

Helmholtz – CSC – Fellowships 2010

- Helmholtz Centre:** Research Centre Jülich – (www.fz-juelich.de/portal/home)
- Research Field:** Sustainable Plant Production – Plant Ecophysiology – Remote Sensing
- Research Project:** Quantification of resource use efficiency in canopies of agricultural plants using non-invasive optical remote sensing
- Position:** PhD Student Sandwich PhD Student Postdoc

Department/Supervising scientist: Institute of Chemistry and Dynamics of the Geosphere, Phytosphere (ICG-3), Dr. U. Rascher

Research Area:

In this interdisciplinary project we aim for quantification of the distribution of light, leaves, and photosynthetic efficiency in 3 dimensions using novel non-invasive remote sensing techniques that were developed at the ICG-3, Research Centre Jülich. Novel high-performance spectrometers are available to quantify reflectance and sun-induced fluorescence to diagnose crop nutritional status. With this project we especially aim to simultaneously diagnose multiple stresses, like nitrogen and water stresses and nitrogen and disease stress.

The ICG-3 focuses on sustainable bio-production and a profound understanding of energy conversion. Studies on structure-function relations in modern and future crop systems will be the basis for optimizing plant performance in a future bio-based economy. This PhD project is embedded in a research network between the Research Centre Jülich, the University of Cologne and the University of Düsseldorf and thus provides an ideal training and working environment. The workplace of the candidate will be the Research Centre Jülich and part of the field experiments will be performed at experimental field sites in China.

Specific Requirements:

Expertise and sound training in plant eco-physiology • Experience in field experiments (ideally in crop systems) • Interest in the effects of environmental stresses on plant metabolism and in using modern non-invasive techniques • Computer skills and the interest to work with advanced computer algorithms and complex instrument control (programming skills preferable, but not a must), good English obligatory.

Work Place: Research Centre Jülich, Germany (near Cologne)

Earliest Start (between September 2010 and February 2011): September 2010

Language Course: A German language course will be offered parallel to the project

Further Information: u. rascher@fz-juelich.de
http://www.fz-juelich.de/icg/icg-3/Research/Research_Areas/Ecosystem_Dynamics/Photosynthesis_and_Remote_Sensing

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