Christian Eggeling

List of Publications by Year
in descending order

147 papers	17,254 citations	23567 58 h-index	15732 125 g-index
171 all docs	171 docs citations	171 times ranked	15872 citing authors

#	Article	IF	Citations
1	The mystery of membrane organization: composition, regulation and roles of lipid rafts. Nature Reviews Molecular Cell Biology, 2017, 18, 361-374.	37.0	1,471
2	Direct observation of the nanoscale dynamics of membrane lipids in a living cell. Nature, 2009, 457, 1159-1162.	27.8	1,392
3	Super-resolution microscopy demystified. Nature Cell Biology, 2019, 21, 72-84.	10.3	754
4	Breaking the diffraction barrier in fluorescence microscopy at low light intensities by using reversibly photoswitchable proteins. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 17565-17569.	7.1	734
5	STED microscopy reveals crystal colour centres with nanometric resolution. Nature Photonics, 2009, 3, 144-147.	31.4	708
6	Fluorescence nanoscopy by ground-state depletion and single-molecule return. Nature Methods, 2008, 5, 943-945.	19.0	700
7	Photobleaching of Fluorescent Dyes under Conditions Used for Single-Molecule Detection:Â Evidence of Two-Step Photolysis. Analytical Chemistry, 1998, 70, 2651-2659.	6.5	625
8	Macromolecular-scale resolution in biological fluorescence microscopy. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 11440-11445.	7.1	481
9	Diffraction-unlimited all-optical imaging and writing with a photochromic GFP. Nature, 2011, 478, 204-208.	27.8	434
10	Anatomy and Dynamics of a Supramolecular Membrane Protein Cluster. Science, 2007, 317, 1072-1076.	12.6	405
11	Sharper low-power STED nanoscopy by time gating. Nature Methods, 2011, 8, 571-573.	19.0	396
12	Partitioning, diffusion, and ligand binding of raft lipid analogs in model and cellular plasma membranes. Biochimica Et Biophysica Acta - Biomembranes, 2012, 1818, 1777-1784.	2.6	301
13	The 2015 super-resolution microscopy roadmap. Journal Physics D: Applied Physics, 2015, 48, 443001.	2.8	291
14	Data registration and selective single-molecule analysis using multi-parameter fluorescence detection. Journal of Biotechnology, 2001, 86, 163-180.	3.8	265
15	Scanning STED-FCS reveals spatiotemporal heterogeneity of lipid interaction in the plasma membrane of living cells. Nature Communications, 2014, 5, 5412.	12.8	257
16	Major signal increase in fluorescence microscopy through dark-state relaxation. Nature Methods, 2007, 4, 81-86.	19.0	254
17	Structure and mechanism of the reversible photoswitch of a fluorescent protein. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 13070-13074.	7.1	253
18	Molecular Photobleaching Kinetics of Rhodamine 6G by One- and Two-Photon Induced Confocal Fluorescence Microscopy. ChemPhysChem, 2005, 6, 791-804.	2.1	241

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19	STED Nanoscopy Reveals Molecular Details of Cholesterol- and Cytoskeleton-Modulated Lipid Interactions in Living Cells. Biophysical Journal, 2011, 101, 1651-1660.	0.5	232
20	Nanoscopy with more than 100,000 'doughnuts'. Nature Methods, 2013, 10, 737-740.	19.0	231
21	Redâ€Emitting Rhodamine Dyes for Fluorescence Microscopy and Nanoscopy. Chemistry - A European Journal, 2010, 16, 158-166.	3.3	216
22	Fluorescence Fluctuation Spectroscopy in Subdiffraction Focal Volumes. Physical Review Letters, 2005, 94, 178104.	7.8	195
23	rsEGFP2 enables fast RESOLFT nanoscopy of living cells. ELife, 2012, 1, e00248.	6.0	188
24	Fast molecular tracking maps nanoscale dynamics of plasma membrane lipids. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 6829-6834.	7.1	174
25	A lipid bound actin meshwork organizes liquid phase separation in model membranes. ELife, 2014, 3, e01671.	6.0	161
26	Multi-protein assemblies underlie the mesoscale organization of the plasma membrane. Nature Communications, 2014, 5, 4509.	12.8	157
27	Two-color far-field fluorescence nanoscopy based on photoswitchable emitters. Applied Physics B: Lasers and Optics, 2007, 88, 161-165.	2.2	148
28	Cytoskeletal actin dynamics shape a ramifying actin network underpinning immunological synapse formation. Science Advances, 2017, 3, e1603032.	10.3	143
29	There Is No Simple Model of the Plasma Membrane Organization. Frontiers in Cell and Developmental Biology, 2016, 4, 106.	3.7	139
30	Hydrophobic mismatch sorts SNARE proteins into distinct membrane domains. Nature Communications, 2015, 6, 5984.	12.8	130
31	STED microscopy detects and quantifies liquid phase separation in lipid membranes using a new far-red emitting fluorescent phosphoglycerolipid analogue. Faraday Discussions, 2013, 161, 77-89.	3.2	126
32	Lens-based fluorescence nanoscopy. Quarterly Reviews of Biophysics, 2015, 48, 178-243.	5.7	126
33	Laurdan and Di-4-ANEPPDHQ probe different properties of the membrane. Journal Physics D: Applied Physics, 2017, 50, 134004.	2.8	119
34	Nanoscopy of Living Brain Slices with Low Light Levels. Neuron, 2012, 75, 992-1000.	8.1	117
35	Diffusion of lipids and GPI-anchored proteins in actin-free plasma membrane vesicles measured by STED-FCS. Molecular Biology of the Cell, 2017, 28, 1507-1518.	2.1	110
36	Highly sensitive fluorescence detection technology currently available for HTS. Drug Discovery Today, 2003, 8, 632-641.	6.4	108

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37	Cortical actin networks induce spatio-temporal confinement of phospholipids in the plasma membrane â€“ a minimally invasive investigation by STED-FCS. Scientific Reports, 2015, 5, 11454.	3.3	106
38	A simple and versatile design concept for fluorophore derivatives with intramolecular photostabilization. Nature Communications, 2016, 7, 10144.	12.8	106
39	Infection with a Brazilian isolate of Zika virus generates RIGâ€I stimulatory RNA and the viral NS5 protein blocks type I IFN induction and signaling. European Journal of Immunology, 2018, 48, 1120-1136.	2.9	106
40	Mechanical properties of plasma membrane vesicles correlate with lipid order, viscosity and cell density. Communications Biology, 2019, 2, 337.	4.4	105
41	High-Speed Single-Particle Tracking of GM1 in Model Membranes Reveals Anomalous Diffusion due to Interleaflet Coupling and Molecular Pinning. Nano Letters, 2014, 14, 5390-5397.	9.1	104
42	Wide-field subdiffraction RESOLFT microscopy using fluorescent protein photoswitching. Microscopy Research and Technique, 2007, 70, 269-280.	2.2	103
43	Self-organizing actin patterns shape membrane architecture but not cell mechanics. Nature Communications, 2017, 8, 14347.	12.8	99
44	The 2018 correlative microscopy techniques roadmap. Journal Physics D: Applied Physics, 2018, 51, 443001.	2.8	99
45	Spectral Imaging to Measure Heterogeneity in Membrane Lipid Packing. ChemPhysChem, 2015, 16, 1387-1394.	2.1	98
46	A Versatile Route to Redâ€Emitting Carbopyronine Dyes for Optical Microscopy and Nanoscopy. European Journal of Organic Chemistry, 2010, 2010, 3593-3610.	2.4	96
47	Super-Resolved Traction Force Microscopy (STFM). Nano Letters, 2016, 16, 2633-2638.	9.1	86
48	Fluorescence Nanoscopy with Optical Sectioning by Twoâ€Photon Induced Molecular Switching using Continuousâ€Wave Lasers. ChemPhysChem, 2008, 9, 321-326.	2.1	81
49	Envelope glycoprotein mobility on HIV-1 particles depends on the virus maturation state. Nature Communications, 2017, 8, 545.	12.8	81
50	Exploring single-molecule dynamics with fluorescence nanoscopy. New Journal of Physics, 2009, 11, 103054.	2.9	79
51	A comparative study on fluorescent cholesterol analogs as versatile cellular reporters. Journal of Lipid Research, 2016, 57, 299-309.	4.2	78
52	Measuring nanoscale diffusion dynamics in cellular membranes with super-resolution STEDâ€“FCS. Nature Protocols, 2019, 14, 1054-1083.	12.0	76
53	Resolution of Î» /10 in fluorescence microscopy using fast single molecule photo-switching. Applied Physics A: Materials Science and Processing, 2007, 88, 223-226.	2.3	74
54	Astrocytes Resist HIV-1 Fusion but Engulf Infected Macrophage Material. Cell Reports, 2017, 18, 1473-1483.	6.4	73

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55	STED-FLCS: An Advanced Tool to Reveal Spatiotemporal Heterogeneity of Molecular Membrane Dynamics. Nano Letters, 2015, 15, 5912-5918.	9.1	71
56	Fluorescence correlation spectroscopy with a total internal reflection fluorescence STED microscope (TIRF-STED-FCS). Optics Express, 2012, 20, 5243.	3.4	68
57	A dynamic and adaptive network of cytosolic interactions governs protein export by the T3SS injectisome. Nature Communications, 2017, 8, 15940.	12.8	68
58	Cytoskeletal Control of Antigen-Dependent T Cell Activation. Cell Reports, 2019, 26, 3369-3379.e5.	6.4	68
59	Critical importance of appropriate fixation conditions for faithful imaging of receptor microclusters. Biology Open, 2016, 5, 1343-1350.	1.2	67
60	Super-resolution Microscopy Reveals Compartmentalization of Peroxisomal Membrane Proteins. Journal of Biological Chemistry, 2016, 291, 16948-16962.	3.4	66
61	Polarity-Sensitive Probes for Superresolution Stimulated Emission Depletion Microscopy. Biophysical Journal, 2017, 113, 1321-1330.	0.5	63
62	<scp>STED</scp> microscopy of living cells â€“ new frontiers in membrane and neurobiology. Journal of Neurochemistry, 2013, 126, 203-212.	3.9	62
63	Dissecting the actin cortex density and membrane-cortex distance in living cells by super-resolution microscopy. Journal Physics D: Applied Physics, 2017, 50, 064002.	2.8	62
64	Capturing resting T cells: the perils of PLL. Nature Immunology, 2018, 19, 203-205.	14.5	62
65	Membrane Orientation and Lateral Diffusion of BODIPY-Cholesterol as a Function of Probe Structure. Biophysical Journal, 2013, 105, 2082-2092.	0.5	60
66	HIV-1 Gag specifically restricts PI(4,5)P2 and cholesterol mobility in living cells creating a nanodomain platform for virus assembly. Science Advances, 2019, 5, eaaw8651.	10.3	59
67	Characterization of Horizontal Lipid Bilayers as a Model System to Study Lipid Phase Separation. Biophysical Journal, 2010, 98, 2886-2894.	0.5	57
68	FoCuS-point: software for STED fluorescence correlation and time-gated single photon counting. Bioinformatics, 2016, 32, 958-960.	4.1	57
69	Fluorescence Fluctuation Spectroscopy in Reduced Detection Volumes. Current Pharmaceutical Biotechnology, 2006, 7, 51-66.	1.6	55
70	Dissection of mechanical force in living cells by super-resolved traction force microscopy. Nature Protocols, 2017, 12, 783-796.	12.0	53
71	Electroformation of Giant Unilamellar Vesicles on Stainless Steel Electrodes. ACS Omega, 2017, 2, 994-1002.	3.5	53
72	Spironaphthoxazine switchable dyes for biological imaging. Chemical Science, 2018, 9, 3029-3040.	7.4	53

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73	Triplet-relaxation microscopy with bunched pulsed excitation. Photochemical and Photobiological Sciences, 2009, 8, 481.	2.9	52
74	Convergence of lateral dynamic measurements in the plasma membrane of live cells from single particle tracking and STED-FCS. Journal Physics D: Applied Physics, 2017, 50, 063001.	2.8	52
75	FCS in STED Microscopy. Methods in Enzymology, 2013, 519, 1-38.	1.0	50
76	A straightforward approach for gated STED-FCS to investigate lipid membrane dynamics. Methods, 2015, 88, 67-75.	3.8	50
77	Regulation of peroxisomal matrix protein import by ubiquitination. Biochimica Et Biophysica Acta - Molecular Cell Research, 2016, 1863, 838-849.	4.1	46
78	Binding of canonical Wnt ligands to their receptor complexes occurs in ordered plasma membrane environments. FEBS Journal, 2017, 284, 2513-2526.	4.7	45
79	Modulation of the molecular arrangement in artificial and biological membranes by phospholipid-shelled microbubbles. Biomaterials, 2017, 113, 105-117.	11.4	44
80	Nanoscale dynamics of cholesterol in the cell membrane. Journal of Biological Chemistry, 2019, 294, 12599-12609.	3.4	44
81	Influenza A viruses use multivalent sialic acid clusters for cell binding and receptor activation. PLoS Pathogens, 2020, 16, e1008656.	4.7	43
82	Orchestrated control of filaggrinâ€“actin scaffolds underpins cornification. Cell Death and Disease, 2018, 9, 412.	6.3	42
83	Super-resolution optical microscopy of lipid plasma membrane dynamics. Essays in Biochemistry, 2015, 57, 69-80.	4.7	41
84	Photoswitchable Spiropyran Dyads for Biological Imaging. Organic Letters, 2016, 18, 3666-3669.	4.6	40
85	Flotillin-Dependent Membrane Microdomains Are Required for Functional Phagolysosomes against Fungal Infections. Cell Reports, 2020, 32, 108017.	6.4	39
86	Super-resolution fluorescence microscopy studies of human immunodeficiency virus. Retrovirology, 2018, 15, 41.	2.0	37
87	New GM1 Ganglioside Derivatives for Selective Single and Double Labelling of the Natural Glycosphingolipid Skeleton. European Journal of Organic Chemistry, 2009, 2009, 5162-5177.	2.4	35
88	Why do peroxisomes associate with the cytoskeleton?. Biochimica Et Biophysica Acta - Molecular Cell Research, 2016, 1863, 1019-1026.	4.1	35
89	Cytoskeletal actin patterns shape mast cell activation. Communications Biology, 2019, 2, 93.	4.4	35
90	Phase Partitioning of GM1 and Its Bodipy-Labeled Analog Determine Their Different Binding to Cholera Toxin. Frontiers in Physiology, 2017, 8, 252.	2.8	34

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91	Optimized processing and analysis of conventional confocal microscopy generated scanning FCS data. Methods, 2018, 140-141, 62-73.	3.8	33
92	CD45 exclusionâ€“ and cross-linkingâ€“based receptor signaling together broaden FcÎµRI reactivity. Science Signaling, 2018, 11, .	3.6	31
93	FRET-enhanced photostability allows improved single-molecule tracking of proteins and protein complexes in live mammalian cells. Nature Communications, 2018, 9, 2520.	12.8	31
94	How to minimize dye-induced perturbations while studying biomembrane structure and dynamics: PEG linkers as a rational alternative. Biochimica Et Biophysica Acta - Biomembranes, 2018, 1860, 2436-2445.	2.6	31
95	Molecular recognition of the native HIV-1 MPER revealed by STED microscopy of single virions. Nature Communications, 2019, 10, 78.	12.8	31
96	HDL particles incorporate into lipid bilayers â€“ a combined AFM and single molecule fluorescence microscopy study. Scientific Reports, 2017, 7, 15886.	3.3	29
97	Use of <scp>BODIPY</scp>â€Cholesterol (<scp>TF</scp>â€Chol) for Visualizing Lysosomal Cholesterol Accumulation. Traffic, 2016, 17, 1054-1057.	2.7	28
98	Nanoscale Spatiotemporal Diffusion Modes Measured by Simultaneous Confocal and Stimulated Emission Depletion Nanoscopy Imaging. Nano Letters, 2018, 18, 4233-4240.	9.1	28
99	Nanoparticles Can Wrap Epithelial Cell Membranes and Relocate Them Across the Epithelial Cell Layer. Nano Letters, 2018, 18, 5294-5305.	9.1	27
100	Statistical Analysis of Scanning Fluorescence Correlation Spectroscopy Data Differentiates Free from Hindered Diffusion. ACS Nano, 2018, 12, 8540-8546.	14.6	27
101	Reversible photoswitching enables singleâ€molecule fluorescence fluctuation spectroscopy at high molecular concentration. Microscopy Research and Technique, 2007, 70, 1003-1009.	2.2	26
102	Challenges of Using Expansion Microscopy for Superâ€resolved Imaging of Cellular Organelles. ChemBioChem, 2021, 22, 686-693.	2.6	26
103	Adaptive optics allows STED-FCS measurements in the cytoplasm of living cells. Optics Express, 2019, 27, 23378.	3.4	26
104	Reconstitution of immune cell interactions in free-standing membranes. Journal of Cell Science, 2018, 132, .	2.0	25
105	From Dynamics to Membrane Organization: Experimental Breakthroughs Occasion a â€œModeling Manifestoâ€ Biophysical Journal, 2018, 115, 595-604.	0.5	25
106	Aggregation and mobility of membrane proteins interplay with local lipid order in the plasma membrane of T cells. FEBS Letters, 2021, 595, 2127-2146.	2.8	25
107	Maturation of Monocyte-Derived DCs Leads to Increased Cellular Stiffness, Higher Membrane Fluidity, and Changed Lipid Composition. Frontiers in Immunology, 2020, 11, 590121.	4.8	24
108	Object detection networks and augmented reality for cellular detection in fluorescence microscopy. Journal of Cell Biology, 2020, 219, .	5.2	24

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109	Reorganization of Lipid Diffusion by Myelin Basic Protein as Revealed by STED Nanoscopy. Biophysical Journal, 2016, 110, 2441-2450.	0.5	23
110	Spectral imaging toolbox: segmentation, hyperstack reconstruction, and batch processing of spectral images for the determination of cell and model membrane lipid order. BMC Bioinformatics, 2017, 18, 254.	2.6	23
111	Complementary studies of lipid membrane dynamics using iSCAT and super-resolved fluorescence correlation spectroscopy. Journal Physics D: Applied Physics, 2018, 51, 235401.	2.8	23
112	Glycosylation and Lipids Working in Concert Direct CD2 Ectodomain Orientation and Presentation. Journal of Physical Chemistry Letters, 2017, 8, 1060-1066.	4.6	22
113	z-STED Imaging and Spectroscopy to Investigate Nanoscale Membrane Structure and Dynamics. Biophysical Journal, 2020, 118, 2448-2457.	0.5	22
114	Sterile activation of invariant natural killer T cells by ER-stressed antigen-presenting cells. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 23671-23681.	7.1	21
115	Long-term STED imaging of membrane packing and dynamics by exchangeable polarity-sensitive dyes. Biophysical Reports, 2021, 1, 100023.	1.2	19
116	Pathways to optical STED microscopy. NanoBioImaging, 2014, 1, .	1.0	18
117	Super-resolution RESOLFT microscopy of lipid bilayers using a fluorophore-switch dyad. Chemical Science, 2020, 11, 8955-8960.	7.4	18
118	Monitoring triplet state dynamics with fluorescence correlation spectroscopy: Bias and correction. Microscopy Research and Technique, 2014, 77, 528-536.	2.2	15
119	Biocompatible sulfated valproic acid-coupled polysaccharide-based nanocarriers with HDAC inhibitory activity. Journal of Controlled Release, 2021, 329, 717-730.	9.9	15
120	High photon count rates improve the quality of super-resolution fluorescence fluctuation spectroscopy. Journal Physics D: Applied Physics, 2020, 53, 164003.	2.8	15
121	Comparison of Multiscale Imaging Methods for Brain Research. Cells, 2020, 9, 1377.	4.1	13
122	Lipid Composition but not Curvature Is the Determinant Factor for the Low Molecular Mobility Observed on the Membrane of Virus-Like Vesicles. Viruses, 2018, 10, 415.	3.3	12
123	The cortical actin network regulates avidity-dependent binding of hyaluronan by the lymphatic vessel endothelial receptor LYVE-1. Journal of Biological Chemistry, 2020, 295, 5036-5050.	3.4	12
124	Closing the gap: The approach of optical and computational microscopy to uncover biomembrane organization. Biochimica Et Biophysica Acta - Biomembranes, 2016, 1858, 2558-2568.	2.6	11
125	Advances in bioimagingâ€"challenges and potentials. Journal Physics D: Applied Physics, 2018, 51, 040201.	2.8	11
126	CalQuo: automated, simultaneous single-cell and population-level quantification of global intracellular Ca2+ responses. Scientific Reports, 2015, 5, 16487.	3.3	10

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127	Membrane Nanoclustersâ€"Tails of the Unexpected. Cell, 2015, 161, 433-434.	28.9	10
128	More Favorable Palmitic Acid Over Palmitoleic Acid Modification of Wnt3 Ensures Its Localization and Activity in Plasma Membrane Domains. Frontiers in Cell and Developmental Biology, 2019, 7, 281.	3.7	10
129	Affinity for the Interface Underpins Potency of Antibodies Operating In Membrane Environments. Cell Reports, 2020, 32, 108037.	6.4	10
130	Background Reduction in STED-FCS Using a Bivortex Phase Mask. ACS Photonics, 2020, 7, 1742-1753.	6.6	10
131	A Highly Fluorescent Dinuclear Aluminium Complex with Nearâ€Unity Quantum Yield**. Angewandte Chemie - International Edition, 2022, 61, .	13.8	10
132	Addressing Differentiation in Live Human Keratinocytes by Assessment of Membrane Packing Order. Frontiers in Cell and Developmental Biology, 2020, 8, 573230.	3.7	9
133	Peroxisomal Import Reduces the Proapoptotic Activity of Deubiquitinating Enzyme USP2. PLoS ONE, 2015, 10, e0140685.	2.5	9
134	ns-time resolution for multispecies STED-FLIM and artifact free STED-FCS. , 2016, , .		8
135	Fluorescence Microscopy of the HIV-1 Envelope. Viruses, 2020, 12, 348.	3.3	7
136	Influence of nanobody binding on fluorescence emission, mobility, and organization of GFP-tagged proteins. IScience, 2021, 24, 101891.	4.1	7
137	Protein induced lipid demixing in homogeneous membranes. Physical Review Research, 2021, 3, .	3.6	7
138	Creating Supported Plasma Membrane Bilayers Using Acoustic Pressure. Membranes, 2020, 10, 30.	3.0	6
139	Editorial. Methods, 2018, 140-141, 1-2.	3.8	4
140	Diffusion and interaction dynamics of the cytosolic peroxisomal import receptor PEX5. Biophysical Reports, 2022, 2, 100055.	1.2	4
141	gSTED Microscopy with an OPSL: Cutting Edge Superâ€Resolution. Optik & Photonik, 2012, 7, 44-46.	0.2	3
142	Editorial overview: Molecular imaging. Current Opinion in Chemical Biology, 2014, 20, v-vii.	6.1	3
143	Super-Resolution STED Microscopy-Based Mobility Studies of the Viral Env Protein at HIV-1 Assembly Sites of Fully Infected T-Cells. Viruses, 2021, 13, 608.	3.3	3
144	How to control fluorescent labeling of metal oxide nanoparticles for artefact-free live cell microscopy. Nanotoxicology, 2021, 15, 1102-1123.	3.0	2

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145	Zooming in on virus surface protein mobility. Future Virology, 2018, 13, 225-227.	1.8	1
146	Macrophages: micromanagers of antagonistic signaling nanoclusters. Journal of Cell Biology, 2017, 216, 871-873.	5.2	0
147	A Highly Fluorescent Dinuclear Aluminium Complex with Nearâ€Unity Quantum Yield. Angewandte Chemie, 0, , .	2.0	0