Craig R Brodersen

List of Publications by Year
in descending order

91	6,022	40	73
papers	citations	h-index	g-index
		76294	79644

102	102	102	5633
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Triggers of tree mortality under drought. Nature, 2018, 558, 531-539.	13.7	957
2	The Dynamics of Embolism Repair in Xylem: In Vivo Visualizations Using High-Resolution Computed Tomography Â Â Â. Plant Physiology, 2010, 154, 1088-1095.	2.3	335
3	Maintenance of xylem Network Transport Capacity: A Review of Embolism Repair in Vascular Plants. Frontiers in Plant Science, 2013, 4, 108.	1.7	248
4	Outside-Xylem Vulnerability, Not Xylem Embolism, Controls Leaf Hydraulic Decline during Dehydration. Plant Physiology, 2017, 173, 1197-1210.	2.3	195
5	Do changes in light direction affect absorption profiles in leaves?. Functional Plant Biology, 2010, 37, 403.	1.1	185
6	In Vivo Visualizations of Drought-Induced Embolism Spread in <i>Vitis vinifera</i> Â Â Â. Plant Physiology, 2013, 161, 1820-1829.	2.3	179
7	Measurement of vulnerability to water stress-induced cavitation in grapevine: a comparison of four techniques applied to a long-vesseled species. Plant, Cell and Environment, 2010, 33, no-no.	2.8	175
8	Direct X-Ray Microtomography Observation Confirms the Induction of Embolism upon Xylem Cutting under Tension. Plant Physiology, 2015, 167, 40-43.	2.3	156
9	A new paradigm in leafâ€level photosynthesis: direct and diffuse lights are not equal. Plant, Cell and Environment, 2008, 31, 159-164.	2.8	136
10	Synchrotron Xâ€ray microtomography of xylem embolism in <i>Sequoia sempervirens</i> saplings during cycles of drought and recovery. New Phytologist, 2015, 205, 1095-1105.	3.5	127
11	Automated analysis of threeâ€dimensional xylem networks using highâ€resolution computed tomography. New Phytologist, 2011, 191, 1168-1179.	3.5	122
12	Mechanical Failure of Fine Root Cortical Cells Initiates Plant Hydraulic Decline during Drought. Plant Physiology, 2016, 172, 1669-1678.	2.3	120
13	Leaf vein xylem conduit diameter influences susceptibility to embolism and hydraulic decline. New Phytologist, 2017, 213, 1076-1092.	3.5	102
14	The Scaling of Genome Size and Cell Size Limits Maximum Rates of Photosynthesis with Implications for Ecological Strategies. International Journal of Plant Sciences, 2020, 181, 75-87.	0.6	96
15	Do epidermal lens cells facilitate the absorptance of diffuse light?. American Journal of Botany, 2007, 94, 1061-1066.	0.8	94
16	Grapevine species from varied native habitats exhibit differences in embolism formation/repair associated with leaf gas exchange and root pressure. Plant, Cell and Environment, 2015, 38, 1503-1513.	2.8	85
17	In Situ Visualization of the Dynamics in Xylem Embolism Formation and Removal in the Absence of Root Pressure: A Study on Excised Grapevine Stems Â. Plant Physiology, 2016, 171, 1024-1036.	2.3	85
18	Bark water uptake promotes localized hydraulic recovery in coastal redwood crown. Plant, Cell and Environment, 2016, 39, 320-328.	2.8	84

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19	Grapevine petioles are more sensitive to drought induced embolism than stems: evidence from <i>in vivo</i> MRI and microcomputed tomography observations of hydraulic vulnerability segmentation. Plant, Cell and Environment, 2016, 39, 1886-1894.	2.8	82
20	New frontiers in the threeâ€dimensional visualization of plant structure and function. American Journal of Botany, 2016, 103, 184-188.	0.8	81
21	The physiological resilience of fern sporophytes and gametophytes: advances in water relations offer new insights into an old lineage. Frontiers in Plant Science, 2013, 4, 285.	1.7	79
22	The Parenchyma of Secondary Xylem and Its Critical Role in Tree Defense against Fungal Decay in Relation to the CODIT Model. Frontiers in Plant Science, 2016, 7, 1665.	1.7	79
23	Functional Status of Xylem Through Time. Annual Review of Plant Biology, 2019, 70, 407-433.	8.6	79
24	Beyond Porosity: 3D Leaf Intercellular Airspace Traits That Impact Mesophyll Conductance. Plant Physiology, 2018, 178, 148-162.	2.3	75
25	Visualizing wood anatomy in three dimensions with high-resolution X-ray micro-tomography (Î¼CT) â€" a review â€". IAWA Journal, 2013, 34, 408-424.	2.7	64
26	Linking xylem network failure with leaf tissue death. New Phytologist, 2021, 232, 68-79.	3.5	64
27	Leaf architecture and direction of incident light influence mesophyll fluorescence profiles. American Journal of Botany, 2005, 92, 1425-1431.	0.8	62
28	Xylem vessel relays contribute to radial connectivity in grapevine stems (<i>Vitis vinifera</i> and <i>V.) Tj ETQq0 0 0 rgBT /Overlock 10 T	0.8	60
29	The bias of a twoâ€dimensional view: comparing twoâ€dimensional and threeâ€dimensional mesophyll surface area estimates using noninvasive imaging. New Phytologist, 2017, 215, 1609-1622.	3.5	57
30	Hydraulic conductance and the maintenance of water balance in flowers. Plant, Cell and Environment, 2016, 39, 2123-2132.	2.8	56
31	<i>In vivo</i> visualization of the final stages of xylem vessel refilling in grapevine (<i>Vitis) Tj ETQq1 1 0.784314 rgBT /Overlock 10 T	3.5	56
32	Measurement of the Optical Properties of Leaves Under Diffuse Light. Photochemistry and Photobiology, 2010, 86, 1076-1083.	1.3	55
33	Embracing 3D Complexity in Leaf Carbonâ€"Water Exchange. Trends in Plant Science, 2019, 24, 15-24.	4.3	55
34	X-ray micro-tomography at the Advanced Light Source. Proceedings of SPIE, 2012, , .	0.8	54
35	Cavitation Resistance in Seedless Vascular Plants: The Structure and Function of Interconduit Pit Membranes Â Â. Plant Physiology, 2014, 165, 895-904.	2.3	53
36	Patterns of drought-induced embolism formation and spread in living walnut saplings visualized using X-ray microtomography. Tree Physiology, 2015, 35, 744-755.	1.4	53

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37	Maximum CO₂diffusion inside leaves is limited by the scaling of cell size and genome size. Proceedings of the Royal Society B: Biological Sciences, 2021, 288, 20203145.	1.2	52
38	Centrifuge technique consistently overestimates vulnerability to water stressâ€induced cavitation in grapevines as confirmed with highâ€resolution computed tomography. New Phytologist, 2012, 196, 661-665.	3.5	50
39	The Causes of Leaf Hydraulic Vulnerability and Its Influence on Gas Exchange in <i>Arabidopsis thaliana</i>. Plant Physiology, 2018, 178, 1584-1601.	2.3	50
40	Differences in grapevine rootstock sensitivity and recovery from drought are linked to fine root cortical lacunae and root tip function. New Phytologist, 2021, 229, 272-283.	3.5	50
41	Hydraulic safety margins and airâ€seeding thresholds in roots, trunks, branches and petioles of four northern hardwood trees. New Phytologist, 2018, 219, 77-88.	3.5	47
42	The physiological implications of primary xylem organization in two ferns. Plant, Cell and Environment, 2012, 35, 1898-1911.	2.8	42
43	Hydraulic traits are more diverse in flowers than in leaves. New Phytologist, 2019, 223, 193-203.	3.5	42
44	In vivo pressure gradient heterogeneity increases flow contribution of small diameter vessels in grapevine. Nature Communications, 2019, 10, 5645.	5.8	41
45	Identifying the pathways for foliar water uptake in beech (<i>Fagus sylvatica</i> L.): a major role for trichomes. Plant Journal, 2020, 103, 769-780.	2.8	41
46	Seedling Survival at Timberline Is Critical to Conifer Mountain Forest Elevation and Extent. Frontiers in Forests and Global Change, 2019, 2, .	1.0	40
47	Water relations of <i>Calycanthus</i> flowers: Hydraulic conductance, capacitance, and embolism resistance. Plant, Cell and Environment, 2018, 41, 2250-2262.	2.8	39
48	Spatiotemporal Coupling of Vessel Cavitation and Discharge of Stored Xylem Water in a Tree Sapling. Plant Physiology, 2019, 179, 1658-1668.	2.3	39
49	Genetic variation in photosynthetic characteristics among invasive and native populations of reed canarygrass (Phalaris arundinacea). Biological Invasions, 2008, 10, 1317-1325.	1.2	38
50	<i>In vivo</i> quantification of plant starch reserves at micrometer resolution using Xâ€ray micro<scp>CT</scp> imaging and machine learning. New Phytologist, 2018, 218, 1260-1269.	3.5	38
51	The Spatial Distribution of Chlorophyll in Leaves. Plant Physiology, 2019, 180, 1406-1417.	2.3	36
52	Phloem Production in Huanglongbing-affected Citrus Trees. Hortscience: A Publication of the American Society for Hortcultural Science, 2014, 49, 59-64.	0.5	34
53	Xylem Embolism Spreads by Single-Conduit Events in Three Dry Forest Angiosperm Stems. Plant Physiology, 2020, 184, 212-222.	2.3	33
54	Using High Resolution Computed Tomography to Visualize the Three Dimensional Structure and Function of Plant Vasculature. Journal of Visualized Experiments, 2013, , .	0.2	32

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55	Xylem network connectivity and embolism spread in grapevine(<i>Vitis vinifera</i>L.). Plant Physiology, 2021, 186, 373-387.	2.3	32
56	Storage Compartments for Capillary Water Rarely Refill in an Intact Woody Plant Â. Plant Physiology, 2017, 175, 1649-1660.	2.3	31
57	Leaf cell-specific and single-cell transcriptional profiling reveals a role for the palisade layer in UV light protection. Plant Cell, 2022, 34, 3261-3279.	3.1	31
58	Structural organization of the spongy mesophyll. New Phytologist, 2022, 234, 946-960.	3.5	29
59	Photosynthesis during an Episodic Drought in Abies lasiocarpa and Picea engelmannii across an Alpine Treeline. Arctic, Antarctic, and Alpine Research, 2006, 38, 34-41.	0.4	28
60	Excess Diffuse Light Absorption in Upper Mesophyll Limits CO₂ Drawdown and Depresses Photosynthesis. Plant Physiology, 2017, 174, 1082-1096.	2.3	28
61	Water uptake can occur through woody portions of roots and facilitates localized embolism repair in grapevine. New Phytologist, 2018, 218, 506-516.	3.5	28
62	Finding support for theoretical tradeoffs in xylem structure and function. New Phytologist, 2016, 209, 8-10.	3.5	26
63	Analysis of HRCT-derived xylem network reveals reverse flow in some vessels. Journal of Theoretical Biology, 2013, 333, 146-155.	0.8	25
64	Variations in xylem embolism susceptibility under drought between intact saplings of three walnut species. Tree Physiology, 2018, 38, 1180-1192.	1.4	25
65	Digitally deconstructing leaves in 3D using Xâ€ray microcomputed tomography and machine learning. Applications in Plant Sciences, 2020, 8, e11380.	0.8	23
66	Contrasting hydraulic architecture and function in deep and shallow roots of tree species from a semi-arid habitat. Annals of Botany, 2014, 113, 617-627.	1.4	22
67	Whole root system water conductance responds to both axial and radial traits and network topology over natural range of trait variation. Journal of Theoretical Biology, 2018, 456, 49-61.	0.8	22
68	The use of laser light to enhance the uptake of foliarâ€applied substances into citrus (<i>Citrus) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 2	0.8	21
69	Natural selection maintains species despite frequent hybridization in the desert shrub <i>Encelia</i>. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 33373-33383.	3.3	21
70	The Structure and Function of Xylem in Seed-Free Vascular Plants: An Evolutionary Perspective. , 2015, , 1-37.		20
71	Coordinated decline of leaf hydraulic and stomatal conductances under drought is not linked to leaf xylem embolism for different grapevine cultivars. Journal of Experimental Botany, 2020, 71, 7286-7300.	2.4	18
72	Desiccation of the leaf mesophyll and its implications for CO₂ diffusion and light processing. Plant, Cell and Environment, 2022, 45, 1362-1381.	2.8	15

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73	MicroCT imaging as a tool to study vessel endings in situ. American Journal of Botany, 2017, 104, 1424-1430.	0.8	13
74	Hydraulic conductance, resistance, and resilience: how leaves of a tropical epiphyte respond to drought. American Journal of Botany, 2019, 106, 943-957.	0.8	12
75	The functional implications of tracheary connections across growth rings in four northern hardwood trees. Annals of Botany, 2019, 124, 297-306.	1.4	11
76	Desiccation and rehydration dynamics in the epiphytic resurrection fern <i>Pleopeltis polypodioides</i>. Plant Physiology, 2021, 187, 1501-1518.	2.3	11
77	Diversification, disparification and hybridization in the desert shrubs <i>Encelia</i>. New Phytologist, 2021, 230, 1228-1241.	3.5	10
78	Embolism spread in the primary xylem of <i>Polystichum munitum</i>: implications for water transport during seasonal drought. Plant, Cell and Environment, 2016, 39, 338-346.	2.8	9
79	Seasonal coordination of leaf hydraulics and gas exchange in a wintergreen fern. AoB PLANTS, 2020, 12, plaa048.	1.2	9
80	Hydraulic consequences of enzymatic breakdown of grapevine pit membranes. Plant Physiology, 2021, 186, 1919-1931.	2.3	9
81	Ecologically driven selection of nonstructural carbohydrate storage in oak trees. New Phytologist, 2021, 232, 567-578.	3.5	9
82	The threeâ€dimensional construction of leaves is coordinated with water use efficiency in conifers. New Phytologist, 2022, 233, 851-861.	3.5	9
83	Integrated plant temperature measurement using heat-sensitive paint and colour image analysis. Functional Ecology, 2004, 18, 148-153.	1.7	6
84	Visualizing water transport in roots: advanced imaging tools for an expanding field. Plant and Soil, 2013, 366, 29-32.	1.8	5
85	Influence of dry season onQuercus suberL. leaf traits in the Iberian Peninsula. American Journal of Botany, 2019, 106, 656-666.	0.8	5
86	Anatomical and hydraulic responses to desiccation in emergent conifer seedlings. American Journal of Botany, 2020, 107, 1177-1188.	0.8	5
87	Foliar water uptake does not contribute to embolism repair in beech (Fagus sylvatica L.). Annals of Botany, 2022, , .	1.4	5
88	Pathogenâ€induced hydraulic decline limits photosynthesis and starch storage in grapevines (<i>Vitis</i> sp.). Plant, Cell and Environment, 2022, 45, 1829-1842.	2.8	5
89	Conduit position and connectivity affect the likelihood of xylem embolism during natural drought in evergreen woodland species. Annals of Botany, 2022, 130, 431-444.	1.4	5
90	Laser surgery reveals the biomechanical and chemical signaling functions of aphid siphunculi (cornicles). PLoS ONE, 2018, 13, e0204984.	1.1	3

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91	By the narrowest of margins: nano-scale modification of pit membranes and the fate of plants during drought. A commentary on: â€˜Intervessel pit membrane thickness best explains variation in embolism resistance amongst stems of Arabidopsis thaliana accessionsâ€™. Annals of Botany, 2021, 128, iii-v.	1.4	0