

2025 IPG Symposium – “Root Biology VI”
May 20 – 23, 2025

Schedule

The symposium will be held in the Christopher S. Bond Life Sciences Center at the University of Missouri. Registration and all presentations will be in **Monsanto Auditorium** (ground floor). The poster sessions, breakfast refreshments, meals, and breaks will be in **McQuinn Atrium** (first floor).

Tuesday, May 20th

6:00PM – 8:00 PM - Opening Reception

The Roof at the Broadway Hotel (1111 Broadway, Columbia MO 65201)

Wednesday, May 21st

7:30 AM – 8:30 AM - Registration and Refreshments

7:30 AM – 4:30 PM - Poster Set-Up

8:30-8:40 **Welcome - David Braun, Felix Fritschi and Priya Voothuluru**

8:40-8:50 **Opening Remarks**

**Matthew Martens, Provost and Executive Vice Chancellor for Academic Affairs
University of Missouri**

8:50-10:15 **Session One: Root Growth and Root Ecosystem Services**

Session Chair: TBD

8:50 *Session Keynote: Engineering Root Systems for Anchorage* **Erin Sparks**

9:30 *Digging deeper: root development and water uptake in
deep soil layers*..... **Dorte Bodin Dresbøll**

10:00 *Fine Root Biomass Decline in Quercus rubra (L.) Reduces Carbon
Loss Across Climate and Soil Fertility Gradient* **Emma Shedd**

10:15-10:45 Break

10:45-12:00 **Session One: Root Growth and Root Ecosystem Services (continued)**

Session Chair: TBD

10:45 *Accelerating root biology at the exascale with RhizoVision
Transformer and Explorer* **Larry York**

11:15 *Optimizing root systems for multifunctional ecosystem services
and productivity in perennial, herbaceous crops* **Molly Hanlon**

11:45 *Elucidating the role of root surface physical properties in
root-environment interactions using biomimetics* **Maya Kleiman**

Noon-1:30 Lunch (provided)

1:30-2:55 **Session Two: Root / Rhizosphere Microbe Interactions**

Session Chair: TBD

1:30 *Session Keynote: Biological Nitrogen Fixation on the Aerial Roots
of Maize and Sorghum for Sustainable Agriculture* **Jean-Michel Ané**

2:10 *Elucidating spatial and temporal dynamics of the rhizosphere*..... **Taryn Bauerle**

2:40 *Unlocking the rhizosphere: the role of root-microbe interactions and the spatiotemporal
distribution of signaling molecules under changing environment*..... **Amir Ahkami**

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- 2:55-3:30 Break
- 3:30-4:30 Session Two: Root / Rhizosphere Microbe Interactions (continued)**
Session Chair: TBD
- 3:30 *Harnessing Plant-Soil-Microbe Synergy: Optimizing Phosphorus Use in Maize and Sorghum for Tropical Soils*..... **Sylvia Morais De Sousa Tinôco**
- 4:00 *Biocontrol Meets Big Data: Integrating Soil Microbiomes and Multi-Omics to Combat Climate-Induced Agricultural Stress* **Olubukola Babalola**
- 4:30-4:45 “Speed Posters”**
- 4:45-6:45 Reception & Posters Session (even poster numbers)**
- 7:00-8:30 Student/PostDoc/Speaker Dinner**
Sponsored by Bayer

Thursday, May 22nd

7:30 AM – 8:30 AM - Registration and Refreshments

- 8:30-10:10 Session Three: Root Development**
Session Chair: TBD
- 8:30 *Keynote: Two antagonistic gene regulatory networks drive Arabidopsis root hair growth at low temperature linked to a low-nutrient environment*..... **José Estevez**
- 9:10 *lateral rootless2 (lrs2) shapes maize root development by regulating polar auxin transport*..... **Prameela Awale**
- 9:25 *Integrative analyses to understand auxin-driven root morphogenesis in maize* **Dior Kelley**
- 9:55 *Mechanical stress modulates the development, pressurization, and cell wall properties of root hairs in Arabidopsis thaliana* **Vyankatesh Zambare**
- 10:10-10:30 Break
- 10:30-12:40 Session Four: Nutrient and Water Uptake and Transport**
Session Chair: TBD
- 10:30 *Session Keynote: Nodes, Branches, and Degrees: Unravelling Root Dynamics Across Space and (Thermal) Time* **Hannah Schneider**
- 11:10 *OsARD4 modulates elongation and growth pattern of rice roots* **Raveendran Muthurajan**
- 11:40 *DRO1 homologs provide a valuable genetic opportunity to improve root system architecture, significantly impacting the underground breeding of seed plant* **Yusaku Uga**
- 12:10 *TBD* **Barney Geddes**
- 12:40-2:45 Lunch (on your own)
- 2:45-4:10 Session Five: Responses and Adaptations to Abiotic Stress**
Session Chair: TBD
- 2:45 *Session Keynote: The Divining Root: How Plants Use Development to Find Water* **José Dinneny**

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3:25	TBD	Priya Voothuluru
3:55	<i>Molecular Evolution of the Phosphate Starvation Response after Genome Content Alterations in Arabidopsis Roots</i>	Alfonso Carlos Barragan-Rosillo
4:15-4:30	“Speed Posters”	
4:30-6:00	Poster Session (appetizers) (odd poster numbers)	
6:00-6:30	Reception	
6:30-7:30	Evening Keynote: TBD Robert Sharp	

Friday, May 23rd

7:30 AM – Noon - Registration and Refreshments

8:30-9:45	Session Five: Responses and Adaptations to Abiotic Stress (<i>continued</i>) Session Chair: TBD	
8:30	<i>Wheat lines differing in root system architecture can improve yield stability across environments</i>	Eric Ober
9:00	<i>Hydrotropism in Maize Roots</i>	Yajun Wu
9:30	<i>Exploring the Molecular Basis of Maize Nodal Root Growth Maintenance during Drought: An Omics Perspective</i>	Akanksha Pareek
9:45-10:15	Break	
10:15-11:15	Session Five: Responses and Adaptations to Abiotic Stress (<i>continued</i>) Session Chair: TBD	
10:15	<i>EGR-MASP1 regulation of root (and shoot) growth during drought stress</i>	Paul Verslues
10:45	<i>Integrating below-ground and above-ground responses to dry soils and atmospheres?</i>	Ian Dodd
11:15	Poster Awards – Paula McSteen	
11:30	Closing Remarks – Felix Fritschi, Priya Voothuluru, and David Braun	