The Crop Science Group within the Institute of Crop Science and Research Conservation (INRES) at the **University of Bonn** is offering a three-year

PhD student position (E13 TV-L / 70%)

Within the cluster of excellence PhenoRob "Robotics and Phenotyping for sustainable crop production" (https://www.phenorob.de/) on **Improved electromagnetic induction derived management zones and agro-ecosystem modelling to evaluate landscape-scale trade-offs in ecosystem services.**

The main goal of PhenoRob is to change crop production by optimizing breeding and farming management using new technologies. The approach of the project focuses on developing methods and new technologies that observe, analyze, better understand and specifically treat plants to improve the fundamental understanding of cropping systems and their reaction to management decisions. This research will specially contribute to Core Project 5 on **New field arrangements**. With the development of new light-weight robotics in the future it will be possible to reduce field sizes, reshape field geometries and improve spatio-temporal crop diversity in the fields that can contribute to improve resource use efficiency as well as the provision and regulation of ecosystem services.

The main aim for this sub-project will be to optimize delineation of management zones based, on soil characteristics which are derived from electromagnetic induction, and their interaction with crop management as measured by the tradeoffs on the provision and regulation of ecosystem services. The candidate will collaborate with another PhD student in an additional sub-project who will be responsible for the proximal sensed data acquisition and derivation of the field management zones with a new EMI system for adaptive field mapping. The main task of the PhD student will be to assimilate EMI proximal sensed soil data into process-based agroecosystem models and optimize newly diversified field arrangements based on the delivery and regulation of ecosystem services under the current climate and future climate scenarios. The position includes the application and further development of the existing modelling platform (www.simplace.net) and possible traveling within Germany to collect experimental data. Close cooperation with project partners is anticipated.

We are looking for a highly motivated person to work in an interdisciplinary team. The successful candidate should hold an excellent Master degree in crop science, botany, plant ecology, geo-ecology, remote sensing, geodesy or related sciences with a background in agronomy, remote sensing and/or expertise in using simulation models. A strong interest in data assimilation and developing process-based, numerical models at the soil-plant interface are an advantage. Earliest starting date of the position will be in January 2022.

Applications of handicapped persons will be favored when all other qualifications are equal. Female candidates are encouraged to submit their applications. Please send your applications (CV including diploma certificates/transcripts, list of publications, statement of research interests and achievements, addresses of two references) until November 25, 2021, reference: "**PhD application PhenoRob CP5.2**".

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For further information concerning the position and our research group you can visit our website at http://www.lap.uni-bonn.de/home?set_language=en or send an email to Dr. Ixchel Hernandez-Ochoa (ihernandez@uni-bonn.de)