

## Plant-ER Lecture



**Speaker:** PD Dr. Ljudmilla Borisjuk, IPK Gatersleben, Germany

**Title:** “Seeing plants as never before”

**Abstract:** Imaging has long been essential for understanding plant development and responses to the environment. Among the few techniques that allow *in vivo* visualization is magnetic resonance imaging (MRI), widely known for its use in medical diagnostics. **My presentation will highlight the versatility of MRI in plant science**, driven by the establishment of a new plant MRI platform at IPK. We aim to provide the scientific community with insights into current imaging methods and explore opportunities for collaboration. Examples of MRI applications will showcase its capabilities, including flower development, plant embryogenesis, mechano-sensing, and the partitioning of assimilates in seeds. We’ve also developed methods to non-invasively visualize sugars and amino acids in complex crop organs like seeds, fruits, taproots, and tubers, focusing on crops like maize, potato, and sugar beet. Additionally, the integration of deep learning algorithms with MRI has automated data analysis, exemplified by our MRI Seed Wizard, which helps breeders quantify more than 20 grain characteristics, many of which cannot be measured using conventional methods, including X-ray computed tomography. Lastly, I will discuss how plant MRI is evolving and its potential to advance plant science through innovative experimental designs.

**References:**

[https://scholar.google.com/citations?hl=en&user=5yrjlbAAAAAJ&view\\_op=list\\_works&sortby=pupdate](https://scholar.google.com/citations?hl=en&user=5yrjlbAAAAAJ&view_op=list_works&sortby=pupdate)

**Time:** Thursday, December 12<sup>th</sup>, 2:15 PM

**Location:** Lecture Hall B

**Host** Prof. Dr. Uwe Sonnewald ([uwe.sonnewald@fau.de](mailto:uwe.sonnewald@fau.de))