

HITEC Theme Day

Title: Materials for High Temperature Applications
Date: 05. February, 2015
Time: 9:00 – 17:00
afterwards *get together* with snacks and drinks
Location: Forschungszentrum Jülich, IEK-2, Bld. 5.1, R. 1

Materials are essential for developing and implementing new technologies and improving existing technologies. The current and future increase in renewable energy usage for electricity supply requires high load flexibility for energy conversion systems operating at high temperatures. New power plant concepts based on high-temperature gasification or oxyfuel processes require appropriate materials and new life prediction methodologies. Therefore, ongoing research focuses on materials and coatings which allow operating temperatures and pressures to be increased or new process media to be used to improve the efficiency and load flexibility of power plants or industrial processes.

The seminar will give an overview on materials for high temperature applications, their properties, and their characterisation.

You will learn about:

- several metallic and ceramic materials,
- basics of physical and chemical properties,
- relevant characterization methods,
- current research activities.

Contents:

- area of application,
- constitution, microstructure, thermodynamics,
- ferritic steels, Ni-base alloys, refractory metals, composites,
- fracture mechanics, creep and fatigue,
- corrosion
- SEM, TEM, KEMS, DTA etc.

Who should attend:

HITEC Ph.D.-fellows;
Postgraduate-, Ph.D.- and postdoctoral fellows from the fields of energy and climate research

HITEC Days

HITEC Days are an inherent part of the graduate school Helmholtz Interdisciplinary Doctoral Training in Energy and Climate Research (HITEC). They devote a whole day to a method or a scientific topic with lectures and discussions. The methodological days serve to encourage scientific interdisciplinarity and will enable the PhD students to extend their range of methods with respect to their own scientific work. HITEC Days always end with a 'Get together', some snacks and drinks. HITEC Days are open for HITEC Ph.D. students and other interested young scientists.