Wilfred W Otten

List of Publications by Year
in descending order

79 papers	4,194 citations	94433 37 h-index	118850 62 g-index
80 all docs	80 docs citations	80 times ranked	5042 citing authors

#	Article	IF	Citations
1	The role of the natural environment in the emergence of antibiotic resistance in Gram-negative bacteria. Lancet Infectious Diseases, The, 2013, 13, 155-165.	9.1	839
2	Emergent Properties of Microbial Activity in Heterogeneous Soil Microenvironments: Different Research Approaches Are Slowly Converging, Yet Major Challenges Remain. Frontiers in Microbiology, 2018, 9, 1929.	3.5	168
3	Chapter 4 Microbial Distribution in Soils. Advances in Agronomy, 2008, 100, 81-121.	5.2	166
4	Transparent Soil for Imaging the Rhizosphere. PLoS ONE, 2012, 7, e44276.	2.5	156
5	Observer-dependent variability of the thresholding step in the quantitative analysis of soil images and X-ray microtomography data. Geoderma, 2010, 157, 51-63.	5.1	151
6	Challenges and opportunities for quantifying roots and rhizosphere interactions through imaging and image analysis. Plant, Cell and Environment, 2015, 38, 1213-1232.	5.7	117
7	Effect of bulk density on the spatial organisation of the fungus Rhizoctonia solani in soil. FEMS Microbiology Ecology, 2003, 44, 45-56.	2.7	100
8	Saprotrophic invasion by the soilâ€borne fungal plant pathogen Rhizoctonia solani and percolation thresholds. New Phytologist, 2000, 146, 535-544.	7.3	96
9	Soil physics, fungal epidemiology and the spread of Rhizoctonia solani. New Phytologist, 2001, 151, 459-468.	7.3	88
10	From Dust Bowl to Dust Bowl: Soils are Still Very Much a Frontier of Science. Soil Science Society of America Journal, 2011, 75, 2037-2048.	2.2	79
11	Effect of scanning and image reconstruction settings in X-ray computed microtomography on quality and segmentation of 3D soil images. Geoderma, 2013, 207-208, 154-165.	5.1	77
12	Challenges in imaging and predictive modeling of rhizosphere processes. Plant and Soil, 2016, 407, 9-38.	3.7	76
13	Earthwormâ€induced N mineralization in fertilized grassland increases both N₂O emission and cropâ€N uptake. European Journal of Soil Science, 2011, 62, 152-161.	3.9	70
14	Combining X-ray CT and 3D printing technology to produce microcosms with replicable, complex pore geometries. Soil Biology and Biochemistry, 2012, 51, 53-55.	8.8	67
15	Quantification of the pore size distribution of soils: Assessment of existing software using tomographic and synthetic 3D images. Geoderma, 2017, 299, 73-82.	5.1	63
16	Microscale Heterogeneity Explains Experimental Variability and Non-Linearity in Soil Organic Matter Mineralisation. PLoS ONE, 2015, 10, e0123774.	2.5	62
17	A holistic perspective on soil architecture is needed as a key to soil functions. European Journal of Soil Science, 2022, 73, .	3.9	62
18	Empirical evidence of spatial thresholds to control invasion of fungal parasites and saprotrophs. New Phytologist, 2004, 163, 125-132.	7.3	61

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19	Emergent Behavior of Soil Fungal Dynamics. Soil Science, 2012, 177, 111-119.	0.9	61
20	Effects of different soil structures on the decomposition of native andÂadded organic carbon. European Journal of Soil Biology, 2013, 58, 81-90.	3.2	61
21	Microscale Heterogeneity of the Spatial Distribution of Organic Matter Can Promote Bacterial Biodiversity in Soils: Insights From Computer Simulations. Frontiers in Microbiology, 2018, 9, 1583.	3.5	60
22	Three-Dimensional Mapping of Soil Chemical Characteristics at Micrometric Scale by Combining 2D SEM-EDX Data and 3D X-Ray CT Images. PLoS ONE, 2015, 10, e0137205.	2.5	59
23	Continuity of air-filled pores and invasion thresholds for a soil-borne fungal plant pathogen, Rhizoctonia solani. Soil Biology and Biochemistry, 1999, 31, 1803-1810.	8.8	58
24	Estimation of multiple transmission rates for epidemics in heterogeneous populations. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 20392-20397.	7.1	55
25	Estimating rootâ€“soil contact from 3D Xâ€ray microtomographs. European Journal of Soil Science, 2012, 63, 776-786.	3.9	55
26	Adaptive-window indicator kriging: A thresholding method for computed tomography images of porous media. Computers and Geosciences, 2013, 54, 239-248.	4.2	55
27	Combination of techniques to quantify the distribution of bacteria in their soil microhabitats at different spatial scales. Geoderma, 2019, 334, 165-174.	5.1	53
28	Biophysics of the Vadose Zone: From Reality to Model Systems and Back Again. Vadose Zone Journal, 2013, 12, 1-17.	2.2	47
29	Soil structure and soil-borne diseases: using epidemiological concepts to scale from fungal spread to plant epidemics. European Journal of Soil Science, 2006, 57, 26-37.	3.9	45
30	Modelling and quantifying the effect of heterogeneity in soil physical conditions on fungal growth. Biogeosciences, 2010, 7, 3731-3740.	3.3	45
31	Automated statistical method to align 2D chemical maps with 3D X-ray computed micro-tomographic images of soils. Geoderma, 2011, 164, 146-154.	5.1	45
32	Environmental modification and niche construction: developing O2 gradients drive the evolution of the Wrinkly Spreader. ISME Journal, 2011, 5, 665-673.	9.8	45
33	New Local Thresholding Method for Soil Images by Minimizing Grayscale Intraâ€Class Variance. Vadose Zone Journal, 2013, 12, 1-13.	2.2	44
34	Simulating microbial degradation of organic matter in a simple porous system using the 3-D diffusion-based model MOSAIC. Biogeosciences, 2014, 11, 2201-2209.	3.3	44
35	Effect of physical conditions on the spatial and temporal dynamics of the soil-borne fungal pathogen Rhizoctonia solani. New Phytologist, 1998, 138, 629-637.	7.3	40
36	Preferential spread of the pathogenic fungus Rhizoctonia solani through structured soil. Soil Biology and Biochemistry, 2004, 36, 203-210.	8.8	39

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37	Analysis of physical pore space characteristics of two pyrolytic biochars and potential as microhabitat. Plant and Soil, 2016, 408, 357-368.	3.7	39
38	Pore-Scale Monitoring of the Effect of Microarchitecture on Fungal Growth in a Two-Dimensional Soil-Like Micromodel. Frontiers in Environmental Science, 2018, 6, .	3.3	39
39	Bayesian estimation for percolation models of disease spread in plant populations. Statistics and Computing, 2006, 16, 391-402.	1.5	38
40	QUANTIFICATION AND ANALYSIS OF TRANSMISSION RATES FOR SOILBORNE EPIDEMICS. Ecology, 2003, 84, 3232-3239.	3.2	37
41	Transparent soil microcosms allow 3D spatial quantification of soil microbiological processes<i>in vivo</i>. Plant Signaling and Behavior, 2014, 9, e970421.	2.4	37
42	Fungal colonization in soils with different management histories: modeling growth in three-dimensional pore volumes. , 2011, 21, 1202-1210.		36
43	Rainfall infiltration and soil hydrological characteristics below ancient forest, planted forest and grassland in a temperate northern climate. Ecohydrology, 2016, 9, 585-600.	2.4	36
44	Applications of percolation theory to fungal spread with synergy. Journal of the Royal Society Interface, 2012, 9, 949-956.	3.4	34
45	Functional root traitâ€based classification of cover crops to improve soil physical properties. European Journal of Soil Science, 2022, 73, .	3.9	33
46	Prominent Effect of Soil Network Heterogeneity on Microbial Invasion. Physical Review Letters, 2012, 109, 098102.	7.8	31
47	The Effect of Heterogeneity on Invasion in Spatial Epidemics: From Theory to Experimental Evidence in a Model System. PLoS Computational Biology, 2011, 7, e1002174.	3.2	30
48	Influence of soil structure on the spread of <scp><i>Pseudomonas fluorescens</i></scp> in soil at microscale. European Journal of Soil Science, 2021, 72, 141-153.	3.9	29
49	Quantification of Fungal Antigens in Soil with a Monoclonal Antibody-Based ELISA: Analysis and Reduction of Soil-Specific Bias. Phytopathology, 1997, 87, 730-736.	2.2	28
50	Building soil sustainability from rootâ€“soil interface traits. Trends in Plant Science, 2022, 27, 688-698.	8.8	24
51	Control of Pore Geometry in Soil Microcosms and Its Effect on the Growth and Spread of Pseudomonas and Bacillus sp.. Frontiers in Environmental Science, 2018, 6, .	3.3	23
52	In situ visualisation of fungi in soil thin sections: problems with crystallisation of the fluorochrome FB 28 (Calcofluor M2R) and improved staining by SCRI Renaissance 2200. Mycological Research, 2002, 106, 293-297.	2.5	22
53	Soil aggregates as biogeochemical reactors: Not a way forward in the research on soilâ€“atmosphere exchange of greenhouse gases. Global Change Biology, 2019, 25, 2205-2208.	9.5	22
54	Accounting for soil architecture and microbial dynamics in microscale models: Current practices in soil science and the path ahead. European Journal of Soil Science, 2022, 73, .	3.9	22

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55	DAMPING-OFF EPIDEMICS, CONTACT STRUCTURE, AND DISEASE TRANSMISSION IN MIXED-SPECIES POPULATIONS. Ecology, 2005, 86, 1948-1957.	3.2	21
56	A fungal growth model fitted to carbonâ€•limited dynamics of <i>Rhizoctonia solani</i>. New Phytologist, 2008, 178, 625-633.	7.3	21
57	Soil fungal dynamics: Parameterisation and sensitivity analysis of modelled physiological processes, soil architecture and carbon distribution. Ecological Modelling, 2013, 248, 165-173.	2.5	20
58	Research Efforts Involving Several Disciplines: Adherence to a Clear Nomenclature Is Needed. Water, Air, and Soil Pollution, 2014, 225, 1.	2.4	19
59	Inferring the dynamics of a spatial epidemic from time-series data. Bulletin of Mathematical Biology, 2004, 66, 373-391.	1.9	16
60	An empirical method to estimate the effect of soil on the rate for transmission of dampingâ€•off disease. New Phytologist, 2004, 162, 231-238.	7.3	12
61	Scenario modelling of carbon mineralization in <scp>3D</scp> soil architecture at the microscale: Toward an accessibility coefficient of organic matter for bacteria. European Journal of Soil Science, 2022, 73, .	3.9	10
62	Understanding the joint impacts of soil architecture and microbial dynamics on soil functions: Insights derived from microscale models. European Journal of Soil Science, 2022, 73, .	3.9	10
63	Percolation-Based Risk Index for Pathogen Invasion: Application to Soilborne Disease in Propagation Systems. Phytopathology, 2013, 103, 1012-1019.	2.2	9
64	Lessons from a landmark 1991 article on soil structure: distinct precedence of non-destructive assessment and benefits of fresh perspectives in soil research. Soil Research, 2022, 60, 321-336.	1.1	9
65	Preface "Modeling soil system: complexity under your feet". Biogeosciences, 2011, 8, 3139-3142.	3.3	7
66	Editorial: Elucidating Microbial Processes in Soils and Sediments: Microscale Measurements and Modeling. Frontiers in Environmental Science, 2019, 7, .	3.3	7
67	Three-Dimensional Study of F. graminearum Colonisation of Stored Wheat: Post-Harvest Growth Patterns, Dry Matter Losses and Mycotoxin Contamination. Microorganisms, 2020, 8, 1170.	3.6	7
68	Toward Modeling the Resistance and Resilience of â€œBelow-groundâ€• Fungal Communities. Advances in Applied Microbiology, 2015, 93, 1-44.	2.4	7
69	Method to Quantify Shortâ€Term Dynamics in Carbon Dioxide Emission Following Controlled Soil Deformation. Soil Science Society of America Journal, 2000, 64, 1740-1748.	2.2	6
70	All-optical photoacoustic imaging and detection of early-stage dental caries. , 2014, , .		6
71	Uranium diffusion and timeâ€dependent adsorptionâ€“desorption in soil: A model and experimental testing of the model. European Journal of Soil Science, 2020, 71, 215-225.	3.9	5
72	A field system for measuring plant and soil carbon fluxes using stable isotope methods. European Journal of Soil Science, 2020, , .	3.9	5

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73	On allowing for transient variation in endâ€member <scp><i>Î´</i>¹³C</scp> values in partitioning soil <scp>C</scp> fluxes from net ecosystem respiration. European Journal of Soil Science, 2021, 72, 2343-2355.	3.9	3
74	The Impact of Land-Use Practices on Soil Microbes. , 2010, , 273-295.		3
75	Biologica invasion in soil: Complex network analysis. , 2009, , .		2
76	The Rhizosphere: An Ecological Perspective. Edited by Z. G. Cardon and J. L. Whitbeck. Burlington, MA, USA: Elsevier Academic Press (2007), pp. 212, Â£37.99. ISBN -10: 0-12-088775-0-4: ISBN-13: 978-0-12-088775-0.. Experimental Agriculture, 2008, 44, 437-437.	0.9	1
77	Hardware Acceleration of Reaction-Diffusion Systems: A Guide to Optimisation of Pattern Formation Algorithms Using Openacc. , 2019, , .		1
78	A Handbook of Tropical Soil Biology. Sampling and Characterization of Below-ground Biodiversity. By F. M. S. Moreira, E. J. Huising and D. E. Bignell. London: Earthscan (2008), pp. 218, Â£29.95 (paperback). ISBN 978-1-84407-593-5.. Experimental Agriculture, 2009, 45, 373-373.	0.9	0
79	A profile of 70 years of soil research. European Journal of Soil Science, 2018, 69, 21-22.	3.9	0