IMPRS Exploration of Ecological Interactions with Molecular and Chemical Techniques

5 PhD positions in Molecular and Chemical Ecology and Evolution

International Max Planck Research School: "The Exploration of Ecological Interactions with Molecular and Chemical Techniques"

The International Max Planck Research School (IMPRS) "The Exploration of Ecological Interactions with Molecular and Chemical Techniques" in Jena, Germany, invites applications for **5 PhD positions** beginning in September 2021 – January 2022. The overarching research topic is the use of molecular, chemical and neurobiological techniques to experimentally explore ecological interactions under natural conditions. The main focus is on the relationship between plants, microbes and herbivores, and their environment, as well as the evolutionary and behavioral consequences of these interactions. We offer 5 **exciting projects** focusing on different organisms and approaches. The complete list of projects offered including project descriptions is available on our website (http://imprs.ice.mpg.de/ext/index.php?id=420#header_logo).

We are looking for enthusiastic PhD students with strong interests in the above-described central topic. Applicants should have or be about to obtain a Masters or equivalent degree in one of the following fields: entomology, neurobiology, molecular biology, biochemistry, analytical chemistry, plant physiology, genetics, ecology, evolutionary biology, bioinformatics, and mathematics and computer science. All our projects are highly integrative and require willingness to closely collaborate with researchers of different backgrounds.

The Research School is a joint initiative of the Max Planck Institute for Chemical Ecology and the Friedrich Schiller University. We offer state-of-the art equipment, an excellent research environment, supervision by a thesis committee and a structured training program including scientific courses, training in transferable and outreach skills and participation in research symposia. Successful candidates will receive a Max Planck support contract. There are no tuition fees and the working language is English.

Application deadline is May 14, 2021.

For detailed information on the IMPRS, projects offered and application requirements, please visit our website: http://imprs.ice.mpg.de/.

Please apply online from March 24, 2021, at: https://imprs-reg.ice.mpg.de/ .

Projects offered in 2021

Please find below a list of projects we offer for this year's recruitment. All projects are highly integrative and require the collaboration between different research groups. Applicants can identify up to three projects of interest.

Project 1: *Monitoring the rhizosphere via the integrity of the cell wall*
Supervisors: Prof. Dr. Ralf Oelmüller, Plant Physiology, Matthias Schleiden Institute, Friedrich Schiller University Jena, Priv. Doz. Dr. Axel Mithöfer, Department of Bioorganic Chemistry, Max Planck Institute for Chemical Ecology, Jena

Project 2: *The contribution of microbiome communities in the gut of the mealybug Pseudococcus jackbeardsleyi to the detoxification of cocaine and other tropane alkaloids*
Supervisors: Dr. John D'Auria, Leibniz Institute for Plant Genetics and Crop Plant Research (IPK), Gatersleben, Prof. Dr. Jonathan Gershenzon, Department of Biochemistry, Max Planck Institute for Chemical Ecology, Jena

Project 3: *The effect of climate-relevant temperature shifts on leaf microbiota colonization*
Supervisors: Dr. Matt Agler, Plant Microbiosis, Friedrich Schiller University Jena, Prof. Dr. Jonathan Gershenzon, Department of Biochemistry, Max Planck Institute for Chemical Ecology, Jena

Project 4: *Metabolic host-symbiont integration in a cuticle supplementing symbiosis*
Supervisors: Dr. Tobias Engl, Department of Insect Symbiosis, Max Planck Institute for Chemical Ecology, Jena, Prof. Dr. Martin Kaltenpoth, Department of Insect Symbiosis, Max Planck Institute for Chemical Ecology, Jena

Project 5: *Localization and logistics of alkaloids biosynthesis in medicinal plants using single cell metabolomics and transcriptomics*
Supervisors: Prof. Dr. Sarah O'Connor, Department of Natural Product Biochemistry, Max Planck Institute for Chemical Ecology, Jena, Dr. Lorenzo Caputi, Department of Natural Product Biochemistry, Max Planck Institute for Chemical Ecology