PhD Position Available: Assigning function to root architecture with minimally invasive phenotyping and modeling

Opportunity.
We are offering a 4-year PhD position in the area of plant root biology as part of the Cluster of Excellence "PhenoRob – Robotics and Phenotyping for Sustainable Crop Production" (EXC 2070) (http://www.phenorob.de) at the University of Bonn funded by the German Research Foundation (DFG). The aim of the project is to measure and ultimately predict how root growth and architecture function for N uptake for the plant. The project is part of a subproject in PhenoRob entitled: Putting the Soil-Root Zone into Sustainable Crop Production using Sensor Data and Analytics Algorithm. The person will be supervised by a multidisciplinary team of root biologists, modelers, phenotyping experts and soil scientists. The successful candidate will be primarily based at the Forschungszentrum Juelich and funded by the EXC 2070, and be part of rich student communities and supportive training programs at both institutions.

Research and tasks.
This is an experimental PhD combined with writing publications and making presentations to PhenoRob colleagues and the broader scientific community. Root growth and architecture, shoot growth, and N and water fluxes will be phenotyped on plants grown in controlled and field conditions. Non-invasive root phenotyping with magnetic resonance imaging (MRI) or rhizotrons in glasshouses will be used. Selected samples will additionally be imaged with microscopy and extracted for the composition of the root and microorganism metagenome and transcriptome. Data could be used in a predictive model (OpenSimRoot) for root architecture and function.

Candidate formal requirements: a BSc Honours' or MSc and a background in plant sciences or phenotyping, or soil sciences or root-soil-plant research, or modeling.

For more information contact: Prof. Michelle Watt (m.watt@fz-juelich.de ) or Prof. Uli Schurr (u.schurr@fz-juelich.de) or Dr. Johannes Postma (j.postma@fz-juelich.de)

Deadline for applications: September 15, 2019
Send applications directly to: m.watt@fz-juelich.de