

## **Curriculum Vitae - Gerd Patrick Bienert**

### **General Information**

Date & place of birth: 23.12.1978 in Rothenburg ob der Tauber, Germany  
 Nationality: German  
 Affiliation: Technical School of Munich - TUM School of Life Science - Department of Molecular Sciences  
 Current position: W3 Associate Professor for Crop Physiology  
 Institutional address: Alte Akademie 12, D-85354 Freising, Germany  
 Email: patrick.bienert@tum.de  
 Web: [www.mls.ls.tum.de/en/cropphys/home/](http://www.mls.ls.tum.de/en/cropphys/home/)  
 ORCID: <https://orcid.org/0000-0001-9345-4666>

### **Research profile**

The main research focus of my group 'Crop Physiology' is to understand metalloid-efficiency mechanisms in plants and to elucidate functions, biochemical reactions and transport pathways of metalloids in crops as well as their adaptive responses to metalloid deficiency and toxicity. Of central interest are the essential and beneficial plant nutrients boron (B) and silicon (Si), respectively, and the toxic and carcinogenic element arsenic (As).

The second research focus is on the elucidation of water transport processes at the cellular level and across biological cell membranes. Aquaporins but also other transport proteins, which particularly depend on the plants' water status, will have a significant impact on plant fitness and resilience under forecasted changed environmental conditions. In this context, it will be essential for us to understand the molecular and physiological responses of crop plants to simultaneously occurring abiotic stresses and water deficit, and to identify their genetic basis.

The third research focus is on the elucidation of whether and how the transmembrane transport of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) through aquaporins / peroxiporins is regulated, particularly during cell stress and which cellular signal transduction pathways depend on the functional interplay of H<sub>2</sub>O<sub>2</sub>-producing enzymes and H<sub>2</sub>O<sub>2</sub>-transporting aquaporins.

### **Academic education**

1999 – 2004 Diploma Studies of Biology at the Julius-Maximilians-University of Würzburg, Würzburg, DE and Technical University of Darmstadt, Darmstadt, DE  
 2004 – 2008 Ph.D. in Molecular Plant Nutrition at the Copenhagen University, Copenhagen, DK  
 Supervisors: Jan K. Schjoerring & Thomas Jahn  
 "Novel substrates of plant major intrinsic proteins (aquaporins)"

### **Professional experience**

since 2020 W3 Associate Professor for Crop Physiology at the Technical University of Munich, Freising, DE  
 2013 – 2020 Independent DFG-funded Emmy Noether Research Group Leader at the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben, DE  
 2008 – 2013 Postdoctoral researcher in the lab of François Chaumont at the Université catholique de Louvain (UCLouvain), B  
 - Postdoctoral Fellowship: "Marie Curie Intra European Fellowship (2009-2011)"  
 - Postdoctoral Fellowship: Chargé de Recherches „Belgian National Funds of the Scientific Research - FNRS" (2011-2014)  
 2008 – 2008 Research Assistant in the lab of Prof. Jan K. Schjoerring at the University of Copenhagen, Copenhagen, DK

**Awards and Academic Distinctions**

2021	Laureate of the Joseph Schepkens award in “Plant Genetics” from the “The Royal Academies for Science and the Arts of Belgium” for the work on “Water and Metalloid Transport in Arable Crops
2013-2020	Emmy Noether Fellowship
2011-2014	Postdoctoral Fellowship: „ Chargé de Recherches - Belgian National Funds of the Scientific Research - FNRS”
2009-2011	Postdoctoral Fellowship: “Marie Curie Intra European Fellowship”
2011	Award for the best talk of a young scientist at the „The First World Congress on Water Channel Proteins” in Cluj-Napoca, RO
2008	Award for the best poster at the „20th New Phytologist Symposium” Aberdeen, SCT
2005 - 2007	Ph.D. fellowship of the Royal Veterinary and Agricultural University, Frederiksberg, DK

**Institutional responsibilities and scientific activities (selection)**

Since 2023	Deputy Director of the “Plant Technology Center” of the Technical University of Munich, DE
Since 2023	Editorial Board Member of “Physiologia Plantarum”
2023	Editor of the book “Peroxisporins: Redox Signal Mediators In and Between Cells”, Volume in the “Oxidative Stress and Disease” series of Taylor and Francis Group, CRC Press/Garland Science
2023	Main organizer of the “International Conference on 100 Years of Results on Boron Research in Plants”, Hohenheim, Stuttgart, DE
2022	Main organizer of the Annual Meeting of the German Society of Plant Nutrition (DGP), Raitenhaslach, DE
Since 2022	Elected Member of the Board of Directors of the “German Society of Plant Nutrition
Since 2021	Steering Board Member of the “Inter-Departmental Research Facility - TUM Model EcoSystem Analyser at the Technical University of Munich, DE
Since 2021	Member of the “Prüfungsausschuss Agrarwissenschaften”
Since 2019	Associate Editor of the “Journal of Plant Nutrition and Soil Sciences”
Since 2017	Member of the German Society of Plant Nutrition
Since 2017	Programme Committee Member of the DFG-funded Priority Programme SPP2089: “Rhizosphere Spatiotemporal Organisation – a Key to Rhizosphere Functions”
2010	Editor of the book “MIPs and Their Roles in the Exchange of Metalloids”, Volume in the “Advances in Experimental Medicine and Biology” series of Landes Bioscience&Springer Science+Business Media,

**Major grants (last 10 years)**

1. Bayerisches Staatsministerium für Umwelt und Verbraucherschutz im Rahmen des Projektverbundes „BayKlimaFit 2– Starke Pflanzen im Klimawandel“; 2021-2024; 243.885 Euro; Teilprojekt 8: Effiziente Nutzung von Wasser und Bor bei Raps und Mais“
2. DFG Priority Programme SPP2089 Phase 2; 2021-2024; 254.070 Euro; “Characterization of radicle root hair functions adding to a vigorous seedling establishment under adverse nutrient and water seedbed conditions”
3. DFG Priority Programme SPP2089 Phase 1; 2018-2021; 237.987 Euro; “Nutrient and water transporters actively shape spatiotemporal rhizosphere organization processes”
4. DFG Emmy Noether Fellowship; 2013-2020; 1.661.620 Euro; „Mechanisms regulating the boron nutritional status in rapeseed and Arabidopsis and their implications for the development of boron-efficient genotypes
5. Fonds de la Recherche Scientifique – FNRS, Brussels - „Chargé de Recherches”; 2011-2014; salary for 36 months, 15.000 Euro bench fees; “Molecular and functional characterization of a recently identified subfamily of plant aquaporins: the X Intrinsic Proteins”
6. Marie Curie Intra European Fellowship FP7-People-IEF-2008 - European Commission, Brussels); 2009-2011; 158.989 Euro; „INTRAPATH- Molecular Characterization of the INTRACellular Plant Aquaporin Trafficking and Hetero-oligomerisation“

**Publication record (Scopus)**

Papers: 53; Current H-index: 29; Current number of citations: >4,900