TOMASZ WŁODARCZYK

PhD Student in Environmental Science
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Education

University of Arizona — Tucson, AZ
PhD, Environmental Science — 2021 - 2025

Cracow University of Technology — Krakow, Poland
MSc, Renewable Energy Engineering — 2016 - 2018
Faculty of Environmental Engineering and Energy
Thesis: Project of a technological heat removal system based on the 1.2 MW CHP module

Cracow University of Technology — Krakow, Poland
BSc, Power Engineering — 2012 - 2016
Faculty of Environmental Engineering and Energy
Thesis: Evaluation of stratified tank thermal storage for heating applications

Professional Appointments

Graduate Associate, Teaching — Tucson, AZ
University of Arizona, — 07.2021 - present
Phytoremediation, Remote Sensing, XRF analysis

Research Specialist — Remote
Inside Out Project (https://info.botany.pl/insideout) — 02.2020 - 12.2020

IT Specialist — Krakow, Poland
Jacobs Engineering — 02.2019 - 09.2020

Project Coordinator — Krakow, Poland
CES - Center of Applied Electronics — 11.2017 - 02.2019
Biogas systems, environmental engineering

Technologist — Lezkowice, Poland
Kominus — 03.2016 - 11.2017
CHP and Biogas systems, environmental engineering

Honors & Awards

- CyVerse Data Science cohort fellow "Roots for Resilience" 2023
- Harry W. and Elsie M. Porterfield Scholarship Fall 2023
- Superfund Research Program Training, NIEHS, September 2022 - May 2023
- Second place PhD presenter at the University of Arizona Earth Week "ENVISION". April, 2023
- College of Agriculture and Life Sciences General Scholarship recipient for Spring 2023
- The SAEMS Scholarship, Southern Arizona Environmental Management Society, July 2022
- Firs place PhD presenter at the University of Arizona Earth Week "ENVISION". April, 2022
- CNRS-UArizona IRC Graduate Fellowship Program "One person's trash is another person's treasure – optimizing metal-contaminated plant biomass towards the needs of Green Chemistry". 2021 - 2025
- Academic Performance Award, Cracow University of Technology. 2012

Grants & Proposals

- Don Post Travel Fellowship. $1000, awarded, October 2023
- Graduate & Professional Student Council Travel Grant. $1500, awarded, May 2023
- Wlodarczyk, T., Maier, R., Babst-Kostecka, A. Saguaro National Park Research Permit. "Identifying native metal-accumulating plants to improve remediation of mine tailings in arid environments". August 2022, Rejected
- Association of Applied Biologists, Travel Grant. $400 awarded, April, 2022
- Graduate & Professional Student Council Travel Grant. $2000 awarded, March 2022
- School of Mining, University of Arizona, "Identifying New Target Species for Phytoremediation and Ecocatalyst Development Using a High-Precision X-Ray Fluorescence Analyzer (PXRF)". February 2022 - not funded
- CNRS OHM Pima County Project "Identifying drought adapted, native metal hyperaccumulating plants, and optimizing their phytoextraction potential in the Santa Cruz River Valley region." Wlodarczyk, T., Babst-Kostecka, A., Maier M. R., $16 000 awarded, February 2022

Publications

- In preparation - Wlodarczyk, T., Stokes, O., Murawska-Wlodarczyk, K., Maier, R. M., Babst-Kostecka, A. (2023) Assessing the metal accumulation capacity of plants to optimize phytoextraction of mine tailings in copper tailings facility in Arizona
- In preparation - Wlodarczyk, T., Stokes, O., Murawska-Wlodarczyk, K., Maier, R. M., Babst-Kostecka, A. (2023). Identification of native metal-accumulating and tolerating plant species at the natural outcropping of San Xavier Underground Laboratory.
- In preparation - Wlodarczyk, T., Root, R., Chorover, J., Poscic, F., Maier, R.M., Babst-Kostecka, A. (2024). Zinc hyperaccumulation and allocation strategies in metalicolous and non-metalicolous populations of Arabidopsis *halleri*.

Associations

- American Geophysical Union (AGU) - Student Membership, since July 2023
- Society of Mining, Metalurgy and Exploration (SME) - Student Membership, since December 2022
- Superfund Research Program Trainee, NIEHS, since September 2022
- Southern Arizona Environmental Management Society - Student Membership, since August 2022
- Association of Applied Biologist - Student Membership, March 2022 - December 2022
- Center for Environmentally Sustainable Mining (CESM), University of Arizona - Student Membership, since August 2021
- Energy and Environmental Protection Student Scientific Club, 2012 - 2016

Oral Presentations

- Wlodarczyk, T., Maier, R. M., Babst-Kostecka, A. "Unconventional approaches to explore metal accumulating plant species" Earth Week, University of Arizona, Tucson, April 2023
- Wlodarczyk, T., Lauman, S., Ledesma, J., Stokes, O., R. M., Babst-Kostecka, A., Neilson, J. "Challenges of Mine Reclamation: Graduate and Undergraduate Research Contributes to Critical Advances in Revegetation Technologies". Center for Environmentally Sustainable Mining (CESM) Members presentation at the Environmental Science Colloquium, Tucson, March 2023
- Wlodarczyk, T., Raider, S., Barton, I., Maier, R. M., Babst-Kostecka, A. "In search of native metal-accumulating plants to improve remediation of mine tailings in arid ecosystems". Society of Mining, Metallurgy and Exploration (SME) Conference, Denver, CO, February 2023
- Wlodarczyk, T., Novo, L., Babst-Kostecka, A., Maier, R. M. "Phytoextraction research projects supported by the Pima County Observatory". CNRS-UA seminar on Pima County human-environment observatory (OHMi-PC). Tucson, October, 2022
- Wlodarczyk, T. SAEMS seminar. Scholarship winning and research lightning talk, invited, Tucson, August, 2022
- Wlodarczyk, T., Lasbleiz, A., Legrand, Y-M., Grison, C., Murawska-Wlodarczyk, K., Maier, R. M., Babst-Kostecka, A. "Hyperaccumulation potential of drought adapted plants in Arizona" Earth Week, University of Arizona, Tucson, March 2022

• Wlodarczyk, T., Lasbleiz, A., Legrand, Y-M., Grison, C., Murawska-Wlodarczyk, K., Maier, R. M., Babst-Kostecka, A. "One person's trash is another person's treasure – optimizing metal-contaminated plant biomass towards the needs of Green Chemistry", The French National Centre for Scientific Research (CNRS) - UA Conference, Tucson, February 2022

• Wlodarczyk, T., Poscic, F., Perez, S., Kushwaha, P., Murawska-Wlodarczyk, K., Babst-Kostecka, A., "Understanding plant-soil interactions to mitigate environmental degradation", University of Arizona, Department of Environmental Science Colloquium, Tucson, February 2022

Poster Presentations

• Wlodarczyk, T., Murawska-Wlodarczyk, K., Legrand, Y-M., Grison, C., Lasbleiz, A. Pearson, C., Maier, R. M., Babst-Kostecka, A. "Assesing the metal accumulation capacity of plants to optimize phytoextraction of mine tailings in arid and semi-arid ecosystems". 10th International Conference on Serpentine Ecology (ICSE23), Nancy, France, June 2023

• Wlodarczyk, T., Babst-Kostecka, A. "A framework to identify native metal-accumulating plants for phytoextraction in arid and semi-arid regions". Society of Mining, Metallurgy and Exploration (SME) Conference, Denver, CO, February 2023

• Wlodarczyk, T., Raider, S., Barton, I., Maier, R. M., Babst-Kostecka, A. "A framework to identify native metal-accumulating plants for phytoextraction" 35 Anniversary Superfund Research Conference. Raleigh, NC, December 2022

• Wlodarczyk, T., Stokes, O., Raider, S., Barton, I., Maier, R. M., Babst-Kostecka, A. "Identifying native metal-accumulating plants to improve remediation of mine tailings". Society of Mining, Metallurgy and Exploration (SME) Arizona Conference. Tucson, AZ, December 2022

• Wlodarczyk, T., Stokes, O., Raider, S., Barton, I., Maier, R. M., Babst-Kostecka, A. "Identifying native metal-accumulating plants to improve remediation of mine tailings". Center for Environmentally Sustainable Mining (CESM) meeting. Phoenix, AZ, November 2022

• Wlodarczyk, T., Root, R., Chorover, J., Poscic, F., Maier, R. M., Babst-Kostecka, A. "Zinc hyperaccumulation and allocation strategies in metallicolous and non-metallicolous populations of Arabidopsis halleri". 32nd International conference on Arabidopsis research, ICAR 2022, Belfast, UK, June, 2022

• Murawska-Wlodarczyk, K., Wlodarczyk, T., Babst-Kostecka, A., Neilson, J.W., Rasmussen C., Maier, R.M., "The effect of stockpile capping material on plant growth and root system development for mine sites phytoremediation" Society of Mining , Metallurgy and Exploration Arizona Conference. Tucson, AZ. December 2021

Academic Service and Outreach

• Industry - Academic Research Cooperative. Babst-Kostecka, A., Wlodarczyk, T., Lauman, S., Neilson, J. Center for Environmentally Sustainable Mining (CESM) annual Report for 2022. May 2023.

• KXCI Radio interview on research highlights. "Thesis Thursday at KXCI", (https://kxci.org/programs/thesis-thursday/), Nov 22

• Hosting an exhibition of the Center for Sustainable Mining at the School of Mining & Mineral Resources event "Mines for Limitless Minds". University of Arizona, Tucson, AZ, Nov 22.

Teaching

• Introduction to Environmental Science, grading and mentoring students, teaching (10% of the course), 0.5 FTE Fall 2021, Spring 2022, Department of Environmental Science, University of Arizona

Trainings and Certificates

• Python for Data Science Workshop, Cyverse, University of Arizona, 20h, Spring 2022
• Mine Safety and Health Administration (MSHA) Certificate: Surface Miner. 30h, Since December 2021
• English Language Proficiency Certificate CEFR C1, University of Arizona, 2021
• Teaching Assistant/Associate Training Online (TATO), University of Arizona, 40h, 2021
• GTA Bootcamp, Online Coure Design, University of Arizona, 40h, 2021
• ANSTO Small Angle Scattering Workshop, online attendence, December 2021
• Virtual XFM & IRM Microscopy Workshop at the Australian Synchrotron, online attendence, May 2021
• XIII Workshop on Confocal Microscopy, Goczalkowice-Zdroj, Poland, October 2019

Technical Expertise

Skilled in EDXRF and Micro-XRF instruments use and analysis

Begginer in XFM imaging

Software Use

Science & Engineering: Autodesk, Igems, Libellula.CUT, CloudCompare, Pix4D, ArcGIS Pro, Iridium Ultra, GeoPIXE

Project Management: ProjectWise, Sharepoint, IBM Lotus

Programming: Python, R, HTML, CSS, Bootstrap, JavaScript