphase materials, multiphysics and multiscale microstructure simulation, high-performance materials simulation, and advanced data processing and data analysis.

Lab equipment (at MZE, campus south of KIT, and Karlsruhe Steinbeis-Haus (IDM), Karlsruhe University of Applied Sciences)

Research groups: Data-driven Modelling and Artificial Intelligence; High Performance Materials Simulation; Microstructure – Data Science; Diffusion; Fluid Dynamics; Mechanics; Multiscale Materials Modelling and Data Management, Research software: Pace3D (Parallel Algorithms for Crystal Evolution in 3D); KaDi4Mat (Karlsruhe Data Infrastructure for Materials Science)

Britta Nestler @ IAM-MMS

https://www.iam.kit.edu/mms/Mitarbeiter_nestler.php

Link IAM-MMS

<https://www.iam.kit.edu/mms/index.php>

Link lab equipment

<https://www.iam.kit.edu/mms/5130.php>

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