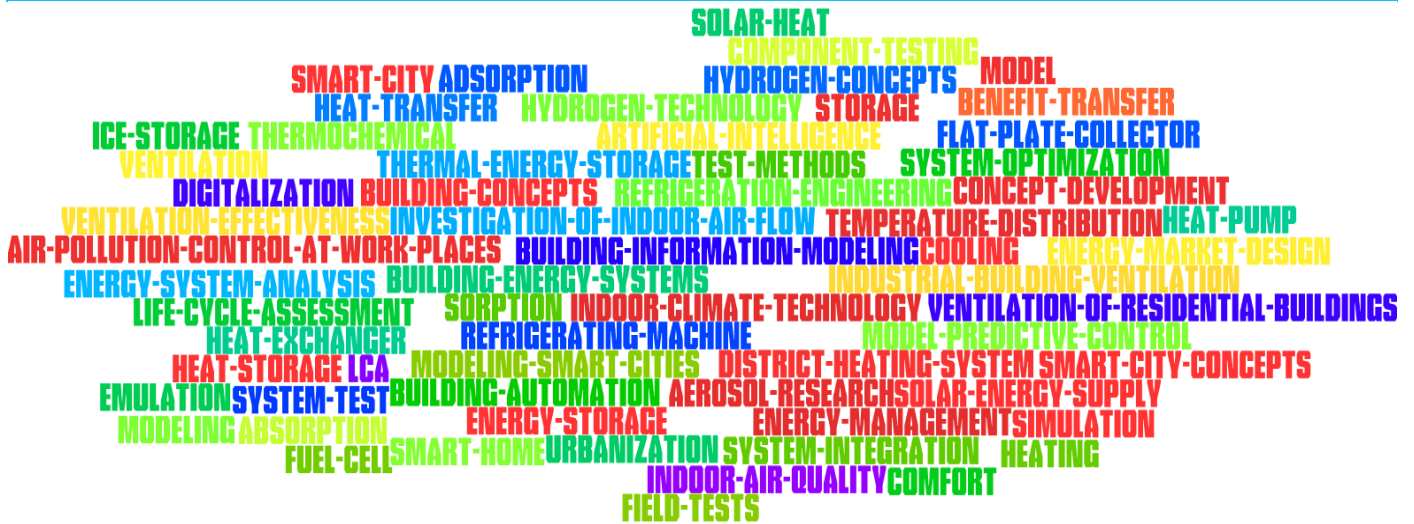




University of Stuttgart
Germany

Institute for Building Energetics,
Thermotechnology and
Energy Storage



OUR MISSION

We research and teach for comfortable living and working conditions in buildings and districts, in line with energy efficiency, sustainability and technology. Key aspects are energy storage, renewable energies, hydrogen technology and indoor climate technology.

- With latest methods and technologies, competent scientists develop sustainable solutions for the global energy conversion. For this purpose, we thoroughly explore buildings and districts, their technical components and systems as well as their integration and interaction in a comprehensive approach.
- We follow the demand development: from the use to the distribution, storage and generation of energy flows and mass flows.



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OUR FIELDS OF ACTIVITY

<p>HEAT TRANSFER AND REFRIGERATION ENGINEERING PROF. DR.-ING. KONSTANTINOS STERGIAROPOULOS</p> <ul style="list-style-type: none"> • Energy-efficient air conditioning of switch cabinets • Absorption heat pumps and absorption transformers in district heating systems • Diffusion-absorption refrigeration systems • Investigation of nucleation in ice storage • Simulation of refrigeration processes • Model-predictive control of heat pumps • Development of additively manufactured heat exchangers 	<p>SORPTION TECHNOLOGY DR.-ING. HENNER KERSKES</p> <ul style="list-style-type: none"> • Methods for thermochemical energy storage • Testing and characterization of storage materials • Development and demonstration of thermochemical energy storage • Numerical simulation of sorption processes • Adsorptive water harvesting from the air
<p>SUSTAINABLE BUILDINGS AND SMART CITY CONCEPTS DR.-ING. HARALD DRÜCK</p> <ul style="list-style-type: none"> • Solar energy supply concepts for buildings and districts • Solar district heating and seasonal thermal energy storage • Smart city concepts • Hydrogen technology and hydrogen concepts • Building materials, technologies and concepts as well as operational monitoring of sustainable buildings • Life cycle assessment (LCA) and life cycle costing (LCC) 	<p>THERMAL ENERGY STORAGE DR.-ING. HENNER KERSKES / DR.-ING. MICHA SCHÄFER</p> <ul style="list-style-type: none"> • Testing and evaluation of thermal storage • Simulation of thermal storage and systems • Analysis of transport processes and interface processes • Research of isentropic energy storage / Carnot batteries
<p>SYSTEMS AND COMPONENT TEST DR.-ING. STEPHAN FISCHER</p> <ul style="list-style-type: none"> • Development and testing of solar thermal systems and their components • Development of test methods • Accelerated ageing test and service life analysis • System monitoring and systems analysis • Product and production inspections 	<p>BUILDING ENERGY SYSTEMS AND BUILDING AUTOMATION DR.-ING. TOBIAS HENZLER</p> <ul style="list-style-type: none"> • Energetic evaluation of buildings and systems • Integrated concepts for heating, ventilation and air conditioning • Operating strategies for components and systems • Component test (field tests and emulation) • Smart home technologies • Digital twin, building information modeling (BIM) • Model-predictive control concepts for buildings
<p>INDOOR CLIMATE TECHNOLOGY PROF. DR.-ING. KONSTANTINOS STERGIAROPOULOS</p> <ul style="list-style-type: none"> • Benefit transfer in rooms • Indoor air quality and comfort • Ventilation effectiveness and efficiency • Home ventilation and air pollution control at work places • Indoor air flow investigation (numerical and real scale) • Aerosol Research 	<p>FUEL CELL TECHNOLOGY PROF. DR. ANDREAS FRIEDRICH</p> <ul style="list-style-type: none"> • Efficient electrochemical systems • Components for fuel cells and electrolyzers • New battery concepts with improved energy density • Modeling of electrochemical processes • Accelerated ageing tests

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