Mark J Schnitzer

List of Publications by Citations

97 papers	14,331 citations	58 h-index	105 g-index
105 ext. papers	17,686 ext. citations	21.7 avg, IF	6.69 L-index

#	Paper	IF	Citations
97	Single kinesin molecules studied with a molecular force clamp. *Nature*, **1999**, 400, 184-9	50.4	819
96	Force and velocity measured for single molecules of RNA polymerase. *Science*, **1998**, 282, 902-7	33.3	682
95	Miniaturized integration of a fluorescence microscope. *Nature Methods*, **2011**, 8, 871-8	21.6	644
94	Kinesin hydrolyses one ATP per 8-nm step. *Nature*, **1997**, 388, 386-90	50.4	622
93	Long-term dynamics of CA1 hippocampal place codes. *Nature Neuroscience*, **2013**, 16, 264-6	25.5	602
92	Next-generation optical technologies for illuminating genetically targeted brain circuits. *Journal of Neuroscience*, **2006**, 26, 10380-6	6.6	568
91	Improving FRET dynamic range with bright green and red fluorescent proteins. *Nature Methods*, **2012**, 9, 1005-12	21.6	551
90	Fiber-optic fluorescence imaging. *Nature Methods*, **2005**, 2, 941-50	21.6	521
89	Automated analysis of cellular signals from large-scale calcium imaging data. *Neuron*, **2009**, 63, 747-60	13.9	443
88	Force production by single kinesin motors. *Nature Cell Biology*, **2000**, 2, 718-23	23.4	436
87	Genetically encoded indicators of neuronal activity. *Nature Neuroscience*, **2016**, 19, 1142-53	25.5	390
86	High-fidelity optical reporting of neuronal electrical activity with an ultrafast fluorescent voltage sensor. *Nature Neuroscience*, **2014**, 17, 884-9	25.5	319
85	High-speed recording of neural spikes in awake mice and flies with a fluorescent voltage sensor. *Science*, **2015**, 350, 1361-6	33.3	307
84	High-speed, miniaturized fluorescence microscopy in freely moving mice. *Nature Methods*, **2008**, 5, 935-8	21.6	289
83	In vivo mammalian brain imaging using one- and two-photon fluorescence microendoscopy. *Journal of Neurophysiology*, **2004**, 92, 3121-33	3.2	289
82	Theory of continuum random walks and application to chemotaxis. *Physical Review E*, **1993**, 48, 2553-2568	2.4	279
81	Cerebellar granule cells encode the expectation of reward. *Nature*, **2017**, 544, 96-100	50.4	262

80	Minimally invasive high-speed imaging of sarcomere contractile dynamics in mice and humans. *Nature*, **2008**, 454, 784-8	50.4	249
79	Nanotools for neuroscience and brain activity mapping. *ACS Nano*, **2013**, 7, 1850-66	16.7	248
78	Two-photon optogenetic toolbox for fast inhibition, excitation and bistable modulation. *Nature Methods*, **2012**, 9, 1171-9	21.6	246
77	Multiphoton endoscopy. *Optics Letters*, **2003**, 28, 902-4	3	234
76	Motor behavior activates Bergmann glial networks. *Neuron*, **2009**, 62, 400-12	13.9	220
75	Advances in light microscopy for neuroscience. *Annual Review of Neuroscience*, **2009**, 32, 435-506	17	217
74	Impermanence of dendritic spines in live adult CA1 hippocampus. *Nature*, **2015**, 523, 592-6	50.4	216
73	In vivo brain imaging using a portable 3.9 gram two-photon fluorescence microendoscope. *Optics Letters*, **2005**, 30, 2272-4	3	199
72	Time-lapse imaging of disease progression in deep brain areas using fluorescence microendoscopy. *Nature Medicine*, **2011**, 17, 223-8	50.5	197
71	In vivo fluorescence imaging with high-resolution microlenses. *Nature Methods*, **2009**, 6, 511-2	21.6	196
70	Defining the computational structure of the motion detector in Drosophila. *Neuron*, **2011**, 70, 1165-77	13.9	182
69	Neural ensemble dynamics underlying a long-term associative memory. *Nature*, **2017**, 543, 670-675	50.4	164
68	Imaging neural spiking in brain tissue using FRET-opsin protein voltage sensors. *Nature Communications*, **2014**, 5, 3674	17.4	148
67	Three-photon imaging of mouse brain structure and function through the intact skull. *Nature Methods*, **2018**, 15, 789-792	21.6	146
66	Distinct Hippocampal Pathways Mediate Dissociable Roles of Context in Memory Retrieval. *Cell*, **2016**, 167, 961-972.e16	56.2	142
65	Multineuronal firing patterns in the signal from eye to brain. *Neuron*, **2003**, 37, 499-511	13.9	134
64	Diametric neural ensemble dynamics in parkinsonian and dyskinetic states. *Nature*, **2018**, 557, 177-182	50.4	131
63	Ultrafast Two-Photon Imaging of a High-Gain Voltage Indicator in Awake Behaving Mice. *Cell*, **2019**, 179, 1590-1608.e23	56.2	127

62	An amygdalar neural ensemble that encodes the unpleasantness of pain. *Science*, **2019**, 363, 276-281	33.3	123
61	Neuronal Representation of Social Information in the Medial Amygdala of Awake Behaving Mice. *Cell*, **2017**, 171, 1176-1190.e17	56.2	121
60	In vivo brain imaging using a portable 2.9 g two-photon microscope based on a microelectromechanical systems scanning mirror. *Optics Letters*, **2009**, 34, 2309-11	3	120
59	The BRAIN Initiative: developing technology to catalyse neuroscience discovery. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2015**, 370,	5.8	119
58	Long-Term Optical Access to an Estimated One Million Neurons in the Live Mouse Cortex. *Cell Reports*, **2016**, 17, 3385-3394	10.6	119
57	Fast-scanning two-photon fluorescence imaging based on a microelectromechanical systems two-dimensional scanning mirror. *Optics Letters*, **2006**, 31, 2018-20	3	114
56	Cellular level brain imaging in behaving mammals: an engineering approach. *Neuron*, **2015**, 86, 140-59	13.9	111
55	Engineering approaches to illuminating brain structure and dynamics. *Neuron*, **2013**, 80, 568-77	13.9	105
54	Social behaviour shapes hypothalamic neural ensemble representations of conspecific sex. *Nature*, **2017**, 550, 388-392	50.4	103
53	Visualizing mammalian brain area interactions by dual-axis two-photon calcium imaging. *Nature Neuroscience*, **2014**, 17, 1825-9	25.5	101
52	Optogenetics: 10 years after ChR2 in neurons--views from the community. *Nature Neuroscience*, **2015**, 18, 1202-12	25.5	98
51	Unsupervised Discovery of Demixed, Low-Dimensional Neural Dynamics across Multiple Timescales through Tensor Component Analysis. *Neuron*, **2018**, 98, 1099-1115.e8	13.9	89
50	Distinct speed dependence of entorhinal island and ocean cells, including respective grid cells. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, 9466-71	11.5	88
49	Entorhinal Cortical Ocean Cells Encode Specific Contexts and Drive Context-Specific Fear Memory. *Neuron*, **2015**, 87, 1317-1331	13.9	88
48	Photon shot noise limits on optical detection of neuronal spikes and estimation of spike timing. *Biophysical Journal*, **2013**, 104, 51-62	2.9	85
47	Gradient-index fiber-optic microprobes for minimally invasive in vivo low-coherence interferometry. *Optics Letters*, **2002**, 27, 1794-6	3	80
46	Fast, in vivo voltage imaging using a red fluorescent indicator. *Nature Methods*, **2018**, 15, 1108-1116	21.6	76
45	Optical strategies for sensing neuronal voltage using quantum dots and other semiconductor nanocrystals. *ACS Nano*, **2013**, 7, 4601-9	16.7	69

44	Statistical kinetics of macromolecular dynamics. *Biophysical Journal*, **2005**, 89, 2277-85	2.9	67
43	Fiber optic in vivo imaging in the mammalian nervous system. *Current Opinion in Neurobiology*, **2004**, 14, 617-28	7.6	67
42	Enhanced Archaerhodopsin Fluorescent Protein Voltage Indicators. *PLoS ONE*, **2013**, 8, e66959	3.7	64
41	Shared Cortex-Cerebellum Dynamics in the Execution and Learning of a Motor Task. *Cell*, **2019**, 177, 669-682.e24	36.2	63
40	Amygdala ensembles encode behavioral states. *Science*, **2019**, 364,	33.3	62
39	Cell-Type-Specific Optical Recording of Membrane Voltage Dynamics in Freely Moving Mice. *Cell*, **2016**, 167, 1650-1662.e15	56.2	58
38	Fundamental bounds on the fidelity of sensory cortical coding. *Nature*, **2020**, 580, 100-105	50.4	57
37	GABAergic lateral interactions tune the early stages of visual processing in Drosophila. *Neuron*, **2013**, 78, 1075-89	13.9	55
36	Bidirectional plasticity of Purkinje cells matches temporal features of learning. *Journal of Neuroscience*, **2014**, 34, 1731-7	6.6	41
35	In Vivo Imaging of Human Sarcomere Twitch Dynamics in Individual Motor Units. *Neuron*, **2015**, 88, 1109-1120	13.9	38
34	Kilohertz two-photon brain imaging in awake mice. *Nature Methods*, **2019**, 16, 1119-1122	21.6	37
33	Estimation theoretic measure of resolution for stochastic localization microscopy. *Physical Review Letters*, **2012**, 109, 048102	7.4	31
32	Lock-and-key mechanisms of cerebellar memory recall based on rebound currents. *Journal of Neurophysiology*, **2008**, 100, 2328-47	3.2	29
31	Calcium Transient Dynamics of Neural Ensembles in the Primary Motor Cortex of Naturally Behaving Monkeys. *Cell Reports*, **2018**, 24, 2191-2195.e4	10.6	28
30	Sarcomere lengths in human extensor carpi radialis brevis measured by microendoscopy. *Muscle and Nerve*, **2013**, 48, 286-92	3.4	28
29	Symmetries in stimulus statistics shape the form of visual motion estimators. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 12909-14	11.5	27
28	Large-Scale Fluorescence Calcium-Imaging Methods for Studies of Long-Term Memory in Behaving Mammals. *Cold Spring Harbor Perspectives in Biology*, **2016**, 8,	10.2	27
27	Unified resolution bounds for conventional and stochastic localization fluorescence microscopy. *Physical Review Letters*, **2012**, 109, 168102	7.4	26

26	Changes in sarcomere lengths of the human vastus lateralis muscle with knee flexion measured using in vivo microendoscopy. *Journal of Biomechanics*, **2016**, 49, 2989-2994	2.9	24
25	Zolpidem reduces hippocampal neuronal activity in freely behaving mice: a large scale calcium imaging study with miniaturized fluorescence microscope. *PLoS ONE*, **2014**, 9, e112068	3.7	24
24	In vivo microendoscopy of the hippocampus. *Cold Spring Harbor Protocols*, **2012**, 2012, 1092-9	1.2	24
23	Long-Term Consolidation of Ensemble Neural Plasticity Patterns in Hippocampal Area CA1. *Cell Reports*, **2018**, 25, 640-650.e2	10.6	24
22	Long-term optical brain imaging in live adult fruit flies. *Nature Communications*, **2018**, 9, 872	17.4	18
21	Cross-hemispheric gamma synchrony between prefrontal parvalbumin interneurons supports behavioral adaptation during rule shift learning. *Nature Neuroscience*, **2020**, 23, 892-902	25.5	18
20	Fast two-photon volumetric imaging of an improved voltage indicator reveals electrical activity in deeply located neurons in the awake brain		16
19	RecV recombinase system for in vivo targeted optogenomic modifications of single cells or cell populations. *Nature Methods*, **2020**, 17, 422-429	21.6	14
18	High-speed laser microsurgery of alert fruit flies for fluorescence imaging of neural activity. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 18374-9	11.5	14
17	Dexterous robotic manipulation of alert adult Drosophila for high-content experimentation. *Nature Methods*, **2015**, 12, 657-660	21.6	12
16	A neural circuit state change underlying skilled movements. *Cell*, **2021**, 184, 3731-3747.e21	56.2	8
15	Skilled reaching tasks for head-fixed mice using a robotic manipulandum. *Nature Protocols*, **2020**, 15, 1237-1254	18.8	7
14	Fluorescence imaging of large-scale neural ensemble dynamics.. *Cell*, **2022**, 185, 9-41	56.2	7
13	Biological computation: amazing algorithms. *Nature*, **2002**, 416, 683	50.4	6
12	Fast and statistically robust cell extraction from large-scale neural calcium imaging datasets		5
11	A Portable Two-photon Fluorescence Microendoscope Based on a Two-dimensional Scanning Mirror **2007**,		4
10	Retinal coding of visual scenes -- repetitive and redundant too?. *Neuron*, **2005**, 46, 357-9	13.9	4
9	Olfactory landmarks and path integration converge to form a cognitive spatial map. *Neuron*, **2021**,	13.9	4

8	Microendoscopy detects altered muscular contractile dynamics in a mouse model of amyotrophic lateral sclerosis. *Scientific Reports*, **2020**, 10, 457	4.9	3
7	An automated light scattering system scanning in two spherical angles. *Review of Scientific Instruments*, **1990**, 61, 2069-2072	1.7	2
6	Dual polarity voltage imaging reveals subthreshold dynamics and concurrent spiking patterns of multiple neuron-types		2
5	Interhemispheric gamma synchrony between parvalbumin interneurons supports behavioral adaptation		2
4	The relationship between birth timing, circuit wiring, and physiological response properties of cerebellar granule cells. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	2
3	Supramammillary regulation of locomotion and hippocampal activity.. *Science*, **2021**, 374, 1492-1496	33.3	2
2	Journal club. A neuroscientist learns about algorithms for motor learning. *Nature*, **2010**, 463, 273	50.4	
1	Chronic and portable fluorescence microendoscopy in freely moving mice. *FASEB Journal*, **2008**, 22, 11.40.9		