Tiina R Roose

List of Publications by Year
in descending order

114	4,617	125106	129628
papers	citations	35 h-index	63 g-index

128	128	128	6011
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Modelling of stress transfer in root-reinforced soils informed by four-dimensional X-ray computed tomography and digital volume correlation data. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2022, 478, 20210210.	1.0	2
2	Multimodal correlative imaging and modelling of phosphorus uptake from soil by hyphae of mycorrhizal fungi. New Phytologist, 2022, 234, 688-703.	3.5	20
3	Projected Increases in Precipitation Are Expected To Reduce Nitrogen Use Efficiency and Alter Optimal Fertilization Timings in Agriculture in the South East of England. ACS ES&T Engineering, 2022, 2, 1414-1424.	3.7	3
4	Impact of root hairs on microscale soil physical properties in the field. Plant and Soil, 2022, 476, 491-509.	1.8	6
5	Significance of root hairs for plant performance under contrasting field conditions and water deficit. Annals of Botany, 2021, 128, 1-16.	1.4	66
6	Xâ€ray computed tomography imaging of solute movement through ridged and flat plant systems. European Journal of Soil Science, 2021, 72, 198-214.	1.8	5
7	Space and timeâ€resolved monitoring of phosphorus release from a fertilizer pellet and its mobility in soil using microdialysis and Xâ€ray computed tomography. Soil Science Society of America Journal, 2021, 85, 172-183.	1.2	9
8	Precipitation-optimised targeting of nitrogen fertilisers in a model maize cropping system. Science of the Total Environment, 2021, 756, 144051.	3.9	3
9	Developing a system for in vivo imaging of maize roots containing iodinated contrast media in soil using synchrotron XCT and XRF. Plant and Soil, 2021, 460, 647-665.	1.8	6
10	Quantifying citrate-enhanced phosphate root uptake using microdialysis. Plant and Soil, 2021, 461, 69-89.	1.8	20
11	Physical characterisation of chia mucilage polymeric gel and its implications on rhizosphere science - Integrating imaging, MRI, and modelling to gain insights into plant and microbial amended soils. Soil Biology and Biochemistry, 2021, 162, 108404.	4.2	5
12	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.	1.8	5
13	Rootâ€induced soil deformation influences Fe, S and P: rhizosphere chemistry investigated using synchrotron XRF and XANES. New Phytologist, 2020, 225, 1476-1490.	3.5	44
14	Significance of root hairs at the field scale â€“ modelling root water and phosphorus uptake under different field conditions. Plant and Soil, 2020, 447, 281-304.	1.8	42
15	Mathematical and computational modelling of vegetated soil incorporating hydraulically-driven finite strain deformation. Computers and Geotechnics, 2020, 127, 103754.	2.3	10
16	Combining Seed Dressing and Foliar Applications of Phosphorus Fertilizer Can Give Similar Crop Growth and Yield Benefits to Soil Applications Together With Greater Recovery Rates. Frontiers in Agronomy, 2020, 2, .	1.5	5
17	Mechanisms of root reinforcement in soils: an experimental methodology using four-dimensional X-ray computed tomography and digital volume correlation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20190838.	1.0	9
18	Linking root structure to functionality: the impact of root system architecture on citrateâ€enhanced phosphate uptake. New Phytologist, 2020, 227, 376-391.	3.5	40

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19	A fourâ€compartment multiscale model of fluid and drug distribution in vascular tumours. International Journal for Numerical Methods in Biomedical Engineering, 2020, 36, e3315.	1.0	12
20	Image-based quantification of soil microbial dead zones induced by nitrogen fertilization. Science of the Total Environment, 2020, 727, 138197.	3.9	20
21	Soil carbon dioxide venting through rice roots. Plant, Cell and Environment, 2019, 42, 3197-3207.	2.8	21
22	Stabilizing gold nanoparticles for use in X-ray computed tomography imaging of soil systems. Royal Society Open Science, 2019, 6, 190769.	1.1	11
23	Multiple Scale Homogenisation of Nutrient Movement and Crop Growth in Partially Saturated Soil. Bulletin of Mathematical Biology, 2019, 81, 3778-3802.	0.9	1
24	Understanding the mechanisms of root-reinforcement in soils: soil shear tests using X-ray computed tomography and digital volume correlation. E3S Web of Conferences, 2019, 92, 12009.	0.2	1
25	A multi image-based approach for modelling plant-fertiliser interaction. Rhizosphere, 2019, 10, 100152.	1.4	9
26	Correlative 3D Imaging and Microfluidic Modelling of Human Pulmonary Lymphatics using Immunohistochemistry and High-resolution Î¼CT. Scientific Reports, 2019, 9, 6415.	1.6	14
27	Surface tension, rheology and hydrophobicity of rhizodeposits and seed mucilage influence soil water retention and hysteresis. Plant and Soil, 2019, 437, 65-81.	1.8	53
28	Can VEGFC Form Turing Patterns in the Zebrafish Embryo?. Bulletin of Mathematical Biology, 2019, 81, 1201-1237.	0.9	2
29	Imaging microstructure of the barley rhizosphere: particle packing and root hair influences. New Phytologist, 2019, 221, 1878-1889.	3.5	51
30	A Model of Uranium Uptake by Plant Roots Allowing for Root-Induced Changes in the soil. Environmental Science & Technology, 2018, 52, 3536-3545.	4.6	36
31	Using high resolution X-ray computed tomography to create an image based model of a lymph node. Journal of Theoretical Biology, 2018, 449, 73-82.	0.8	11
32	Determination of macro-scale soil properties from pore-scale structures: model derivation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20170141.	1.0	9
33	Quantification of root water uptake in soil using Xâ€ray computed tomography and imageâ€based modelling. Plant, Cell and Environment, 2018, 41, 121-133.	2.8	36
34	Noninvasive Imaging of Processes in Natural Porous Media: From Pore to Field Scale. Vadose Zone Journal, 2018, 17, 1-3.	1.3	7
35	The effect of root exudates on rhizosphere water dynamics. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180149.	1.0	8
36	Rhizosphereâ€Scale Quantification of Hydraulic and Mechanical Properties of Soil Impacted by Root and Seed Exudates. Vadose Zone Journal, 2018, 17, 1-12.	1.3	41

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37	Correlative Visualization of Root Mucilage Degradation Using X-ray CT and MRI. Frontiers in Environmental Science, 2018, 6, .	1.5	17
38	Determination of macro-scale soil properties from pore scale structures: image-based modelling of poroelastic structures. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20170745.	1.0	6
39	Mathematical modelling of water and solute movement in ridged versus flat planting systems. European Journal of Soil Science, 2018, 69, 967-979.	1.8	9
40	Mathematical modelling of water and solute movement in ridge plant systems with dynamic ponding. European Journal of Soil Science, 2018, 69, 265-278.	1.8	5
41	Image-based modelling of skeletal muscle oxygenation. Journal of the Royal Society Interface, 2017, 14, 20160992.	1.5	13
42	A Mathematical Model of Lymphangiogenesis in a Zebrafish Embryo. Bulletin of Mathematical Biology, 2017, 79, 693-737.	0.9	10
43	The Application of Contrast Media for In Vivo Feature Enhancement in X-Ray Computed Tomography of Soil-Grown Plant Roots. Microscopy and Microanalysis, 2017, 23, 538-552.	0.2	13
44	Phase contrast synchrotron radiation computed tomography of muscle spindles in the mouse soleus muscle. Journal of Anatomy, 2017, 230, 859-865.	0.9	17
45	Modelling water dynamics in the rhizosphere. Rhizosphere, 2017, 4, 139-151.	1.4	14
46	Investigation of microvascular morphological measures for skeletal muscle tissue oxygenation by image-based modelling in three dimensions. Journal of the Royal Society Interface, 2017, 14, 20170635.	1.5	10
47	Highâ€resolution synchrotron imaging shows that root hairs influence rhizosphere soil structure formation. New Phytologist, 2017, 216, 124-135.	3.5	116
48	Fluid flow in porous media using image-based modelling to parametrize Richards' equation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2017, 473, 20170178.	1.0	17
49	Plant exudates may stabilize or weaken soil depending on species, origin and time. European Journal of Soil Science, 2017, 68, 806-816.	1.8	144
50	Measurement of micro-scale soil deformation around roots using four-dimensional synchrotron tomography and image correlation. Journal of the Royal Society Interface, 2017, 14, 20170560.	1.5	25
51	An Explicit Structural Model of Root Hair and Soil Interactions Parameterised by Synchrotron X-ray Computed Tomography. Bulletin of Mathematical Biology, 2017, 79, 2785-2813.	0.9	16
52	Soft tissue 3D imaging in the lab through optimised propagation-based phase contrast computed tomography. Optics Express, 2017, 25, 33451.	1.7	10
53	Reply to comment by X. X. Zhang et al. on â€œThreeâ€dimensional quantification of soil hydraulic properties using Xâ€ray computed tomography and imageâ€based modelingâ€. Water Resources Research, 2016, 52, 5691-5693.	1.7	1
54	The effect of nonâ€uniform microscale distribution of sorption sites on solute diffusion in soil. European Journal of Soil Science, 2016, 67, 514-522.	1.8	9

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55	Measurement of strains experienced by viscerofugal nerve cell bodies during mechanosensitive firing using digital image correlation. American Journal of Physiology - Renal Physiology, 2016, 311, G869-G879.	1.6	5
56	Use of a coupled soil-root-leaf model to optimise phosphate fertiliser use efficiency in barley. Plant and Soil, 2016, 406, 341-357.	1.8	1
57	Challenges in imaging and predictive modeling of rhizosphere processes. Plant and Soil, 2016, 407, 9-38.	1.8	76
58	Mapping soil deformation around plant roots using in vivo 4D X-ray Computed Tomography and Digital Volume Correlation. Journal of Biomechanics, 2016, 49, 1802-1811.	0.9	38
59	Modeling Soil Processes: Review, Key Challenges, and New Perspectives. Vadose Zone Journal, 2016, 15, 1-57.	1.3	445
60	Struvite: a slow-release fertiliser for sustainable phosphorus management?. Plant and Soil, 2016, 401, 109-123.	1.8	235
61	Image-based modelling of nutrient movement in and around the rhizosphere. Journal of Experimental Botany, 2016, 67, 1059-1070.	2.4	51
62	Modelling the optimal phosphate fertiliser and soil management strategy for crops. Plant and Soil, 2016, 401, 135-149.	1.8	16
63	An Image-Based Model of Fluid Flow Through Lymph Nodes. Bulletin of Mathematical Biology, 2016, 78, 52-71.	0.9	32
64	Imaging the interaction of roots and phosphate fertiliser granules using 4D X-ray tomography. Plant and Soil, 2016, 401, 125-134.	1.8	67
65	Threeâ€dimensional quantification of soil hydraulic properties using Xâ€ray Computed Tomography and imageâ€based modeling. Water Resources Research, 2015, 51, 1006-1022.	1.7	94
66	A Model for Interstitial Drainage Through a Sliding Lymphatic Valve. Bulletin of Mathematical Biology, 2015, 77, 1101-1131.	0.9	11
67	Assessing the influence of the rhizosphere on soil hydraulic properties using X-ray computed tomography and numerical modelling. Journal of Experimental Botany, 2015, 66, 2305-2314.	2.4	60
68	Homogenization of two fluid flow in porous media. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20140564.	1.0	24
69	How changing root system architecture can help tackle a reduction in soil phosphate (<scp>P</scp>) levels for better plant <scp>P</scp> acquisition. Plant, Cell and Environment, 2015, 38, 118-128.	2.8	41
70	Mathematical Modelling of the Phloem: The Importance of Diffusion on Sugar Transport at Osmotic Equilibrium. Bulletin of Mathematical Biology, 2014, 76, 2834-2865.	0.9	12
71	Validation of a spatialâ€“temporal soil water movement and plant water uptake model. Geotechnique, 2014, 64, 526-539.	2.2	17
72	Multiscale modelling of hydraulic conductivity in vuggy porous media. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20130383.	1.0	17

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73	A Mathematical Model of Water and Nutrient Transport in Xylem Vessels of a Wheat Plant. Bulletin of Mathematical Biology, 2014, 76, 566-596.	0.9	16
74	A robust approach for determination of the macroâ€porous volume fraction of soils with Xâ€ray computed tomography and an image processing protocol. European Journal of Soil Science, 2013, 64, 298-307.	1.8	7
75	The study of asymptotically fine wrinkling in nonlinear elasticity using a boundary layer analysis. Journal of the Mechanics and Physics of Solids, 2013, 61, 1691-1711.	2.3	2
76	A Model for Fluid Drainage by the Lymphatic System. Bulletin of Mathematical Biology, 2013, 75, 49-81.	0.9	10
77	High resolution synchrotron imaging of wheat root hairs growing in soil and image based modelling of phosphate uptake. New Phytologist, 2013, 198, 1023-1029.	3.5	111
78	Multiscale Modelling of Lymphatic Drainage. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2013, , 149-176.	0.7	7
79	The buckling of capillaries in solid tumours. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 4123-4145.	1.0	27
80	Multiscale modeling of lymphatic drainage from tissues using homogenization theory. Journal of Biomechanics, 2012, 45, 107-115.	0.9	35
81	A mathematical model for investigating the effect of cluster roots on plant nutrient uptake. European Physical Journal: Special Topics, 2012, 204, 103-118.	1.2	18
82	Response to N. J. Barrow by E. Oburger*, D. Leitner, D. L. Jones, T. Roose, A. Schnepf. European Journal of Soil Science, 2012, 63, 528-530.	1.8	0
83	Electrophysiological Characterization of Membrane Disruption by Nanoparticles. ACS Nano, 2011, 5, 3599-3606.	7.3	84
84	Enhanced zinc uptake by rice through phytosiderophore secretion: a modelling study. Plant, Cell and Environment, 2011, 34, 2038-2046.	2.8	49
85	Adsorption and desorption dynamics of citric acid anions in soil. European Journal of Soil Science, 2011, 62, 733-742.	1.8	44
86	A dual porosity model of nutrient uptake by root hairs. New Phytologist, 2011, 192, 676-688.	3.5	58
87	Traits related to differences in function among three arbuscular mycorrhizal fungi. Plant and Soil, 2011, 339, 231-245.	1.8	109
88	Modelling Nutrient Uptake by Individual Hyphae ofÂArbuscular Mycorrhizal Fungi: Temporal and Spatial Scales for an Experimental Design. Bulletin of Mathematical Biology, 2011, 73, 2175-2200.	0.9	30
89	Plantâ€“Soil Interactions, Modeling. Encyclopedia of Earth Sciences Series, 2011, , 637-637.	0.1	0
90	A dynamic model of nutrient uptake by root hairs. New Phytologist, 2010, 185, 792-802.	3.5	85

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91	Diffusion of strongly sorbed solutes in soil: a dualâ€porosity model allowing for slow access to sorption sites and timeâ€dependent sorption reactions. European Journal of Soil Science, 2010, 61, 108-119.	1.8	21
92	Comparison of nutrient uptake between threeâ€dimensional simulation and an averaged root system model. Plant Biosystems, 2010, 144, 443-447.	0.8	13
93	Derivation of a Macroscopic Model for Transport of Strongly Sorbed Solutes in the Soil Using Homogenization Theory. SIAM Journal on Applied Mathematics, 2010, 70, 2097-2118.	0.8	23
94	A dynamic model of annual foliage growth and carbon uptake in trees. Journal of the Royal Society Interface, 2009, 6, 1087-1096.	1.5	1
95	The solution of convectionâ€“diffusion equations for solute transport to plant roots. Plant and Soil, 2009, 316, 257-264.	1.8	31
96	Approaches to modelling mineral weathering by fungi. Fungal Biology Reviews, 2009, 23, 138-144.	1.9	44
97	Impact of growth and uptake patterns of arbuscular mycorrhizal fungi on plant phosphorus uptakeâ€”a modelling study. Plant and Soil, 2008, 312, 85-99.	1.8	66
98	Network Development in Biological Gels: Role in Lymphatic Vessel Development. Bulletin of Mathematical Biology, 2008, 70, 1772-1789.	0.9	20
99	Growth model for arbuscular mycorrhizal fungi. Journal of the Royal Society Interface, 2008, 5, 773-784.	1.5	42
100	Mathematical models of plantâ€“soil interaction. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 4597-4611.	1.6	53
101	Mathematical Models of Avascular Tumor Growth. SIAM Review, 2007, 49, 179-208.	4.2	469
102	A MODEL TO INVESTIGATE THE FEASIBILITY OF FDG AS A SURROGATE MARKER OF HYPOXIA. , 2007, , .		1
103	Transport kinetics of four- and six-coordinate platinum compounds in the multicell layer tumour model. British Journal of Cancer, 2007, 97, 194-200.	2.9	31
104	Modeling the Rhizosphere. Books in Soils, Plants, and the Environment, 2007, , 331-370.	0.1	1
105	Diffusivity and distribution of vinblastine in three-dimensional tumour tissue: Experimental and mathematical modelling. European Journal of Cancer, 2006, 42, 2404-2413.	1.3	27
106	Modelling the contribution of arbuscular mycorrhizal fungi to plant phosphate uptake. New Phytologist, 2006, 171, 669-682.	3.5	59
107	Modelling the rhizosphere: a review of methods for â€˜upscalingâ€™ to the whole-plant scale. European Journal of Soil Science, 2006, 57, 13-25.	1.8	86
108	Verification and intercomparison of reactive transport codes to describe root-uptake. Plant and Soil, 2006, 285, 305-321.	1.8	45

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109	A Mathematical Model for Simultaneous Spatio-Temporal Dynamics of Calcium and Inositol 1,4,5-Trisphosphate in Madinâ€“Darby Canine Kidney Epithelial Cells. Bulletin of Mathematical Biology, 2006, 68, 2027-2051.	0.9	2
110	A model for water uptake by plant roots. Journal of Theoretical Biology, 2004, 228, 155-171.	0.8	97
111	A mathematical model for water and nutrient uptake by plant root systems. Journal of Theoretical Biology, 2004, 228, 173-184.	0.8	79
112	Solid stress generated by spheroid growth estimated using a linear poroelasticity modelâ˜†. Microvascular Research, 2003, 66, 204-212.	1.1	254
113	A mathematical model of plant nutrient uptake. Journal of Mathematical Biology, 2001, 42, 347-360.	0.8	103
114	The effect of population density on shoot morphology of herbs in relation to light capture by leaves. Ecological Modelling, 2000, 128, 51-62.	1.2	12