Walter Federle

List of Publications by Year
in descending order

86 papers	5,800 citations	66343 42 h-index	76900 74 g-index
101 all docs	101 docs citations	101 times ranked	3773 citing authors

#	Article	IF	Citations
1	Disentangling the role of surface topography and intrinsic wettability in the prey capture mechanism of Nepenthes pitcher plants. Acta Biomaterialia, 2021, 119, 225-233.	8.3	16
2	Role of legs and foot adhesion in salticid spiders jumping from smooth surfaces. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2021, 207, 165-177.	1.6	3
3	Developmental Nutrition Affects the Structural Integrity of a Sexually Selected Weapon. Integrative and Comparative Biology, 2021, 61, 723-735.	2.0	10
4	How a sticky fluid facilitates prey retention in a carnivorous pitcher plant (Nepenthes rafflesiana). Acta Biomaterialia, 2021, 128, 357-369.	8.3	7
5	Extreme suction attachment performance from specialised insects living in mountain streams (Diptera:) Tj ETQq1 1 0.784314 rgBT /Ove	6.0	8
6	Switchable Underwater Adhesion by Deformable Cupped Microstructures. Advanced Materials Interfaces, 2020, 7, 2001269.	3.7	26
7	The mechanics of nectar offloading in the bumblebee<i>Bombus terrestris</i>and implications for optimal concentrations during nectar foraging. Journal of the Royal Society Interface, 2020, 17, 20190632.	3.4	13
8	Venus flytrap trigger hairs are micronewton mechano-sensors that can detect small insect prey. Nature Plants, 2019, 5, 670-675.	9.3	55
9	Strong Wet and Dry Adhesion by Cupped Microstructures. ACS Applied Materials & Interfaces, 2019, 11, 26483-26490.	8.0	58
10	Shear-sensitive adhesion enables size-independent adhesive performance in stick insects. Proceedings of the Royal Society B: Biological Sciences, 2019, 286, 20191327.	2.6	18
11	Dynamic biological adhesion: mechanisms for controlling attachment during locomotion. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20190199.	4.0	55
12	Froghoppers jump from smooth plant surfaces by piercing them with sharp spines. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 3012-3017.	7.1	19
13	Slippery paints: Eco-friendly coatings that cause ants to slip. Progress in Organic Coatings, 2019, 135, 331-344.	3.9	10
14	Coatings preventing insect adhesion: An overview. Progress in Organic Coatings, 2019, 134, 349-359.	3.9	26
15	Morphology of powerful suction organs from blephariceid larvae living in raging torrents. BMC Zoology, 2019, 4, .	1.0	19
16	Coping with the climate: Cuticular hydrocarbon acclimation of ants under constant and fluctuating conditions. Journal of Experimental Biology, 2018, 221, .	1.7	44
17	Scaling of claw sharpness: mechanical constraints reduce attachment performance in larger insects. Journal of Experimental Biology, 2018, 221, .	1.7	33
18	Jumping without slipping: leafhoppers (Hemiptera: Cicadellidae) possess special tarsal structures for jumping from smooth surfaces. Journal of the Royal Society Interface, 2017, 14, 20170022.	3.4	17

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19	Biomechanics of shear-sensitive adhesion in climbing animals: peeling, pre-tension and sliding-induced changes in interface strength. Journal of the Royal Society Interface, 2016, 13, 20160373.	3.4	30
20	Elasto-capillarity in insect fibrillar adhesion. Journal of the Royal Society Interface, 2016, 13, 20160371.	3.4	32
21	Extreme positive allometry of animal adhesive pads and the size limits of adhesion-based climbing. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 1297-1302.	7.1	92
22	Functional morphology and efficiency of the antenna cleaner in <i>Camponotus rufifemur</i> ants. Royal Society Open Science, 2015, 2, 150129.	2.4	16
23	Rate-dependence of â€˜wetâ€™ biological adhesives and the function of the pad secretion in insects. Soft Matter, 2015, 11, 8661-8673.	2.7	58
24	How to catch more prey with less effective traps: explaining the evolution of temporarily inactive traps in carnivorous pitcher plants. Proceedings of the Royal Society B: Biological Sciences, 2015, 282, 20142675.	2.6	28
25	Scaling and biomechanics of surface attachment in climbing animals. Philosophical Transactions of the Royal Society B: Biological Sciences, 2015, 370, 20140027.	4.0	108
26	Mechanotransduction: use the force(s). BMC Biology, 2015, 13, 47.	3.8	183
27	Effect of shear forces and ageing on the compliance of adhesive pads in adult cockroaches. Journal of Experimental Biology, 2015, 218, 2775-81.	1.7	12
28	Enhanced adhesion of bioinspired nanopatterned elastomers via colloidal surface assembly. Journal of the Royal Society Interface, 2015, 12, 20141061.	3.4	21
29	On Heels and Toes: How Ants Climb with Adhesive Pads and Tarsal Friction Hair Arrays. PLoS ONE, 2015, 10, e0141269.	2.5	43
30	Insect adhesion on rough surfaces: analysis of adhesive contact of smooth and hairy pads on transparent microstructured substrates. Journal of the Royal Society Interface, 2014, 11, 20140499.	3.4	45
31	Surface contact and design of fibrillar â€˜friction padsâ€™ in stick insects (<i>Carausius morosus</i>): mechanisms for large friction coefficients and negligible adhesion. Journal of the Royal Society Interface, 2014, 11, 20140034.	3.4	43
32	Surface contact and design of fibrillar â€˜friction padsâ€™ in stick insects (<i>Carausius morosus</i>): mechanisms for large friction coefficients and negligible adhesion. Journal of the Royal Society Interface, 2014, 11, 20140192.	3.4	4
33	Bioâ€Inspired Hierarchical Polymer Fiberâ€“Carbon Nanotube Adhesives. Advanced Materials, 2014, 26, 1456-1461.	21.0	61
34	â€˜Insect aquaplaningâ€™ on a superhydrophilic hairy surface: how<i>Heliamphora nutans</i>Benth. pitcher plants capture prey. Proceedings of the Royal Society B: Biological Sciences, 2013, 280, 20122569.	2.6	26
35	Biomechanics of plantâ€“insect interactions. Current Opinion in Plant Biology, 2013, 16, 105-111.	7.1	48
36	Rapid preflexes in smooth adhesive pads of insects prevent sudden detachment. Proceedings of the Royal Society B: Biological Sciences, 2013, 280, 20122868.	2.6	22

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37	Sticking like sticky tape: tree frogs use friction forces to enhance attachment on overhanging surfaces. Journal of the Royal Society Interface, 2013, 10, 20120838.	3.4	78
38	How Load-Carrying Ants Avoid Falling Over: Mechanical Stability during Foraging in Atta vollenweideri Grass-Cutting Ants. PLoS ONE, 2013, 8, e52816.	2.5	30
39	A Novel Type of Nutritional Antâ€“Plant Interaction: Ant Partners of Carnivorous Pitcher Plants Prevent Nutrient Export by Dipteran Pitcher Infauna. PLoS ONE, 2013, 8, e63556.	2.5	26
40	Functionally Different Pads on the Same Foot Allow Control of Attachment: Stick Insects Have Load-Sensitive â€œHeelâ€•Pads for Friction and Shear-Sensitive â€œToeâ€•Pads for Adhesion. PLoS ONE, 2013, 8, e81943.	2.5	68
41	The energetics of running stability: costs of transport in grass-cutting ants depend on fragment shape. Journal of Experimental Biology, 2012, 215, 161-168.	1.7	18
42	Mechanisms of self-cleaning in fluid-based smooth adhesive pads of insects. Bioinspiration and Biomimetics, 2012, 7, 046001.	2.9	13
43	In vivo dynamics of the internal fibrous structure in smooth adhesive pads of insects. Acta Biomaterialia, 2012, 8, 2730-2736.	8.3	35
44	With a Flick of the Lid: A Novel Trapping Mechanism in Nepenthes gracilis Pitcher Plants. PLoS ONE, 2012, 7, e38951.	2.5	29
45	Ants swimming in pitcher plants: kinematics of aquatic and terrestrial locomotion in Camponotus schmitzi. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2012, 198, 465-476.	1.6	23
46	Form follows function: morphological diversification and alternative trapping strategies in carnivorous <i>Nepenthes</i> pitcher plants. Journal of Evolutionary Biology, 2012, 25, 90-102.	1.7	45
47	Setting the trap: cleaning behaviour of <i>Camponotus schmitzi</i> ants increases longâ€term capture efficiency of their pitcher plant host, <i>Nepenthes bicalcarata</i>. Functional Ecology, 2012, 26, 11-19.	3.6	37
48	Fluid-based adhesion in insects â€“ principles and challenges. Soft Matter, 2011, 7, 11047.	2.7	111
49	Beetle adhesive hairs differ in stiffness and stickiness: in vivo adhesion measurements on individual setae. Die Naturwissenschaften, 2011, 98, 381-387.	1.6	77
50	Arachnids Secrete a Fluid over Their Adhesive Pads. PLoS ONE, 2011, 6, e20485.	2.5	44
51	The effect of surface roughness on claw and adhesive hair performance in the dock beetle Gastrophysa viridula. Insect Science, 2011, 18, 298-304.	3.0	106
52	Mechanisms of fluid production in smooth adhesive pads of insects. Journal of the Royal Society Interface, 2011, 8, 952-960.	3.4	46
53	Evidence for alternative trapping strategies in two forms of the pitcher plant, Nepenthes rafflesiana. Journal of Experimental Botany, 2011, 62, 3683-3692.	4.8	44
54	Foraging grass-cutting ants (Atta vollenweideri) maintain stability by balancing their loads with controlled head movements. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2010, 196, 471-480.	1.6	33

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55	Impact of chemical manipulation of tarsal liquids on attachment in the Colorado potato beetle, Leptinotarsa decemlineata. Journal of Insect Physiology, 2010, 56, 398-404.	2.0	31
56	Insect tricks: two-phasic foot pad secretion prevents slipping. Journal of the Royal Society Interface, 2010, 7, 587-593.	3.4	75
57	Evidence for self-cleaning in fluid-based smooth and hairy adhesive systems of insects. Journal of Experimental Biology, 2010, 213, 635-642.	1.7	59
58	Effect of pitcher age on trapping efficiency and natural prey capture in carnivorous Nepenthes rafflesiana plants. Annals of Botany, 2009, 103, 1219-1226.	2.9	48
59	Division of labour and sex differences between fibrillar, tarsal adhesive pads in beetles: effective elastic modulus and attachment performance. Journal of Experimental Biology, 2009, 212, 1876-1888.	1.7	87
60	Friction ridges in cockroach climbing pads: anisotropy of shear stress measured on transparent, microstructured substrates. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2009, 195, 805-814.	1.6	52
61	Walking on smooth or rough ground: passive control of pretarsal attachment in ants. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2008, 194, 49-60.	1.6	48
62	Micromechanics of smooth adhesive organs in stick insects: pads are mechanically anisotropic and softer towards the adhesive surface. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2008, 194, 373-384.	1.6	59
63	Comparison of smooth and hairy attachment pads in insects: friction,adhesion and mechanisms for direction-dependence. Journal of Experimental Biology, 2008, 211, 3333-3343.	1.7	147
64	Harmless nectar source or deadly trap: <i>Nepenthes</i> pitchers are activated by rain, condensation and nectar. Proceedings of the Royal Society B: Biological Sciences, 2008, 275, 259-265.	2.6	101
65	Pushing versus pulling: division of labour between tarsal attachment pads in cockroaches. Proceedings of the Royal Society B: Biological Sciences, 2008, 275, 1329-1336.	2.6	110
66	A Multiaxis Force Sensor for the Study of Insect Biomechanics. Journal of Microelectromechanical Systems, 2007, 16, 709-718.	2.5	25
67	Why are so many adhesive pads hairy?. Journal of Experimental Biology, 2006, 209, 2611-2621.	1.7	217
68	Wet but not slippery: boundary friction in tree frog adhesive toe pads. Journal of the Royal Society Interface, 2006, 3, 689-697.	3.4	323
69	Biomechanics of smooth adhesive pads in insects: influence of tarsal secretion on attachment performance. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2006, 192, 1213-1222.	1.6	174
70	Macaranga ant-plants hide food from intruders: correlation of food presentation and presence of wax barriers analysed using phylogenetically independent contrasts. Biological Journal of the Linnean Society, 2005, 84, 177-193.	1.6	11
71	Insect aquaplaning: Nepenthes pitcher plants capture prey with the peristome, a fully wettable water-lubricated anisotropic surface. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 14138-14143.	7.1	642
72	Biomechanics of ant adhesive pads: frictional forces are rate- and temperature-dependent. Journal of Experimental Biology, 2004, 207, 67-74.	1.7	92

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73	Locomotion and adhesion: dynamic control of adhesive surface contact in ants. Arthropod Structure and Development, 2004, 33, 67-75.	1.4	88
74	Thrips pollination of the dioecious ant plant <i>Macaranga hullettii</i> (Euphorbiaceae) in Southeast Asia. American Journal of Botany, 2002, 89, 50-59.	1.7	67
75	An Integrative Study of Insect Adhesion: Mechanics and Wet Adhesion of Pretarsal Pads in Ants. Integrative and Comparative Biology, 2002, 42, 1100-1106.	2.0	316
76	Pruning of host plant neighbours as defence against enemy ant invasions: Crematogaster ant partners of Macaranga protected by "wax barriers" prune less than their congeners. Oecologia, 2002, 132, 264-270.	2.0	58
77	Incident daylight as orientation cue for hole-boring ants: prostomata in Macaranga ant-plants. Insectes Sociaux, 2001, 48, 165-177.	1.2	21
78	Biomechanics of the movable pretarsal adhesive organ in ants and bees. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 6215-6220.	7.1	181
79	Exploring Insect Biomechanics with Micromachined Force Sensors. , 2001, , 1634-1637.		0
80	Chemical composition of the slippery epicuticular wax blooms on Macaranga (Euphorbiaceae) ant-plants. Chemoecology, 2000, 10, 33-40.	1.1	97
81	Attachment Forces of Ants Measured With a Centrifuge: Better â€˜Wax-Runnersâ€™ Have a Poorer Attachment to a Smooth Surface. Journal of Experimental Biology, 2000, 203, 505-512.	1.7	144
82	Attachment forces of ants measured with a centrifuge: better 'wax-runners' have a poorer attachment to a smooth surface. Journal of Experimental Biology, 2000, 203, 505-12.	1.7	104
83	The two-partner ant-plant system of Camponotus (Colobopsis) sp. 1 and Macaranga puncticulata (Euphorbiaceae): natural history of the exceptional ant partner. Insectes Sociaux, 1998, 45, 1-16.	1.2	57
84	<i>Camponotus (Colobopsis)</i>(Mayr 1861) and<i>Macaranga</i>(Thouars 1806): a specific two-partner ant-plant system from Malaysia. Tropical Zoology, 1998, 11, 83-94.	0.6	20
85	Slippery ant-plants and skilful climbers: selection and protection of specific ant partners by epicuticular wax blooms in Macaranga (Euphorbiaceae). Oecologia, 1997, 112, 217-224.	2.0	152
86	Small insect measurements using a custom MEMS force sensor. , 0, , .		9