



Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,250 employees in one of Europe's biggest research centres and help us to shape change!

Would you like to contribute to research on climate change and its impacts on ecosystem services? Come to work with us at the Institute of Bio- and Geosciences - Plant Sciences (IBG-2) at Research Center Jülich. We develop novel bioeconomy concepts for the intensification and sustainability of plant production and conduct research on sustainable functioning and management of natural ecosystems. The IBG-2 has a globally leading position in plant phenotyping, focusing on dynamic plant-environment interaction combined with technology development, engineering, digitization, and bioinformatics. One key aspect of the research at the IBG-2 is to develop a better scientific understanding of the dynamics in structural and functional acclimations of plants in the field. Through our work we target a better understanding of plants and their processes under future climate and production conditions, while reducing the human environmental footprint.

We are looking to recruit a

PhD Position - Understanding the solar-induced fluorescence (SIF) signal of tree canopies from remote sensing data

Your Job:

IBG-2 plays a globally leading role in retrieving and interpreting solar-induced fluorescence (SIF) measured with imaging and non-imaging sensors at different spatial scales (from leaf up to satellite observations) to monitor the dynamics in vegetation photosynthesis. In this context, the offered PhD position is embedded in a collaborative project together with partners from the German Aerospace Center (PBA) and Bonn University (RSRG). The main goal of the collaborative project is to derive leaf biochemical and canopy structural information from optical and LiDAR data and use this information in the 3D Discrete Anisotropic Radiative Transfer (DART) model to disentangle the functional (photosynthetic) and structural (architectural) contributions to

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our

Online-Recruitment-System!

Questions about the vacancy?

Get in touch with us by using **our contact form.**

Please note that for technical reasons we cannot accept applications via email.

www.fz-juelich.de

forest canopy SIF derived from remote sensing observations.

You will

- combine the capabilities of radiative-transfer modelling of plants with hyperspectral (airborne) data, preferably for forest ecosystems
- develop, in cooperation with other scientists of the project consortium, a novel method to determine forest SIF emission efficiency by scaling canopy SIF observations down to the leaf level
- have access to already existing hyperspectral and SIF image data as well as ancillary ground datasets of forests acquired over the past five years
- be mainly working at IBG-2 at Research Center Jülich but collaborate closely with the Remote Sensing Research Group at the University of Bonn on the 3D radiative-transfer modelling in DART
- publish the newly developed SIF downscaling method for forest stands in highly ranked peer-reviewed remote sensing journals and present the results at international scientific meetings and conferences
- combine methodological development with real-world applications within the project and thus develop his/her own research profile in this emerging discipline

Your Profile:

- Master of Science degree in geo-sciences, plant sciences, physics/optics, informatics/mathematics, forestry, plant ecology or other related disciplines
- Interest to work at the interface of radiative-transfer modelling, hyperspectral optical remote sensing and forestry
- Experience in working with multi- and hyperspectral remote sensing data
- Experience in working with radiative-transfer models for plants (e.g. SCOPE, DART) would be advantageous
- Understanding of forest physiology (photosynthesis) and ecology
- Active knowledge of relevant programming languages (e.g., Python, Matlab, R, etc.) and of state-of-the-art remote sensing data products and image processing approaches
- English spoken communication and writing skills allowing for scientific work and publishing (knowledge of German is an advantage but not obligation)

Our Offer:

We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We offer ideal conditions for you to complete your doctoral degree:

- The candidate will be associated to either the graduate school at Research Center Jülich or University of Bonn and will have the benefits of these graduate schools.
- The Research Center Jülich (www.fz-juelich.de) is one of the largest research centers in Europe and offers a wide range of training and qualification programs.
- A large research campus with green spaces, offering the best possible means for networking with colleagues and pursuing sports alongside work
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: <https://www.fz-juelich.de/en/judocs>
- Targeted services for international employees, e.g. through our International Advisory Service

The position is for a fixed term of 3 years, with possible long-term prospects. Pay in line with 65% of pay group 13 of the Collective Agreement for the Public Service

(TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a lot more to offer: <https://go.fzj.de/benefits>

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.