HITEC Lab

Title: **Experimental Methods for Characterisation of Materials for High Temperature Applications**

Date: **06 February, 2015**

Time: **9:00 – 17:00**

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 one day hands-on training course will provide an insight into experimental methods for the characterisation of materials for high temperature application as well as the characterisation of related aggressive environments.

You will learn:

- characterisation of mechanical properties,
- characterisation of corrosion resistance,
- determination of thermodynamic properties,
- characterisation of hot flue/fuel gases.

Methods:

1) Tensile and fatigue test and post examination
2) High temperature oxidation test and post examination
3) KEMS and DTA
4) MBMS

Number of Participants: ≤ 20

The HITEC Labs are hands-on periods of practical training lasting 2 to 3 days, in which small groups of students from various institutes concentrate on one method that is applied in various fields. The aim of the HITEC Labs is to enable the PhD students to appreciate that a method originating from an unrelated field may also be applied in their own work. If students should discover that they require more intensive instruction in applying the method than can be imparted during the HITEC Lab, then they can make arrangements with PhD students at the institute in question to work at the institute for a limited period.