

Christina Kaiser - Curriculum Vitae

University of Vienna

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IIASA - International Institute for Applied Systems Analysis

Evolution and Ecology Program
Schlossplatz 1, A-2361 Laxenburg, Austria
<http://www.iasa.ac.at>

Education

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| 2010 | PhD (Dr.rer.nat) at University of Vienna. Thesis “Resource limitation of microbial decomposition of soil organic matter”, Supervisor: Prof. Dr. Andreas Richter |
| 2003 | Master (Mag.) in Ecology at the University of Vienna |
| 1989-1994 | Graduation Technical Highschool for Informatics and Organisation, Vienna (includes professional training for software-engineering) |

Current Positions

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| 02/2014 - | Group leader (Univ.Ass.) at the Department for Microbiology and Ecosystem Science, University of Vienna |
| 09/2014 - | Guest researcher at the International Institute for Applied System Analysis (IIASA), Laxenburg, Austria |

Previous Positions and Fellowships

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| 12/2011 – 01/2014 | Post-doc fellowship , International Institute for Applied System Analysis (IIASA), Laxenburg, Austria (Prof. Dr. Ulf Dickmann) |
| 2011 | Post-doctoral position , School of Earth and Environment, University of Western Australia (UWA), Australia (Prof. Daniel Murphy) |
| 06/2010 - 12/2010 | Post-doc position , University of Vienna |
| 2006-2010 | PhD candidate at the University of Vienna |
| 2006-2008 | Work package leader within a socioecological research project ‘Integrated modelling of socio-economic and ecological material flows’ (Austrian Ministry for Science and Research, University of Vienna, PI Helmut Haberl). |
| 2003–2005 | Research assistant at the Department of Chemical Ecology and Ecosystem Research, University of Vienna, for various research projects |
| 1994-2000 | Software engineer (Fortran, C, C++, Visual Basic, Java) in various companies |

Teaching and student supervision

02/2014-	Supervision of several PhD and Master theses at the Department of Microbiology and Ecosystem Science. Teaching within the Bachelor program 'Biology' and the Master program 'Ecology and Ecosystems' at the <i>University of Vienna</i> .
06/2012-	Supervision of two PhD students for their summer projects within the Young Scientists Summer Program (YSSP) of the International Institute of Applied Systems Analysis (IIASA).
2008-2010	Associated lecturer in the course „Interactions of terrestrial and aquatic ecosystems“ (Bachelor program Ecology, University of Vienna)

Professional activities

Since 01/2013	Subject Editor for Soil Biology and Biochemistry
Since 2017	Research topic Editor for Frontiers in Microbiology
<i>Ad-hoc</i> Reviewer:	Ecology Letters, Nature Communications, Functional Ecology, Plos ONE, Soil Biology and Biochemistry, Applied Soil Ecology, Forest Ecology and Management
2017	Convener of the session 'Integrating Soil Systems Ecology into biogeochemical models' at the European Geosciences Union (EGU) General Assembly 2017 23-28 April, Vienna, Austria
2017	Convener of the session 'Mycorrhizal microbiomes' at the 9 th International Conference on Mycorrhiza, 30 th July - 4 th August Prague, Czech Republic

Awards

2011	Postdoctoral Scholarship Award of the International Institute of Applied Systems Analysis (IIASA)
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Funded projects

2018-2020	SPACE – The spatial aspect of rhizosphere priming. Austrian Science Fund (FWF Einzelprojekt) 393.422 €, PI Christina Kaiser
2017-2018	Competition or Cooperation: contrasting effects of arbuscular mycorrhiza and ectomycorrhiza on decomposition of organic matter in soil. OEAD (WTZ) Austria – Czech Republik, 6.600 € PI Christina Kaiser
2015-2017	COUP – Constraining uncertainties in the permafrost-climate feedback (Austrian project part). European Research Area, Joint Programming Initiative (JPI climate) 154.000 €, Co-PI Christina Kaiser, Project coordinator Gustav Hugelius, University of Stockholm
2010-2015	CryoCARB – Long-term carbon storage in cryoturbated arctic soils (Austrian project part) ESF- PolarCLIMATE, 285.7000 €, Co-PI Christina Kaiser, PI: Andreas Richter

Invited talks (selected)

- Reciprocal trade of Carbon and Nitrogen at the root-fungus interface in ectomycorrhizal beech plants, Bodenkunde Kolloquium at the University of Hohenheim 11.12.2017 (Host: Prof. Dr. Ellen Kandeler).
- Using NanoSIMS and stable isotope tracing to explore Carbon and Nitrogen exchange in the tripartite symbiosis of beech, ectomycorrhizal fungi and soil bacteria, Biodiversity Kolloquium at the Georg August University of Göttingen, 13.11.2017 (Host: Dr. Rodica Pena and Prof.Dr. Andrea Polle)
- Linking microbial physiology and biogeochemical dynamics through individual-based modelling. Ecological Society of America (ESA) Annual Meeting, Invited 'Ignite' Talk, 6-11 August 2017, Portland, Oregon, USA
- Can self-organisation among microbial decomposer communities affect biogeochemical cycles in soil?, Seminar at the University of Nottingham 8. March 2017 (Host: Prof.Dr. Karl Ritz)
- Understanding emergent phenomena of soil microbial communities using individual-based modelling. *Gordon Research Conference "Unifying Ecology Across Scales"*, 24-29 July 2016, University of New England, Maine, USA
- Exploring the transfer of recent plant photosynthates to soil microbes via the mycorrhizal pathway. 8th International Conference on Mycorrhiza, August 3-7, 2015, Northern Arizona University, USA (*Invited Plenary Symposium Speaker*)
- Modeling dynamic interactions between microbes and substrate at the microscale. Department of Ecology, Evolution and Marine Biology, University of California Santa Barbara (UCSB), Santa Barbara, USA, 12.Dec. 2014 (Host: Prof. Joshua Schimel)
- A microbial community perspective on the regulation of soil organic matter turnover. Invited talk, American Geophysical Union (AGU) Fall meeting, December 2014, San Francisco, USA
- Modelling the link between soil microbial community structure and function in a bottom-up approach. Invited talk, American Geophysical Union (AGU) Fall meeting, December 2012, San Francisco, USA
- From individuals to the community: Interactions between microbial functional group dynamics and C and N flows. 2nd International "Enzymes in the Environment" Workshop on Incorporating Enzymes and Microbial Physiology into Biogeochemical Models, 16th May 2012, Fort Collins, Colorado State University, Colorado, USA

Publications

Total 25 Publications, 1092 citations, h-index = 18 (Web of Science, September 2018)

Publications (peer-reviewed)

1. Walker TWN, **Kaiser C**, Strasser F, Herbold CW, Leblans NIW, Woebken D, Janssens IA, Sigurdsson BD, Richter A (2018) Microbial temperature sensitivity and biomass change explain soil carbon loss with warming. *Nature Climate Change*. DOI: 10.1038/s41558-018-0259-x
2. Schmidt H, Nunan N, Höck A, Eickhorst T, **Kaiser C**, Woebken D, Raynaud X (2018) Recognizing Patterns: Spatial analysis of microbial colonization on root surfaces. *Frontiers in Environmental Science*, <https://doi.org/10.3389/fenvs.2018.00061>
3. Chagnon P, Rineau F, **Kaiser C** (2016) Mycorrhizas across scales: a journey between genomics, global patterns of biodiversity and biogeochemistry. *The New Phytologist*, Vol 209, p 913-916
4. Evans S, Dieckmann U, Franklin O, **Kaiser C**. (2016) Synergistic effects of diffusion and microbial physiology reproduce the Birch effect in a micro-scale model. *Soil Biology and Biochemistry*, Vol 93, p 28-37
5. **Kaiser C**, Franklin O, Richter A, Dieckmann U. (2015) Social dynamics within decomposer communities lead to nitrogen retention and organic matter build-up in soils. *Nature communications*, 6:8960, DOI: 10.1038/ncomms9960
6. **Kaiser C**, Kilburn MR, Clode PL, Fuchslueger L, Koranda M, Cliff JB, Solaiman ZM, Murphy D V. (2015) Exploring the transfer of recent plant photosynthates to soil microbes: mycorrhizal pathway versus direct root exudation. *The New Phytologist* 205(4): 1537-1551.
7. **Kaiser C.**, Franklin O., Dieckmann, U., Richter A., (2014) Microbial community dynamics alleviate stoichiometric constraints during litter decay. *Ecology Letters*, 17: 680-690.
8. Gittel A, Barta J, Kohoutova I, Schneckner J, Wild B, Capek P, **Kaiser C**, Torsvik VL, Richter A, Schleper C, et al. (2014). Site- and horizon-specific patterns of microbial community structure and enzyme activities in permafrost-affected soils of Greenland. *Frontiers in Microbiology* 5: 1–14.
9. Koranda M., **Kaiser C.**, Fuchslueger L., Kitzler B., Sessitsch A., Zechmeister-Boltenstern S., Richter A. (2014) Fungal and bacterial utilization of organic substrates depends on substrate complexity and N availability. *FEMS Microbiology Ecology* 87(1) : 142-152.
10. Wild B., Schneckner J., Bárta J., Čapek P., Guggenberger G., Hofhansl F., **Kaiser C.**, Lashchinsky N., Mikutta R., Mooshammer M., Šantrůčková H., Shibistova O., Urich T., Zimov S.A., Richter A. (2013) Nitrogen dynamics in Turbic Cryosols from Siberia and Greenland. *Soil Biology and Biochemistry*: 67: 85-93.
11. Koranda M., **Kaiser C.**, Fuchslueger L., Kitzler B., Sessitsch A., Zechmeister-Boltenstern S., Richter A. (2013) Seasonal variation in functional properties of microbial communities in beech forest soil. *Soil Biology and Biochemistry* 60: 95-104.
12. **Kaiser C.**, Fuchslueger L., Koranda M., Kitzler B., Gorfer M., Stange F., Rasche F., Strauss J., Zechmeister-Boltenstern S., Sessitsch A., Richter A. (2011). Plants control the seasonal dynamic of microbial N cycling in a beech forest soil by belowground allocation of recently fixed photosynthates, *Ecology*, 92 (5): 1036-1051. **Rated "Must Read"** Faculty of 1000 (F1000) Biology (<http://f1000.com/prime/13371009>)
13. Franklin O., Hall E., **Kaiser C.**, Battin T., Richter A. (2011) Optimization of Biomass Composition Explains Microbial Growth-Stoichiometry Relationships. *The American Naturalist*, 177 (2), E29-E42.

14. Rasche F., Knapp D., **Kaiser C.**, Koranda M., Kitzler B., Zechmeister-Boltenstern S., Richter A., Sessitsch A. (2011) Seasonality and resource availability control bacterial and archaeal communities in soils of a temperate beech forest. *The ISME Journal*, 5 (3): 389-402.
15. Pröll, G., Dullinger S., Dirnböck T., **Kaiser C.**, Richter A. (2011) Nitrogen effects on tree recruitment in a temperate montane forest as analyzed by measured variables and Ellenberg indicator values. *Preslia*, 83 (1): 111-127.
16. Koranda M., Schneckner J., **Kaiser C.**, Fuchslueger L., Kitzler B., Zechmeister-Boltenstern S., Sessitsch A., Richter A. (2011) Microbial processes and community composition in the rhizosphere of European beech – The influence of plant C exudates. *Soil Biology and Biochemistry*, 43 (3): 551-558.
17. **Kaiser C.**, Koranda M., Kitzler B., Fuchslueger L., Schneckner J., Schweiger P., Rasche F., Zechmeister-Boltenstern S., Sessitsch A., Richter A. (2010) Belowground carbon allocation by trees drives seasonal patterns of extracellular enzyme activities by altering microbial community composition in a beech forest soil, *New Phytologist* 187: 843-858. [**Highly Cited paper**, Web of Science]
18. **Kaiser C.**, Frank A., Wild B., Koranda M., Richter A. (2010) Negligible contribution from roots to soil-borne phospholipid fatty acid fungal biomarkers 18:2 ω 6,9 and 18:1 ω 9. *Soil Biology and Biochemistry*, 42 (9): 1650-1652.
19. Gaube V., **Kaiser C.**, Wildenberg M., Adensam H., Fleissner P., Kobler J., Lutz J., Schaumberger A., Schaumberger J., Smetschka B., Wolf A., Richter A. and H. Haberl (2009) Combining agent-based and stock-flow modelling approaches in a participative analysis of the integrated land system in Reichraming, Austria. *Landscape Ecology*, 24 (9): 1149-1165
20. Biasi C., Meyer H., Rusalimova O., Hämmerle R., **Kaiser C.**, Daims H., Lashchinsky N., Barsukov, P. and Richter A. (2008) Initial effects of experimental warming on carbon exchange rates, plant growth and microbial dynamics of a lichen-rich dwarf shrub tundra in Siberia. *Plant and Soil* 307: 191-205.
21. **Kaiser, C.**, H. Meyer, C. Biasi, O. Rusalimova, P. Barsukov, A. Richter (2007) Conservation of soil organic matter through cryoturbation in arctic soils in Siberia. *Journal of Geophysical Research*, 112: G02017.
22. Meyer, H., **Kaiser, C.**, Biasi, C., Hämmerle, R., Rusalimova, O., Lashchinsky, N., Baranyi, C., Daims, H., Barsukov, P., and Richter A. (2006) Soil carbon and nitrogen dynamics along a latitudinal transect in Western Siberia, Russia. *Biogeochemistry* 81 (2): 239-252.
23. **Kaiser, C.**, Meyer, H., Biasi, C., Rusalimova, O., Barsukov, P., Richter, A. (2005) Storage and Mineralization of C and N in soils of a frost-boil tundra ecosystem in Siberia. *Applied Soil Ecology* 29 (2): 173-183.
24. Biasi, C., Rusalimova, O., Meyer, H., **Kaiser, C.**, Wanek, W., Barsukov, P., Högne, J. and Richter, A. (2005) Temperature-dependent shift from labile to recalcitrant carbon sources of arctic heterotrophs. *Rapid Communications in Mass Spectrometry* 19 (11): 1401-1408.
25. Biasi, C., Wanek, W., Rusalimova, O., **Kaiser, C.**, Meyer, H., Barsukov, P., Richter, A. (2005) Microtopography and plant cover controls on nitrogen dynamics in hummock tundra ecosystems in Siberia. *Arctic Antarctic and Alpine Research* 37 (4): 435-443.

Other publications

26. Gaube, V., Kaiser, C., Wildenberg, M., Adensam, H., Fleissner, P., Kobler, J., Lutz, J., Smetschka, B., Wolf, A., Richter, A. and Haberl, H. (2008). Ein integriertes Modell für Reichraming. Partizipative Entwicklung von Szenarien für die Gemeinde Reichraming (Eisenwurzen) mit Hilfe eines agentenbasierten Landnutzungsmodells. *Social Ecology Working Paper* Nr. 106, Wien, ISSN 1726-3816, Institute of Social Ecology, IFF – Faculty for Interdisciplinary Studies.