

Curriculum Vitae

Departments of Geography and Chemistry, University of Zurich
Winterthurerstrasse 190, 8057 Zurich, Switzerland
e-mail: meredithchristine.schuman@uzh.ch
Phone: +41 44 635 5162

PERSONAL INFORMATION

Meredith Christine Schuman, Prof. Dr.

Date/place of birth: 28.10.1982, Minneapolis, MN, USA

Citizen: US American

Civil status: Married, one child

OrcID 0000-0003-3159-3534

Google Scholar <https://scholar.google.de/citations?user=zPL9jooAAAAJ&hl=en>

Homepage <https://www.geo.uzh.ch/en/units/sg.html>

EDUCATION

- 07/2012 Doctorate (Dr. rer. nat.) *magna cum laude* from Friedrich Schiller University Jena; research at Max Planck Institute for Chemical Ecology awarded Otto Hahn medal
- 2005 Bachelors of Science with Comprehensive Honors, Molecular Biology and Philosophy, UW-Madison, USA with study abroad at University of Warwick, UK
- 2001 High school diploma with Honors, Irondale High School, New Brighton, MN, USA

EMPLOYMENT

- 2020 Call to University of Helsinki as Assistant Professor Tenure-Track (declined)
- 2019 – present Asst. Prof. for Spatial Genetics, Departments of Geography and Chemistry, UZH
- 2018 – 2019 Guest Professor of Spatial Genetics, Department of Geography, UZH
- 2016 – 2019 Ecology Platform Leader, Department of Molecular Ecology, MPI-CE, Jena
- 2012 – 2019 Project Group Leader, Department of Molecular Ecology, MPI-CE, Jena
- 2014 – 2017 Junior Group Leader, Ecological Functions of Plant Genes, iDiv, Leipzig
- 2007 – 2012 Doctoral Researcher, Department of Molecular Ecology, MPI-CE, Jena
- 2006 – 2007 Postbaccalaureate Researcher, Department of Molecular Ecology, MPI-CE, Jena
- 2005 – 2006 Fulbright Research Fellow, Department of Molecular Ecology, MPI-CE, Jena
- 2005 Research Assistant, Microbial Ecology, Department of Soil Science, UW-Madison

INSTITUTIONAL RESPONSIBILITIES

- 2022 – present Steering Committee, Center for Reproducible Science, UZH
- 2021 – present Member in faculty appointment or promotion committees (2), Faculty of Science, UZH
- 2020 – present Steering Committee, URPP Global Change & Biodiversity (URPP-GCB), UZH
- 2020 – present Advisory Board, Science Lab and Science Exploratorium UZH
- 2018 – present Principal Investigator, URPP-GCB, UZH

APPROVED RESEARCH PROJECTS

- 2022 – 2024 Co-PI, PSC-Syngenta, PlantEcoAir (volatile detecting robot), 1 Postdoc (175k CHF)
- 2021 – 2024 Co-PI, Swiss Forest Lab, [Remotely Sensing Hybridization](#), 1 Postdoc (250k CHF)
- 2021 – 2023 Co-PI, H2020 Marie Curie [COFUND RESPONSE](#), 0.5 PhD (70k EUR)
- 2021 – 2023 Project partner, SNF [AGORA Biotinkering for Youth](#) (200184)
- 2020 – 2025 Senior Personnel and Foreign Collaborator, US NSF20-508 [BII ASCEND](#)

2020 – 2025	Co-PI, WP lead, H2020 SFS-35-2019-2020 UPSCALE : Upscaling benefits of push- pull agriculture for East Africa, PhD+RA (403k EUR UZH/7.66M EUR total)
2018 – 2024	Co-Investigator, NOMIS foundation grant to Michael E. Schaepman (PI), Remotely Sensing Ecological Genomics (co-funds UZH Spatial Genetics group)
2018 – 2019	Co-PI, project C02, DFG SFB 1127 ChemBioSys, 2 PhDs (375k EUR)
2015 – 2016	Junior group leader, DFG Renewal Proposal for iDiv

SUPERVISION & TEACHING

Supervision of junior researchers (2018 – present, UZH)

- Faculty representative, 4 BSc and 6 MSc theses (to spring 2023)
- Head of Committee, 10 PhD students (promotion): Fanny Petibon (expected 2022), Simon Trim (e. 2023), Ewa Czyż (e. 2023), Isabelle Helfenstein (e. 2023), Cheng Li (e. 2023), Jakob Lang (e. 2024), Alec Luca Hochstrasser (e. 2026), Nicole Manser (e. 2026); Dr. Julia Joswig (graduated 2022, PostDoc at UZH), Dr. Zhaoyu Zheng (g. 2022, PostDoc at AIR CAS)
- Committee Member, 7 PhD students (promotion): Nargiz Safaraliyeva (e. 2023), Marius Vögtli (e. 2023), Aline Meyer Oliveira (e. 2024), Nathalia Carolina Pérez Cardenas (e. 2024), Vincent Grognoz (e. 2025); Dr. Christian Rossi (g. 2021, Scientist, Swiss National Park), Dr. Jonas Böhler (g. 2021, Project Manager, Schweizerische Südostbahn)
- Main supervisor, 7 postdoctoral researchers: Dr. Julia Joswig, Dr. Aboubakr Moradi, Dr. Felix Morsdorf (since 2021: PD), Dr. Sergio E. Ramos, Dr. Sofia van Moorsel; Dr. Blanka Bucsell (since 2021: Senior Scientist, Lonza), Dr. Marylaure de la Harpe (since 2021: Scientific Collaborator, Graubünden Amt Natur u. Umwelt); co-supervisor, 1 PostDoc, Dr. Petra D'Odorico (since 2022: tenure-track scientist, WSL)

Supervision of junior researchers (2014 – present, MPI-CE and FSU)

- Co-supervision, 2 MSc theses: Kathleen Barthel (g. 2018, post-graduate research at Julius Kühn Institute), Dr. Lucille T.S. Chrétien (g. 2014, PhD at Wageningen University, Postdoc at University of Plymouth)
- IMPRS Faculty and Committee Member for 3 PhD students (promotion): Rishav Ray (e. 2022); Dr. Erica McGale (g. 2020, Junior Lecturer, University of Lausanne), Dr. Henriette Valim (g. 2020, Postdoc, Senckenberg Nature Research Society)
- Co-supervision of Postdocs Dr. Jun He (since 2019: Postdoc, Southwest University, Chongqing, China), Dr. Mario Kallenbach (since 2016: Application Specialist, Shimadzu, Germany)

Courses taught (2020 – present, UZH; 2011 – 2018, MPI-CE)

- Coordinator for BSc colloquium (ESS 389), small group teaching (GEO 199), 2023
- CHE 434: Chemical Biology, 2 instructors, 1 semester, lecture & exercises, 2022
- GEO 410: Geography. Matters. 6 instructors, 1 semester, lecture & exercises, 2022
- PhD Seminar II: Dissertation and Applications, 2 instructors, 2 d, workshops, 2021 – present
- BIO 339: Plant Adaptation, 3 instructors, 3.5 wk, lecture & exercises, 2020 – present
- GEO 110: Schweiz 2040, 3 instructors, fall semester, lecture & exercises, 2020 – present
- GEO 712: Carbon Cycling, 2 instructors, 3 d, field excursion, 2020, 2022
- Co-designed and -taught block courses for graduate students (2-5 instructors): analytical techniques; analysis of plant volatiles; molecular biology for chemists and ecologists; genome annotation; infrared gas analyzer (IRGA) measurements; plant ecological signaling, 2011 – 2018

Other teaching activities (2016 – present)

- Guest lectures in courses on bioethics (2018, UZH), agroecology (2022, ETHZ)

- Interactive lectures on chemical ecology & genomics, 2021 – 2022, BII-ASCEND Summer Training
- Participant and workshop leader at GIUZ/ESS graduate school events, 2020 – present, UZH
- Participant and lecturer in colloquia and graduate retreats, 2020 – present, Plant Science Center

OTHER SCIENTIFIC MEMBERSHIPS & ACTIVITIES

2022 – present	Member in Swiss Chemical Society
2020 – present	Participant and co-proposer, sDiv working group sMILE
2020 – present	Senior Editor, eLife
2020	Reviewing Editor, eLife
2018 – present	Member in Swiss Forest Lab , Swiss Plant Science Web / Swiss Society for Plant Biology , Zurich-Basel Plant Science Center
2018 – present	Management Committee, COST Action PlantEd (OC-2018-1-22695)
2012 – present	Peer reviewer for European and North American funding agencies: ANR, DFG, NOW, NSF, GWIS, and > 30 journals in biology, chemistry, ecology, and broader-scope (e.g. eLife, PLoS One, PNAS)

ORGANIZED CONFERENCES AND OUTREACH ACTIVITIES

2022	Workshop for high school chemistry teachers, "Chemie Forschung Aktuell", UZH
2022	Co-convener of session, "From the species to the individual", World Biodiv. Forum
2022	Speaker at UZH Research Event for Baden-Württemberg Media Delegation
2020	Presenter in World Biodiversity Day online event with Science Lab UZH
2017	Co-chair of first Gordon Research Seminar on Plant-Herbivore Interaction
2016	Co-lead and -developer of ChemBioSys Ecological Relevance training workshop
2015	Obtained funding (5k EUR) & co-organized iDiv EvoHack, output: 1 paper, 3 talks
2007 – 2018	Public lectures in German for Studium General, Seniorenkolleg, Botanical Garden, Girls' Day (FSU Jena and MPI-CE)

PRIZES, AWARDS, OWN FELLOWSHIPS

2022 – 2027	DFG TreeDi Mercator fellow
2013	Max Planck Society Otto Hahn Medal for outstanding doctoral research
2005	Fulbright scholarship for postbaccalaureate research
2001 – 2005	Dean's List, UW-Madison
2001 – 2005	Robert C. Byrd Honors Scholar
2001 – 2005	UW-Madison William F. Vilas Scholarship
2004	UW-Madison Trewartha Undergraduate Research Grant
2003	Zillman Summer Scholarship, Phi Kappa Phi
2003	Laurent A. Makward Memorial Scholarship for Study Abroad
2003	UW-Madison Honors Intl. Academic Programs Study Abroad Scholarship
2001	Advanced Placement Scholar with Distinction
2001	National Merit Scholar
2000	Bausch & Lomb Science Award

CAREER BREAKS INCLUDING JUSTIFICATION

2019 (4 months)	Maternity leave
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IMPORTANT ACHIEVEMENTS IN SCIENCE AND OUTREACH

Career: I joined the University of Zurich as a guest professor in fall 2018, funded by the NOMIS foundation project Remotely Sensing Ecological Genomics (PI Michael E. Schaepman, Professorship for Remote Sensing). I am trained in plant chemical ecology and genomics: analyzing small molecules and molecular sequences from plant populations. During my guest professorship, I began using remote sensing and geo-technologies to study plant genetic and chemical diversity, zooming from small to big. I contributed to a proof-of-principle [study](#) using aerial imaging spectroscopy to assess tree population genetics in a Swiss beech forest. I developed ideas for projects to map and predict genetic distributions, environmental responses, and ecological functions in plant communities. I left a permanent group leader position at the Max Planck Institute for Chemical Ecology to pursue high-risk, high-gain research in 2019, when UZH offered me a non-tenure track assistant professorship for [Spatial Genetics](#) in the departments of Geography and Chemistry. In 2020, I received a call to the University of Helsinki for a tenure-track professorship in the chemical ecology of plant interactions. I decided to remain at UZH due to its strong support of my developing research directions, and UZH changed my professorship to tenure-track.

Research program: My interdisciplinary aim is to use and develop [precision tools for uncontrolled natural settings](#), to understand ecological mechanisms and functions governing plants in the real world. I have led teams, and joined consortia, harnessing spatial analyses of laborious field observations to elucidate [plant defense signaling](#) in [context](#), and associate [form and function](#) with environmental gradients. Remote sensing has [potential](#) to accelerate and standardize such observations using drones, planes, and satellites. The Spatial Genetics group works to help realize this potential, establishing infrastructure for ground and aerial field measurements; an analytical and molecular laboratory populated with high-throughput and modularized, mobile equipment; and expertise to commission, analyze and publish flagship aerial and spaceborne remote sensing data, adding to growing public earth observation data. With a strong network of targeted collaborations, we employ these tools to understand how [genetic and biochemical diversity](#) is distributed, and matters, for the plants humans depend on.

Current examples: In European forests, trees differ in resilience to global change, and some of these differences may be genetic. We lead a Swiss-European campaign funded by the NOMIS foundation to assess genetic and biochemical variation [across scales](#) in beech forests. We recently published an approach using [field spectroscopy to screen for biological dissimilarity](#) and biochemical variation from within trees, to between forests, while accounting for uncertainty. With partners in the [UPSCALE](#) consortium, we co-investigate mechanisms underlying “[push-pull](#)” intensification systems developed to increase yields sustainably for smallholder farmers. We integrate outreach by partnering with farmers and local experts to measure “green” chemistry in their diverse and innovative fields.

Outreach: I regularly co-develop, and participate in outreach activities targeted at different groups, as indicated in my CV. Our fieldwork also involves outreach through collaborations with the managers and caretakers of the locations where we are permitted to conduct our research, and by sharing enthusiastic explanations and demonstrations with members of the public who also use these spaces, and stop to ask what we do. Ongoing forest diversity work, partly in collaboration with partners in [TreeDivNet](#) and the [US Biology Integration Institute ASCEND](#), was featured in a video from Science Magazine: [Snapshots from high in the sky](#). We are foreign collaborators in BII-ASCEND, which supports a new generation of scientists [to scale from genes to global systems](#) by fusing genetics, analytical chemistry, experimental ecology, modeling and remote sensing: toolsets we share, co-develop, and teach.