

Dear GPZ members,

I am pleased to invite you to the open meeting of our **GPZ Working Group 4 (Genome Analysis)**, which will take place from **March 13-14, 2023, in Halle/Saale**.

The title of our meeting is:

Digital and Genomics-Assisted Breeding for a Plant-Based Bioeconomy.

The ongoing challenges of climate change requires plant breeding, like other research fields and industries, to adapt the strategic goals and necessary tool boxes in order to secure a sustainable agriculture. During the next meeting of our Genome Analysis Working Group we like to discuss, how aspects of digitalization and the bioeconomy can be addressed in genomics-assisted plant breeding. In this regard, central breeding goals are to increase the resilience of existing plants towards the challenges ahead and to develop new products and new crops towards the establishment of a sustainable plant-based bioeconomy.

We have set up four sessions, where aspects of the future of genomics-assisted plant breeding will be discussed. These sessions are:

1. **Digital mining of genes and alleles: from single genomes to pan-genomes**
2. **Digital securing of biotic and abiotic stress resilience**
3. **Breeding of new products from old plants for the bioeconomy**
4. **Breeding of new products from new plants for the bioeconomy**

The meeting is gold-sponsored by:

- **KWS SAAT SE & Co. KGaA, Einbeck**
- **DiP: Modellregion Mitteldeutschland – Digitalisierung pflanzlicher Wertschöpfungsketten**

If you like to attend and participate, be prepared to register for the meeting on our GPZ webpage at <https://gpz-online.de/gpz-ag4/index.php>

Wishing you all a happy and successful New Year 2023,

Prof. Dr. Klaus Pillen

(Speaker of GPZ Working Group 4 - Genome Analysis)

GPZ Meeting, Working Group 4 (Genome Analysis)

Digital and Genomics-Assisted Breeding for a Plant-Based Bioeconomy

March 13-14, 2023, Halle/Saale, Theodor-Lieser-Straße 9, HS E.02

Gold-Sponsored by:

- KWS SAAT SE & Co. KGaA, Einbeck
- DiP: Modellregion Mitteldeutschland – Digitalisierung pflanzlicher Wertschöpfungsketten

First Day, March 13, 12:30-18:15

12:30 Registration & Poster Setup

13:30 Opening Klaus Pillen

Session 1: Digital Mining of Genes and Alleles: from Single Genomes to Pan-Genomes

13:45 - 14:30 Keynote:

Nils Stein, IPK Gatersleben:

"The barley pan-genome – access to genome diversity at species' resolution"

14:30 - 15:30 → 3 session talks à 20 min.

Patrick König, IPK Gatersleben: *"DivBrowse - A visual analytics tool to improve the access to genomic diversity of crops for scientists and breeders"*

Murukarthick Jayakodi, IPK Gatersleben: *"An improved genome and genotyping establish a foundation for pan-genomics in faba bean"*

Sven Weber, University of Giessen: *"Failed SNP calls: Useful for genomic prediction in plant breeding?"*

15:30 – 16:30 → Coffee Break and Poster Presentation

Session 2: Digital Securing of Biotic and Abiotic Stress Resilience

16:30 – 17:15 Keynote:

Kerstin Neumann, IPK Gatersleben:

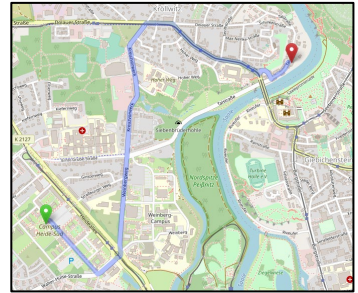
"Application of high-throughput phenotyping techniques to improve crop adaptation to global warming"

17:15 - 18:15 → 3 session talks à 20 min.

Srijan Jhingan, University of Kiel: *"Direct access to millions of mutations by Whole Genome Sequencing of an oilseed rape mutant population"*

Amar Singh Dhiman, University of Kiel: *"A Beta mini core collection for mapping Cercospora leaf spot resistance"*

Madita Lauterberg, IPK Gatersleben: *“Searching for donor genotypes in chickpea: Utilizing precision phenotyping to scrutinize vegetative drought tolerance through-out plant genetic resources”*



19:00 → Get Together and Dinner Event

CLICK: [Krug zum Grünen Kranze, Talstraße 37, 06120 Halle](#)

Second Day, March 14, 08:30-14:00

Session 3: Breeding of New Products from Old Plants for the Bioeconomy

08:30 - 09:15 Keynote:

Stefan Paulus, IfZ Göttingen:

“Objective plant imaging and AI interpretation for plant breeding”

09:15 - 10:15 → 3 session talks à 20 min.

Hanna Marie Schilbert, University of Bielefeld: *“Mapping-by-sequencing reveals genomic regions associated with seed quality parameters in Brassica napus”*

Albert Schulthess, IPK Gatersleben: *“Genomics-informed pre-breeding unlocks the diversity in genebanks for wheat improvement”*

Andreas Maurer, University of Halle: *“Evaluating the genotype impact on the performance of inter-varietal two-component mixtures in spring barley”*

10:15 – 11:05 → Coffee Break and Poster Presentation

11:05 - 11:45 → cont. Session 3: 2 talks à 20 min.

Yongyu Huang, IPK Gatersleben: *“Natural variations of phytomer initiation and elongation in barley are controlled by additive genetic and molecular pathways”*

Steven Dreißig, University of Halle: *“Recombination landscape divergence between populations is marked by larger low-recombining regions in domesticated rye”*

Session 4: Breeding of New Products from New Plants for the Bioeconomy

11:45 – 12:30 Keynote:

Christian Jung, University of Kiel:

“Introducing new crops for the German bioeconomy - quinoa as a case study”

12:30 - 12:50 → 1 session talk à 20 min.

Sandra T. Krause, University of Halle: *“Elucidating the biosynthesis of thymol, carvacrol, and thymohydroquinone in thyme and oregano by transcriptomics analysis, metabolic profiling, and biochemistry”*

13:00 – 14:00: End of Meeting and Lunch

→ **Weinberg-Mensa,**

CLICK: [Wolfgang-Langenbeck-Straße 3, 06120 Halle/Saale](#)

