

# Chris B Schaffer

## List of Publications by Year in descending order

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117  
papers

11,402  
citations

38720

50  
h-index

43868

91  
g-index

126  
all docs

126  
docs citations

126  
times ranked

12584  
citing authors

#	ARTICLE	IF	CITATIONS
1	In vivo three-photon microscopy of subcortical structures within an intact mouse brain. <i>Nature Photonics</i> , 2013, 7, 205-209.	15.6	1,225
2	Micromachining bulk glass by use of femtosecond laser pulses with nanojoule energy. <i>Optics Letters</i> , 2001, 26, 93.	1.7	734
3	Laser-induced breakdown and damage in bulk transparent materials induced by tightly focused femtosecond laser pulses. <i>Measurement Science and Technology</i> , 2001, 12, 1784-1794.	1.4	656
4	Deep tissue multiphoton microscopy using longer wavelength excitation. <i>Optics Express</i> , 2009, 17, 13354.	1.7	567
5	Vascular contributions to cognitive impairment and dementia including Alzheimer's disease. <i>Alzheimer's and Dementia</i> , 2015, 11, 710-717.	0.4	461
6	Ultrafast Processes for Bulk Modification of Transparent Materials. <i>MRS Bulletin</i> , 2006, 31, 620-625.	1.7	405
7	Two-Photon Microscopy as a Tool to Study Blood Flow and Neurovascular Coupling in the Rodent Brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2012, 32, 1277-1309.	2.4	405
8	Bulk heating of transparent materials using a high-repetition-rate femtosecond laser. <i>Applied Physics A: Materials Science and Processing</i> , 2003, 76, 351-354.	1.1	369
9	Penetrating arterioles are a bottleneck in the perfusion of neocortex. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 365-370.	3.3	341
10	Two-Photon Imaging of Cortical Surface Microvessels Reveals a Robust Redistribution in Blood Flow after Vascular Occlusion. <i>PLoS Biology</i> , 2006, 4, e22.	2.6	329
11	Age-Related Intimal Stiffening Enhances Endothelial Permeability and Leukocyte Transmigration. <i>Science Translational Medicine</i> , 2011, 3, 112ra122.	5.8	324
12	Neutrophil adhesion in brain capillaries reduces cortical blood flow and impairs memory function in Alzheimer's disease mouse models. <i>Nature Neuroscience</i> , 2019, 22, 413-420.	7.1	316
13	Targeted insult to subsurface cortical blood vessels using ultrashort laser pulses: three models of stroke. <i>Nature Methods</i> , 2006, 3, 99-108.	9.0	306
14	Dynamics of femtosecond laser-induced breakdown in water from femtoseconds to microseconds. <i>Optics Express</i> , 2002, 10, 196.	1.7	242
15	All-Optical Histology Using Ultrashort Laser Pulses. <i>Neuron</i> , 2003, 39, 27-41.	3.8	204
16	Preventing dementia by preventing stroke: The Berlin Manifesto. <i>Alzheimer's and Dementia</i> , 2019, 15, 961-984.	0.4	200
17	In Vivo Imaging of Myelin in the Vertebrate Central Nervous System Using Third Harmonic Generation Microscopy. <i>Biophysical Journal</i> , 2011, 100, 1362-1371.	0.2	189
18	TRAIL-coated leukocytes that kill cancer cells in the circulation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 930-935.	3.3	182

#	ARTICLE	IF	CITATIONS
19	Morphology of femtosecond laser-induced structural changes in bulk transparent materials. <i>Applied Physics Letters</i> , 2004, 84, 1441-1443.	1.5	163
20	Chronic in vivo imaging in the mouse spinal cord using an implanted chamber. <i>Nature Methods</i> , 2012, 9, 297-302.	9.0	154
21	In vivo two-photon excited fluorescence microscopy reveals cardiac- and respiration-dependent pulsatile blood flow in cortical blood vessels in mice. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2012, 302, H1367-H1377.	1.5	129
22	Femtosecond laser-drilled capillary integrated into a microfluidic device. <i>Applied Physics Letters</i> , 2005, 86, 201106.	1.5	115
23	Ultra-large field-of-view two-photon microscopy. <i>Optics Express</i> , 2015, 23, 13833.	1.7	111
24	Preictal and Ictal Neurovascular and Metabolic Coupling Surrounding a Seizure Focus. <i>Journal of Neuroscience</i> , 2011, 31, 13292-13300.	1.7	109
25	Vascular contributions to cognitive impairment and dementia (VCID): A report from the 2018 National Heart, Lung, and Blood Institute and National Institute of Neurological Disorders and Stroke Workshop. <i>Alzheimer's and Dementia</i> , 2020, 16, 1714-1733.	0.4	108
26	Limitations of Collateral Flow after Occlusion of a Single Cortical Penetrating Arteriole. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2010, 30, 1914-1927.	2.4	106
27	Cyclic strain anisotropy regulates valvular interstitial cell phenotype and tissue remodeling in three-dimensional culture. <i>Acta Biomaterialia</i> , 2012, 8, 1710-1719.	4.1	105
28	Apo $\mu$ 4 disrupts neurovascular regulation and undermines white matter integrity and cognitive function. <i>Nature Communications</i> , 2018, 9, 3816.	5.8	100
29	Photonic band-gap fiber gas cell fabricated using femtosecond micromachining. <i>Optics Express</i> , 2007, 15, 6690.	1.7	90
30	Occlusion of Cortical Ascending Venules Causes Blood Flow Decreases, Reversals in Flow Direction, and Vessel Dilation in Upstream Capillaries. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2011, 31, 2243-2254.	2.4	85
31	Numerical aperture dependence of damage and supercontinuum generation from femtosecond laser pulses in bulk fused silica. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2006, 23, 2317.	0.9	84
32	Mixing injector enables time-resolved crystallography with high hit rate at X-ray free electron lasers. <i>Structural Dynamics</i> , 2016, 3, 054301.	0.9	84
33	Line-Scanning Particle Image Velocimetry: An Optical Approach for Quantifying a Wide Range of Blood Flow Speeds in Live Animals. <i>PLoS ONE</i> , 2012, 7, e38590.	1.1	83
34	Anticoagulation With the Oral Direct Thrombin Inhibitor Dabigatran Does Not Enlarge Hematoma Volume in Experimental Intracerebral Hemorrhage. <i>Circulation</i> , 2011, 124, 1654-1662.	1.6	82
35	Constitutively active Notch4 receptor elicits brain arteriovenous malformations through enlargement of capillary-like vessels. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 18007-18012.	3.3	82
36	Customization of Poly(dimethylsiloxane) Stamps by Micromachining Using a Femtosecond-Pulsed Laser. <i>Advanced Materials</i> , 2003, 15, 62-65.	11.1	81

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37	Robust and Fragile Aspects of Cortical Blood Flow in Relation to the Underlying Angioarchitecture. <i>Microcirculation</i> , 2015, 22, 204-218.	1.0	78
38	<i>Notch4</i> Normalization Reduces Blood Vessel Size in Arteriovenous Malformations. <i>Science Translational Medicine</i> , 2012, 4, 117ra8.	5.8	77
39	Minimally disruptive laser-induced breakdown in water. <i>Optics Letters</i> , 1997, 22, 1817.	1.7	75
40	The Challenge of Connecting the Dots in the B.R.A.I.N.. <i>Neuron</i> , 2013, 80, 270-274.	3.8	73
41	Dynamic capillary stalls in reperfused ischemic penumbra contribute to injury: A hyperacute role for neutrophils in persistent traffic jams. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2021, 41, 236-252.	2.4	73
42	The origin and implementation of the Broadening Experiences in Scientific Training programs: an NIH common fund initiative. <i>FASEB Journal</i> , 2016, 30, 507-514.	0.2	71
43	Brain Capillary Networks Across Species: A few Simple Organizational Requirements Are Sufficient to Reproduce Both Structure and Function. <i>Frontiers in Physiology</i> , 2019, 10, 233.	1.3	70
44	Programmable shaping of ultrabroad-bandwidth pulses from a Ti:sapphire laser. <i>Journal of the Optical Society of America B: Optical Physics</i> , 1995, 12, 1968.	0.9	67
45	Spectroscopy of third-harmonic generation: evidence for resonances in model compounds and ligated hemoglobin. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2006, 23, 932.	0.9	67
46	Cortical Microhemorrhages Cause Local Inflammation but Do Not Trigger Widespread Dendrite Degeneration. <i>PLoS ONE</i> , 2011, 6, e26612.	1.1	66
47	A circuit motif in the zebrafish hindbrain for a two alternative behavioral choice to turn left or right. <i>ELife</i> , 2016, 5, .	2.8	65
48	TRAIL-coated leukocytes that prevent the bloodborne metastasis of prostate cancer. <i>Journal of Controlled Release</i> , 2016, 223, 215-223.	4.8	62
49	Spatio-temporal dynamics of cerebral capillary segments with stalling red blood cells. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2019, 39, 886-900.	2.4	61
50	Deep convolutional neural networks for segmenting 3D in vivo multiphoton images of vasculature in Alzheimer disease mouse models. <i>PLoS ONE</i> , 2019, 14, e0213539.	1.1	60
51	Flexible microfluidic devices supported by biodegradable insertion scaffolds for convection-enhanced neural drug delivery. <i>Biomedical Microdevices</i> , 2009, 11, 915-924.	1.4	57
52	Optoporation and Genetic Manipulation of Cells Using Femtosecond Laser Pulses. <i>Biophysical Journal</i> , 2013, 105, 862-871.	0.2	57
53	Diverse Inflammatory Response After Cerebral Microbleeds Includes Coordinated Microglial Migration and Proliferation. <i>Stroke</i> , 2018, 49, 1719-1726.	1.0	53
54	High fat diet worsens Alzheimer's disease-related behavioral abnormalities and neuropathology in APP/PS1 mice, but not by synergistically decreasing cerebral blood flow. <i>Scientific Reports</i> , 2020, 10, 9884.	1.6	53

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55	Causes and consequences of baseline cerebral blood flow reductions in Alzheimer's disease. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2021, 41, 1501-1516.	2.4	53
56	Intracerebral haemorrhage associated with antithrombotic treatment: translational insights from experimental studies. <i>Lancet Neurology</i> , The, 2013, 12, 394-405.	4.9	52
57	Increasing cerebral blood flow improves cognition into late stages in Alzheimer's disease mice. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2020, 40, 1441-1452.	2.4	50
58	Stalled cerebral capillary blood flow in mouse models of essential thrombocythemia and polycythemia vera revealed by in vivo two-photon imaging. <i>Journal of Thrombosis and Haemostasis</i> , 2014, 12, 2120-2130.	1.9	46
59	Real-Time Imaging of Perivascular Transport of Nanoparticles During Convection-Enhanced Delivery in the Rat Cortex. <i>Annals of Biomedical Engineering</i> , 2012, 40, 292-303.	1.3	42
60	Large two-photon absorptivity of hemoglobin in the infrared range of 780-880nm. <i>Journal of Chemical Physics</i> , 2007, 126, 025102.	1.2	38
61	Stimulus-Evoked Calcium Transients in Somatosensory Cortex Are Temporarily Inhibited by a Nearby Microhemorrhage. <i>PLoS ONE</i> , 2013, 8, e65663.	1.1	38
62	VEGF signalling causes stalls in brain capillaries and reduces cerebral blood flow in Alzheimer's mice. <i>Brain</i> , 2022, 145, 1449-1463.	3.7	36
63	Growth and hemodynamics after early embryonic aortic arch occlusion. <i>Biomechanics and Modeling in Mechanobiology</i> , 2015, 14, 735-751.	1.4	34
64	Two-photon microscopy-guided femtosecond-laser photoablation of avian cardiogenesis: noninvasive creation of localized heart defects. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2010, 299, H1728-H1735.	1.5	32
65	Microexplosions in tellurite glasses. <i>Applied Physics A: Materials Science and Processing</i> , 2003, 76, 379-384.	1.1	31
66	Advanced Circuit and Cellular Imaging Methods in Nonhuman Primates. <i>Journal of Neuroscience</i> , 2019, 39, 8267-8274.	1.7	31
67	Spectroscopic analysis of the oxygenation state of hemoglobin using coherent anti-Stokes Raman scattering. <i>Journal of Biomedical Optics</i> , 2006, 11, 050502.	1.4	28
68	<title>Ultrafast laser-induced microexplosions: explosive dynamics and submicrometer structures</title>. , 1998, 3269, 36.		27
69	Surgical preparations, labeling strategies, and optical techniques for cell-resolved, in vivo imaging in the mouse spinal cord. <i>Experimental Neurology</i> , 2019, 318, 192-204.	2.0	25
70	Hyperspectral multiphoton microscopy for in vivo visualization of multiple, spectrally overlapped fluorescent labels. <i>Optica</i> , 2020, 7, 1587.	4.8	24
71	Big Effects From Tiny Vessels. <i>Stroke</i> , 2013, 44, S90-2.	1.0	21
72	Time-decorrelated multifocal micromachining and trapping. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2001, 7, 559-566.	1.9	18

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73	Intravenous tPA Therapy Does Not Worsen Acute Intracerebral Hemorrhage in Mice. <i>PLoS ONE</i> , 2013, 8, e54203.	1.1	17
74	Characterization of Blood Flow in the Mouse Dorsal Spinal Venous System before and after Dorsal Spinal Vein Occlusion. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2015, 35, 667-675.	2.4	16
75	Femtosecond Laser Micromachining. , 2013, , 287-321.		15
76	Sub-surface, micrometer-scale incisions produced in rodent cortex using tightly-focused femtosecond laser pulses. <i>Lasers in Surgery and Medicine</i> , 2011, 43, 382-391.	1.1	14
77	Microvessel occlusions alter amyloid-beta plaque morphology in a mouse model of Alzheimer's disease. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2020, 40, 2115-2131.	2.4	14
78	A pilot study investigating the effects of voluntary exercise on capillary stalling and cerebral blood flow in the APP/PS1 mouse model of Alzheimer's disease. <i>PLoS ONE</i> , 2020, 15, e0235691.	1.1	14
79	Special topic section: linkages among cerebrovascular, cardiovascular, and cognitive disorders: Preventing dementia by preventing stroke: The Berlin Manifesto. <i>International Journal of Stroke</i> , 2019, , 174749301987191.	2.9	13
80	Three-dimensional micromachining inside transparent materials using femtosecond laser pulses: New applications. , 2006, , .		12
81	Optically Induced Occlusion of Single Blood Vessels in Rodent Neocortex. <i>Cold Spring Harbor Protocols</i> , 2013, 2013, pdb.prot079509.	0.2	12
82	<title>Laser-induced microexplosions in transparent materials: microstructuring with nanojoules</title>. , 1999, , .		11
83	A topological encoding convolutional neural network for segmentation of 3D multiphoton images of brain vasculature using persistent homology. , 2020, 2020, 4262-4271.		11
84	Label-free assessment of hemodynamics in individual cortical brain vessels using third harmonic generation microscopy. <i>Biomedical Optics Express</i> , 2020, 11, 2665.	1.5	11
85	Optically quantified cerebral blood flow. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2011, 31, 1337-1338.	2.4	10
86	In vivo manipulation of biological systems with femtosecond laser pulses. , 2006, , .		9
87	Experimentally constrained circuit model of cortical arteriole networks for understanding flow redistribution due to occlusion and neural activation. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2018, 38, 38-44.	2.4	8
88	Femtosecond optical parametric chirped-pulse amplification in birefringent step-index fiber. <i>Optics Letters</i> , 2022, 47, 545.	1.7	8
89	Hypoxia-induced carbonic anhydrase mediated dorsal horn neuron activation and induction of neuropathic pain. <i>Pain</i> , 2022, 163, 2264-2279.	2.0	8
90	A Procedure for Implanting a Spinal Chamber for Longitudinal &em>In Vivo &em>Imaging of the Mouse Spinal Cord. <i>Journal of Visualized Experiments</i> , 2014, , .	0.2	7

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91	Estimating brain microvascular blood flows from partial two-photon microscopy data by computation with a circuit model. , 2011, 2011, 174-7.		6
92	Use of Tethered Enzymes as a Platform Technology for Rapid Analyte Detection. PLoS ONE, 2015, 10, e0142326.	1.1	6
93	Synchronously pumped Raman laser for simultaneous degenerate and nondegenerate two-photon microscopy. Biomedical Optics Express, 2021, 12, 2496.	1.5	6
94	Ultrasonically actuated inserted neural probes for increased recording reliability. , 2013, , .		5
95	In vivo deep tissue imaging with long wavelength multiphoton excitation. Proceedings of SPIE, 2010, , .	0.8	4
96	In Vivo Femtosecond Laser Subsurface Cortical Microtransections Attenuate Acute Rat Focal Seizures. Cerebral Cortex, 2019, 29, 3415-3426.	1.6	4
97	Aspirin treatment does not increase microhemorrhage size in young or aged mice. PLoS ONE, 2019, 14, e0204295.	1.1	3
98	Going with the grain. Nature Photonics, 2008, 2, 73-74.	15.6	2
99	Optical tools to produce and study small strokes in animal models. , 2010, 2010, 3377-8.		2
100	Ultrasonically enabled neural probes with co-located electrical and mechanical transduction. , 2012, , .		2
101	Unnatural killer cells: TRAIL-coated leukocytes that kill cancer cells in the circulation. , 2014, , .		1
102	Stimulus-Evoked Calcium Transients in Somatosensory Cortex are Inhibited After a Nearby Microhemorrhage. , 2010, , .		1
103	Structural Changes Induced in Transparent Materials with Ultrashort Laser Pulses. , 2002, , .		1
104	Customization of microfluidic devices using femtosecond laser micromachining. , 2003, , .		1
105	Comparison of convolutional neural and fully convolutional networks for segmentation of 3D in vivo multiphoton microscopy images of brain vasculature. , 2019, , .		1
106	Arrested Neutrophils in Capillaries is a Novel Mechanism of Myocardial Hypoperfusion in Heart Failure with Preserved Ejection Fraction. FASEB Journal, 2022, 36, .	0.2	1
107	Variable pressure hollow-core band-gap fiber cell produced using femtosecond laser micromachining. , 2007, , .		0
108	FTS-02-01: LEUKOCYTE PLUGGING OF CAPILLARIES REDUCES BRAIN BLOOD FLOW IN MOUSE MODELS OF ALZHEIMER'S DISEASE. , 2014, 10, P285-P285.		0

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109	Femtosecond Laser-Driven Photodisruption to Induce Single Venule Occlusions in Rodent Brain. , 2008, , .		0
110	Femtosecond Laser-Induced Microvascular Clots Trigger Alzheimerâ€™s Disease Pathology. , 2008, , .		0
111	Femtosecond Laser Ablation to Induce Occlusions in Single, Targeted Venules in Rat Brain. , 2010, , .		0
112	In Vivo Imaging of Cerebral Circulation In Mouse Models of Polycythemia Vera. Blood, 2010, 116, 4091-4091.	0.6	0
113	Ultrasonic actuation (UA) reduces the brain inflammatory response to neural microelectrode insertion. FASEB Journal, 2013, 27, 927.14.	0.2	0
114	The inflammatory response following a laser-induced cortical microhemorrhage in a rodent model is dominated by brain-resident microglia and not blood-borne macrophages. , 2016, , .		0
115	Two-Photon Imaging Reveals Capillary Occlusions are Responsible for Reduced Brain Blood Flow and Cognitive Decline in Alzheimerâ€™s Disease Mouse Models. , 2017, , .		0
116	Abstract 101: ApoE4 Disrupts Cerebrovascular Microcirculation and Undermines White Matter Integrity and Cognitive Function. Stroke, 2019, 50, .	1.0	0
117	Generation of Femtosecond Pulses at 1080 nm and 1200 nm in Ytterbium-Doped Fiber. , 2020, , .		0