Martin Booth

List of Publications by Year in descending order

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189 papers 7,712 citations

42 h-index 81 g-index

205 all docs

205
docs citations

205 times ranked 5213 citing authors

#	Article	IF	Citations
1	Adaptive optical microscopy: the ongoing quest for a perfect image. Light: Science and Applications, 2014, 3, e165-e165.	7.7	475
2	Adaptive aberration correction in a confocal microscope. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 5788-5792.	3.3	420
3	Adaptive optics in microscopy. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2007, 365, 2829-2843.	1.6	380
4	Image-based adaptive optics for two-photon microscopy. Optics Letters, 2009, 34, 2495.	1.7	348
5	Adaptive optics enables 3D STED microscopy in aberrating specimens. Optics Express, 2012, 20, 20998.	1.7	278
6	Ultra-High Resolution 3D Imaging of Whole Cells. Cell, 2016, 166, 1028-1040.	13.5	247
7	Polarisation optics for biomedical and clinical applications: a review. Light: Science and Applications, 2021, 10, 194.	7.7	222
8	Laser writing of coherent colour centres in diamond. Nature Photonics, 2017, 11, 77-80.	15.6	203
9	Wavefront sensorless adaptive optics for large aberrations. Optics Letters, 2007, 32, 5.	1.7	169
10	Image based adaptive optics through optimisation of low spatial frequencies. Optics Express, 2007, 15, 8176.	1.7	165
11	Parallel direct laser writing in three dimensions with spatially dependent aberration correction. Optics Express, 2010, 18, 21090.	1.7	165
12	New modal wave-front sensor: a theoretical analysis. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2000, 17, 1098.	0.8	162
13	Wave front sensor-less adaptive optics: a model-based approach using sphere packings. Optics Express, 2006, 14, 1339.	1.7	158
14	Adaptive optics for structured illumination microscopy. Optics Express, 2008, 16, 9290.	1.7	157
15	Adaptive optics in laser processing. Light: Science and Applications, 2019, 8, 110.	7.7	154
16	Adaptive aberration correction in a two-photon microscope. Journal of Microscopy, 2000, 200, 105-108.	0.8	152
17	Aberrations and adaptive optics in super-resolution microscopy. Microscopy (Oxford, England), 2015, 64, 251-261.	0.7	124
18	Subcellular spatial resolution achieved for deep-brain imaging in vivo using a minimally invasive multimode fiber. Light: Science and Applications, 2018, 7, 110.	7.7	118

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19	Dynamic wave-front generation for the characterization and testing of optical systems. Optics Letters, 1998, 23, 1849.	1.7	102
20	Closed-loop aberration correction by use of a modal Zernike wave-front sensor. Optics Letters, 2000, 25, 1083.	1.7	101
21	Adaptive optics correction of specimen-induced aberrations in single-molecule switching microscopy. Optica, 2015, 2, 177.	4.8	97
22	Four-dimensional light shaping: manipulating ultrafast spatiotemporal foci in space and time. Light: Science and Applications, 2018, 7, 17117-17117.	7.7	94
23	Adaptive optics for high-resolution imaging. Nature Reviews Methods Primers, 2021, 1, .	11.8	90
24	Laser writing of individual nitrogen-vacancy defects in diamond with near-unity yield. Optica, 2019, 6, 662.	4.8	89
25	Refractive-index-mismatch induced aberrations in single-photon and two-photon microscopy and the use of aberration correction. Journal of Biomedical Optics, 2001, 6, 266.	1.4	85
26	Three-dimensional STED microscopy of aberrating tissue using dual adaptive optics. Optics Express, 2016, 24, 8862.	1.7	82
27	Complex vectorial optics through gradient index lens cascades. Nature Communications, 2019, 10, 4264.	5 . 8	79
28	Three dimensional laser microfabrication in diamond using a dual adaptive optics system. Optics Express, 2011, 19, 24122.	1.7	78
29	Measurement of specimen-induced aberrations of biological samples using phase stepping interferometry. Journal of Microscopy, 2004, 213, 11-19.	0.8	77
30	Low-cost, frequency-domain, fluorescence lifetime confocal microscopy. Journal of Microscopy, 2004, 214, 36-42.	0.8	74
31	Adaptive slit beam shaping for direct laser written waveguides. Optics Letters, 2012, 37, 470.	1.7	74
32	Laser Writing of Scalable Single Color Centers in Silicon Carbide. Nano Letters, 2019, 19, 2377-2383.	4. 5	70
33	Exploring the depth range for three-dimensional laser machining with aberration correction. Optics Express, 2014, 22, 17644.	1.7	64
34	Inscription of 3D waveguides in diamond using an ultrafast laser. Applied Physics Letters, 2016, 109, .	1.5	63
35	Adaptive harmonic generation microscopy of mammalian embryos. Optics Letters, 2009, 34, 3154.	1.7	60
36	CryoSIM: super-resolution 3D structured illumination cryogenic fluorescence microscopy for correlated ultrastructural imaging. Optica, 2020, 7, 802.	4.8	57

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37	Characterisation of the dynamic behaviour of lipid droplets in the early mouse embryo using adaptive harmonic generation microscopy. BMC Cell Biology, 2010, 11, 38.	3.0	55
38	IsoSense: frequency enhanced sensorless adaptive optics through structured illumination. Optica, 2019, 6, 370.	4.8	54
39	Auto-aligning stimulated emission depletion microscope using adaptive optics. Optics Letters, 2013, 38, 1860.	1.7	50
40	Direct wavefront sensing in adaptive optical microscopy using backscattered light. Applied Optics, 2013, 52, 5523.	0.9	49
41	Rapid adaptive remote focusing microscope for sensing of volumetric neural activity. Biomedical Optics Express, 2017, 8, 4369.	1.5	49
42	Methods for the characterization of deformable membrane mirrors. Applied Optics, 2005, 44, 5131.	2.1	48
43	Adaptive optics for direct laser writing with plasma emission aberration sensing. Optics Express, 2010, 18, 656.	1.7	47
44	Strategies for the compensation of specimen-induced spherical aberration in confocal microscopy of skin. Journal of Microscopy, 2000, 200, 68-74.	0.8	46
45	New modal wave-front sensor: application to adaptive confocal fluorescence microscopy and two-photon excitation fluorescence microscopy. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2002, 19, 2112.	0.8	45
46	Antimony thin films demonstrate programmable optical nonlinearity. Science Advances, 2021, 7, .	4.7	42
47	3D super-resolution deep-tissue imaging in living mice. Optica, 2021, 8, 442.	4.8	39
48	Three-dimensional adaptive optical nanoscopy for thick specimen imaging at sub-50-nm resolution. Nature Methods, 2021, 18, 688-693.	9.0	39
49	Modelling of multi-conjugate adaptive optics for spatially variant aberrations in microscopy. Journal of Optics (United Kingdom), 2013, 15, 094010.	1.0	38
50	Pulse front adaptive optics: a new method for control of ultrashort laser pulses. Optics Express, 2015, 23, 19348.	1.7	38
51	Dynamic control of directional asymmetry observed in ultrafast laser direct writing. Applied Physics Letters, 2012, 101, .	1.5	34
52	Electrically-tunable positioning of topological defects in liquid crystals. Nature Communications, 2020, 11, 2203.	5.8	34
53	Predictive aberration correction for multilayer optical data storage. Applied Physics Letters, 2006, 88, 031109.	1.5	33
54	Effects of aberrations in spatiotemporal focusing of ultrashort laser pulses. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2014, 31, 765.	0.8	33

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55	Practical sensorless aberration estimation for 3D microscopy with deep learning. Optics Express, 2020, 28, 29044.	1.7	33
56	Generation of 3-dimensional polymer structures in liquid crystalline devices using direct laser writing. RSC Advances, 2017, 7, 507-511.	1.7	31
57	Read on Demand Images in Laserâ€Written Polymerizable Liquid Crystal Devices. Advanced Optical Materials, 2018, 6, 1800515.	3.6	31
58	Active aberration correction for the writing of three-dimensional optical memory devices. Applied Optics, 2002, 41, 1374.	2.1	30
59	Dynamic axial-position control of a laser-trapped particle by wave-front modification. Optics Letters, 2003, 28, 465.	1.7	30
60	Optimum deformable mirror modes for sensorless adaptive optics. Optics Communications, 2009, 282, 4467-4474.	1.0	30
61	Microscope calibration using laser written fluorescence. Optics Express, 2018, 26, 21887.	1.7	29
62	Implementation of a 4Pi-SMS super-resolution microscope. Nature Protocols, 2021, 16, 677-727.	5 . 5	29
63	Roadmap on neurophotonics. Journal of Optics (United Kingdom), 2016, 18, 093007.	1.0	28
64	Refractive index profiling of direct laser written waveguides: tomographic phase imaging. Optical Materials Express, 2013, 3, 1223.	1.6	27
65	Photonic Topological Mode Bound to a Vortex. Physical Review Letters, 2020, 125, 117401.	2.9	27
66	Revealing complex optical phenomena through vectorial metrics. Advanced Photonics, 2022, 4, .	6.2	27
67	Enhancement of Laser Trapping Force by Spherical Aberration Correction Using a Deformable Mirror. Japanese Journal of Applied Physics, 2003, 42, L701-L703.	0.8	26
68	Uniform Lying Helix Alignment on Periodic Surface Relief Structure Generated via Laser Scanning Lithography. Molecular Crystals and Liquid Crystals, 2011, 544, 37/[1025]-49/[1037].	0.4	26
69	Aberrations in stimulated emission depletion (STED) microscopy. Optics Communications, 2017, 404, 203-209.	1.0	26
70	Adaptive optics allows STED-FCS measurements in the cytoplasm of living cells. Optics Express, 2019, 27, 23378.	1.7	26
71	Coma aberrations in combined two- and three-dimensional STED nanoscopy. Optics Letters, 2016, 41, 3631.	1.7	25
72	Simple optimization procedure for objective lens correction collar setting. Journal of Microscopy, 2005, 217, 184-187.	0.8	24

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73	Specimen-induced distortions in light microscopy. Journal of Microscopy, 2007, 228, 97-102.	0.8	24
74	Analysis of the Three-Dimensional Focal Positioning Capability of Adaptive Optic Elements. International Journal of Optomechatronics, 2013, 7, 1-14.	3.3	23
75	Aberrations in 4Pi Microscopy. Optics Express, 2017, 25, 14049.	1.7	23
76	Calibration of a phase-only spatial light modulator for both phase and retardance modulation. Optics Express, 2019, 27, 17912.	1.7	23
77	Self calibration of sensorless adaptive optical microscopes. Journal of the European Optical Society-Rapid Publications, 0, 6, .	0.9	22
78	z-STED Imaging and Spectroscopy to Investigate Nanoscale Membrane Structure and Dynamics. Biophysical Journal, 2020, 118, 2448-2457.	0.2	22
79	On-chip beam rotators, adiabatic mode converters, and waveplates through low-loss waveguides with variable cross-sections. Light: Science and Applications, 2022, 11, .	7.7	21
80	Long-term imaging of mouse embryos using adaptive harmonic generation microscopy. Journal of Biomedical Optics, $2011, 16, 1$.	1.4	20
81	Localised polymer networks in chiral nematic liquid crystals for high speed photonic switching. Journal of Applied Physics, 2016, 119, .	1.1	20
82	High resolution structural characterisation of laser-induced defect clusters inside diamond. Applied Physics Letters, 2017, 111, .	1.5	20
83	Hybrid laser written waveguides in fused silica for low loss and polarization independence. Optics Express, 2017, 25, 4845.	1.7	20
84	Adaptive optics aberration correction for deep direct laser written waveguides in the heating regime. Applied Physics A: Materials Science and Processing, 2019, 125, 1.	1.1	20
85	Is phase-mask alignment aberrating your STED microscope?. Methods and Applications in Fluorescence, 2015, 3, 024002.	1.1	19
86	Strain-optic active control for quantum integrated photonics. Optics Express, 2014, 22, 21719.	1.7	18
87	Point-spread function optimization in isoSTED nanoscopy. Optics Letters, 2015, 40, 3627.	1.7	18
88	Arbitrary vectorial state conversion using liquid crystal spatial light modulators. Optics Communications, 2020, 459, 125028.	1.0	18
89	Deconvolution for multimode fiber imaging: modeling of spatially variant PSF. Biomedical Optics Express, 2020, 11, 4759.	1.5	18
90	Femtosecond fiber Bragg grating fabrication with adaptive optics aberration compensation. Optics Letters, 2018, 43, 5993.	1.7	18

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91	Focussing over the edge: adaptive subsurface laser fabrication up to the sample face. Optics Express, 2012, 20, 19978.	1.7	17
92	Waveguide fabrication in KDP crystals with femtosecond laser pulses. Applied Physics A: Materials Science and Processing, 2015, 118, 831-836.	1.1	17
93	A universal framework for microscope sensorless adaptive optics: Generalized aberration representations. APL Photonics, 2020, 5, .	3.0	17
94	3D Switchable Diffractive Optical Elements Fabricated with Twoâ€Photon Polymerization. Advanced Optical Materials, 2022, 10, .	3.6	16
95	Simulation of specimen-induced aberrations for objects with spherical and cylindrical symmetry. Journal of Microscopy, 2004, 215, 271-280.	0.8	15
96	Quantifying distortions in two-photon remote focussing microscope images using a volumetric calibration specimen. Frontiers in Physiology, 2014, 5, 384.	1.3	15
97	Volumetric two-photon fluorescence imaging of live neurons using a multimode optical fiber. Optics Letters, 2020, 45, 6599.	1.7	15
98	Single-mode sapphire fiber Bragg grating. Optics Express, 2022, 30, 15482.	1.7	15
99	Spectral confocal reflection microscopy using a white light source. Journal of the European Optical Society-Rapid Publications, 0, 3, .	0.9	14
100	Arbitrary complex retarders using a sequence of spatial light modulators as the basis for adaptive polarisation compensation. Journal of Optics (United Kingdom), 2021, 23, 065602.	1.0	14
101	Active compensation of extrinsic polarization errors using adaptive optics. Optics Express, 2019, 27, 35797.	1.7	14
102	Full spectrum filterless fluorescence microscopy. Journal of Microscopy, 2010, 237, 103-109.	0.8	13
103	Flexoelectro-optic liquid crystal analog phase-only modulator with a 2π range and 1  kHz switching. Optics Letters, 2018, 43, 4362.	1.7	12
104	Wavefrontâ€sensorless adaptive optics with a laserâ€free spinning disk confocal microscope. Journal of Microscopy, 2022, 288, 106-116.	0.8	12
105	Multi-scale sensorless adaptive optics: application to stimulated emission depletion microscopy. Optics Express, 2020, 28, 16749.	1.7	12
106	Focusing light in biological tissue through a multimode optical fiber: refractive index matching. Optics Letters, 2019, 44, 2386.	1.7	12
107	Microscope-AOtools: a generalised adaptive optics implementation. Optics Express, 2020, 28, 28987.	1.7	11
108	Image-based wavefront sensorless adaptive optics. , 2007, , .		10

Effects of sample dispersion on ultrafast laser focusing. Journal of the Optical Society of America B: Optical Physics, 2015, 32, 1272. Background Reduction in STED-FCS Using a Bivortex Phase Mask. ACS Photonics, 2020, 7, 1742-1753. Background Reduction in STED-FCS Using a Bivortex Phase Mask. ACS Photonics, 2020, 7, 1742-1753. Democratising & GeMicroscopide a 3D printed automated XYZT fluorescence Imaging system for teaching, outreach and fieldwork. Wellcome Open Research, 2021, 6, 63. Quasi-simultaneous multiplane calcium imaging of neuronal circuits. Biomedical Optics Express, 2019, 1, 5 10, 267. Alsoplanatic adaptive optics in parallelized laser scanning microscopy. Optics Express, 2020, 28, 14222. Effects of aberrations and specimen structure in conventional, confocal and two8Cphoton fluorescence microscopy. Journal of Microscopy, 2012, 245, 63-71. A Compact Full 2IC FlexoelectroseOptic Liquid Crystal Phase Modulator. Advanced Materials a.o. A Compact Full 2IC FlexoelectroseOptic Liquid Crystal Phase Modulator. Advanced Materials frechnologies, 2020, 3, 2000589. Trimming laser-written waveguides through overwriting. Optics Express, 2020, 28, 28006. 1.7 Microscopic processes during ultrafast laser generation of Frenkel defects in diamond. Physical Review 8, 2021, 104. Sensorless adaptive optics for microscopy. Proceedings of SPIE, 2011,	CITATIONS
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Compact and contactless reflectance confocal microscope for neurosurgery. Biomedical Optics Express, 2020, 11, 4772. 1.5	7

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127	Adaptive optimisation of a generalised phase contrast beam shaping system. Optics Communications, 2015, 342, 109-114.	1.0	6
128	Adaptive measurement and correction of polarization aberrations., 2019,,.		6
129	Investigation of structural mechanisms of laser-written waveguide formation through third-harmonic microscopy. Optics Letters, 2019, 44, 1039.	1.7	6
130	Vectorial adaptive optics: correction of polarization and phase. , 2020, , .		5
131	Dynamic response of large tilt-angle flexoelectro-optic liquid crystal modulators. Optics Express, 2019, 27, 15184.	1.7	5
132	Laser induced forward transfer isolating complex-shaped cell by beam shaping. Biomedical Optics Express, 2021, 12, 7024.	1.5	5
133	Ultrafast laser writing quill effect in low loss waveguide fabrication regime. Optics Express, 2018, 26, 30716.	1.7	5
134	Democratising "Microscopi― a 3D printed automated XYZT fluorescence imaging system for teaching, outreach and fieldwork. Wellcome Open Research, 0, 6, 63.	0.9	5
135	Compensation and Improvement of Intensity and Distribution in Reconstructed Image Using Adaptive Optics in Holographic Data Storage. Japanese Journal of Applied Physics, 2008, 47, 5900-5903.	0.8	4
136	Microscope-Cockpit: Python-based bespoke microscopy for bio-medical science. Wellcome Open Research, 0, 6, 76.	0.9	4
137	Component-wise testing of laser-written integrated coupled-mode beam splitters. Optics Letters, 2019, 44, 3174.	1.7	4
138	Extended range and aberration-free autofocusing via remote focusing and sequence-dependent learning. Optics Express, 2021, 29, 36660.	1.7	4
139	Extraordinary Beam Modulation with Ordinary GRIN Lenses. Optics and Photonics News, 2020, 31, 47.	0.4	4
140	Generalised adaptive optics method for high-NA aberration-free refocusing in refractive-index-mismatched media. Optics Express, 2022, 30, 11809.	1.7	4
141	Specimen-induced aberrations and adaptive optics for microscopy. , 2005, , .		3
142	Adaptive optics for microscopy, optical data storage, and micromachining. , 2006, , .		3
143	Adaptive optics from microscopy to nanoscopy. Proceedings of SPIE, 2014, , .	0.8	3
144	Tomographic refractive index profiling of direct laser written waveguides. Optics Express, 2021, 29, 35414.	1.7	3

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145	Wavefront sensorless adaptive optics, modal wavefront sensing, and sphere packings. , 2004, , .		2
146	Adaptive optics for multiphoton microscopy. Proceedings of SPIE, 2009, , .	0.8	2
147	Robust measurement of flexoelectro-optic switching with different surface alignments. Journal of Applied Physics, 2019, 125, 093104.	1.1	2
148	Transmissive flexoelectro-optic liquid crystal optical phase modulator with 2Ï€ modulation. AIP Advances, 2020, 10, 055011.	0.6	2
149	Adaptive optics for high-resolution microscopy. , 2013, , .		2
150	Sensorless adaptive optics for isoSTED nanoscopy. , 2018, , .		2
151	A novel deployable telescope to facilitate a low-cost <1m GSD video rapid-revisit small satellite constellation., 2019,,.		2
152	Vectorial adaptive optics - correction of polarization and phase., 2020,,.		2
153	Microscope-Cockpit: Python-based bespoke microscopy for bio-medical science. Wellcome Open Research, 0, 6, 76.	0.9	2
154	Repeated imaging through a multimode optical fiber using adaptive optics. Biomedical Optics Express, 2022, 13, 662.	1.5	2
155	A model-based approach to wave front sensorless adaptive optics. , 2007, , .		1
156	Image-based adaptive optics for imaging and microscopy. Proceedings of SPIE, 2008, , .	0.8	1
157	Optimum schemes for wavefront sensorless adaptive optics in microscopy. , 2009, , .		1
158	Adaptive optics for two-photon and harmonic eneration microscopy., 2010,,.		1
159	Shrinking multiplexed orbital angular momentum to the nanoscale. Light: Science and Applications, 2021, 10, 220.	7.7	1
160	Remote-Focussing for Volumetric Imaging in a Contactless and Label-Free Neurosurgical Microscope., 2021,,.		1
161	Closed-loop multiconjugate adaptive optics for microscopy. , 2020, , .		1
162	Enhancing polarisation imaging through novel polarimetry and adaptive optics., 2022,,.		1

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163	Compressed imaging with focused light. Journal of Optics (United Kingdom), 2022, 24, 065301.	1.0	1
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