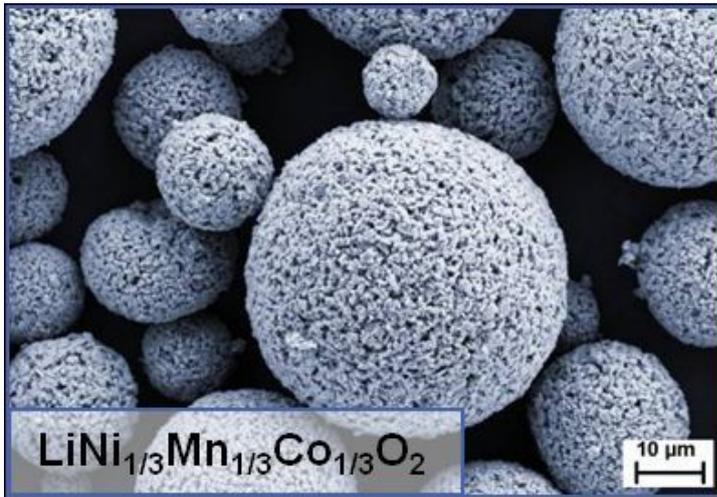


Pooled Materials Research at KIT

Newly Founded Institute for Applied Materials Will Pool the Competencies of KIT Materials Researchers to Advance Research Objectives



Scanning electron microscopy of a novel cathode material for high-performance lithium ion batteries. (Photo: Markus Schön, IAM-WPT)

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Thanks to materials science and technology, fried eggs no longer stick to the pan, computers calculate more rapidly, and tunnels can be drilled through massive rock. Increasingly complex technical challenges are faced by advancements in the research and development of materials. To bundle its competencies in this area, KIT has founded the Institute for Applied Materials (IAM) and plans to establish a new course of study.

With IAM, KIT aims to strengthen the position of materials science and technology and to assume a leading role in Germany in this field. The new institute pools the large scope of research competencies existing at KIT and makes them more visible to the outside. The competencies of IAM extend from materials processing technology to materials characterization and from testing to materials theory. The new institute contributes decisively to the KIT NanoMicro and Energy Centers and to the Mobility Systems Focus.

Presently, scientists are studying materials for lithium-ion batteries with the goal of developing novel batteries with increased power and energy density and at enhancing safety and reliability for electromobility. It is also focused on materials for use under extreme thermal and mechanical loads encountered in modern vehicle combustion engines, aircraft engines, and power plants. Such highly loadable materials also are of relevance to future nuclear fusion reactors. At IAM, deformation and damage processes of these high-temperature materials are investigated under conditions similar to operation and strategies are developed to extend their limits of usability. This work is the basis of resource-compatible engine and power plant technologies and CO₂ emission reduction.

“Foundation of the IAM is the consistent implementation of the idea of KIT in the field of materials science and technology. This field has a long tradition in Karlsruhe, but its national and international visibility was limited due to its separation into several institutes of the former Research Center and university,” says Professor Oliver Kraft, spokesman of IAM. “We are convinced that closer cooperation at IAM will result in a large step forwards and that we will be able to jointly manage large projects, such as the launch of the new study course or the materials science center for energy systems, much better.”

IAM now combines three institutes working under Helmholtz programmes with three institutes of the Department of Mechanical Engineering. More than ten professors and more than 300 employees are working at IAM. Materials research at KIT shall be further strengthened by the introduction of a new study course. It is planned to start bachelor and master programs in “Materials Science and Technology” with 70 places at the beginning of the 2011/2012 winter semester. This activity will be part of the 2012 extension program of the state of Baden-Württemberg to create new university places.

Karlsruhe Institute of Technology (KIT) is a public corporation and state institution of Baden-Württemberg, Germany. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.

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