



# Fields of Expertise

TU Graz's research activities are grouped into five strategic, forward-looking Fields of Expertise. Researchers engage in interdisciplinary cooperation and benefit from different approaches and methods, shared resources and international exchange.

## ● Advanced Materials Science

Editorial: Karin Zojer, Gregor Trimmel and Sergio Amancio

**The Hidden Life of Minerals: Can amorphous silica phases help to understand climate Change?**

Franziska M. Stamm

## ● Human & Biotechnology

Editorial: Gabriele Berg und Christian Baumgartner

**Algorithms in the Test Tube: How AI Accelerates Enzyme Engineering**

Daniel Kracher, Robert Peharz

## ● Information, Communication & Computing

Editorial: Kay Uwe Römer

**How Many Parameters Describe Nanostructures in Battery Materials?**

Matthias Neumann

## ● Mobility & Production

Editorial: Stefan Hausberger, Viktor Hacker, Rudolf Pichler

**Proven Mechanical Strengths and New Electric Prospects: Load-Dependent Automatic Shifting Transmissions as Enablers of Cost-Effective Electromobility**

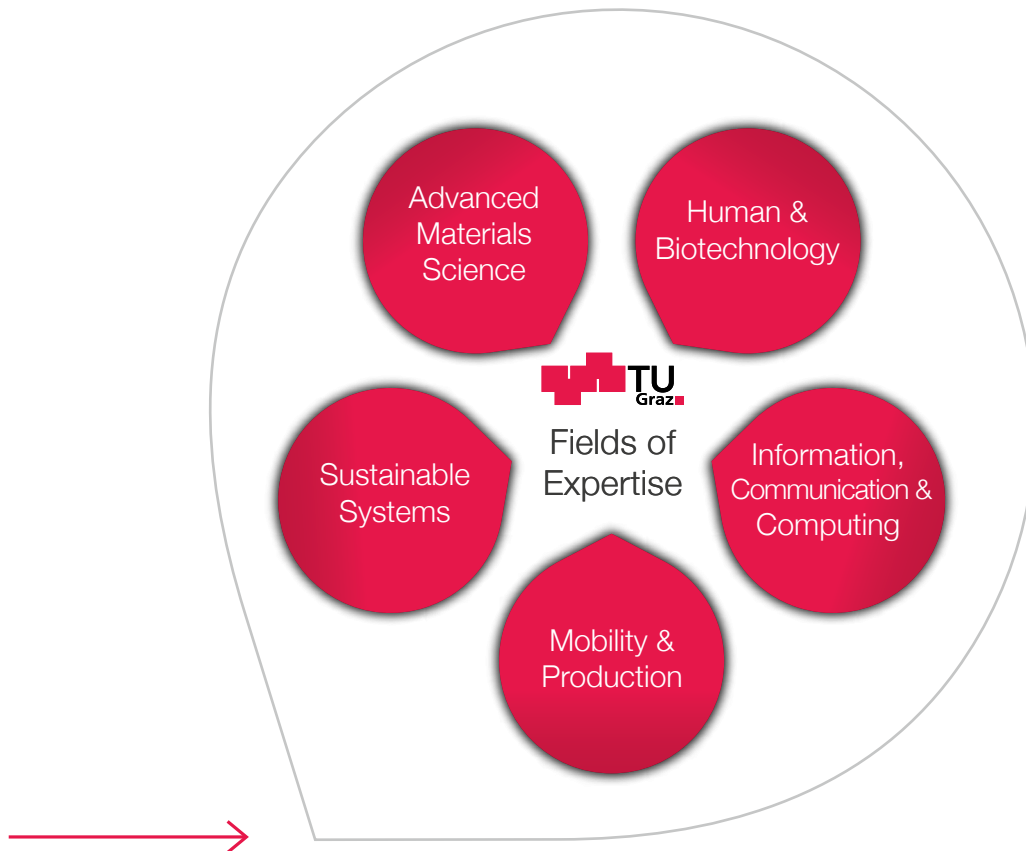
Jürgen Tromayer

## ● Sustainable Systems

Editorial: Urs Leonhard Hirschberg

**19th Symposium Energieinnovation "ENERGIZING EUROPE: Innovations for a Sustainable Energy Economy"**

Udo Bachhiesl, Sonja Wogrin



TU Graz divides its research into five innovative areas: the Fields of Expertise. Researchers in the Fields of Expertise break new ground in basic research. They take part in interdisciplinary cooperation, gain support for outstanding projects and are based in the region as well as part of international networks. They also develop key technologies for industry and commerce, and perform research in the framework of company shareholdings and partnerships.

Source: TU Graz

- **ADVANCED MATERIALS SCIENCE**  
Researchers aim to understand the smallest components in the structure and function of new materials, and develop and assemble them in special processes.
- **HUMAN & BIOTECHNOLOGY**  
Researchers develop devices and methods for medical applications and therapies, and focus on using enzymes and living microorganisms such as bacteria, fungi and yeast in technical applications.
- **INFORMATION, COMMUNICATION & COMPUTING**  
Researchers face challenges prompted by the information age, for example data security and efficient use of the ever-increasing volume of data.
- **MOBILITY & PRODUCTION**  
Researchers investigate novel vehicle technologies, new drive systems and more economical product manufacturing processes.
- **SUSTAINABLE SYSTEMS**  
Scientists focus on the complex challenges presented by a growing population and increasingly scarce natural resources.