

# Michael C Downer

## List of Publications by Citations

**Source:** <https://exaly.com/author-pdf/7888635/michael-c-downer-publications-by-citations.pdf>  
**Version:** 2024-04-09

This document has been generated based on the publications and citations recorded by exaly.com. For the latest version of this publication list, visit the link given above.  
The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

123 papers	2,921 citations	27 h-index	51 g-index
165 ext. papers	3,442 ext. citations	4.8 avg, IF	4.63 L-index

#	Paper	IF	Citations
123	Quasi-monoenergetic laser-plasma acceleration of electrons to 2 GeV. <i>Nature Communications</i> , <b>2013</b> , 4, 1988	17.4	419
122	Out-of-Plane Piezoelectricity and Ferroelectricity in Layered HnSe Nanoflakes. <i>Nano Letters</i> , <b>2017</b> , 17, 5508-5513	11.5	317
121	Measurement of femtosecond ionization dynamics of atmospheric density gases by spectral blueshifting. <i>Physical Review Letters</i> , <b>1991</b> , 67, 3523-3526	7.4	179
120	Snapshots of laser wakefields. <i>Nature Physics</i> , <b>2006</b> , 2, 749-753	16.2	147
119	Optical second-harmonic electroreflectance spectroscopy of a Si(001) metal-oxide-semiconductor structure. <i>Physical Review B</i> , <b>1996</b> , 53, R7607-R7609	3.3	82
118	Two-photon spectroscopy of silicon using femtosecond pulses at above-gap frequencies. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>1990</b> , 7, 84	1.7	74
117	Electron self-injection into an evolving plasma bubble: Quasi-monoenergetic laser-plasma acceleration in the blowout regime. <i>Physics of Plasmas</i> , <b>2011</b> , 18, 056704	2.1	72
116	Optical properties of cluster plasma. <i>Physics of Plasmas</i> , <b>1999</b> , 6, 3759-3764	2.1	72
115	Second-harmonic spectroscopy of a Si(001) surface during calibrated variations in temperature and hydrogen coverage. <i>Physical Review B</i> , <b>1997</b> , 56, 13367-13379	3.3	70
114	Diagnostics for plasma-based electron accelerators. <i>Reviews of Modern Physics</i> , <b>2018</b> , 90,	40.5	68
113	Experimental Identification of Vacuum Heating at Femtosecond-Laser-Irradiated Metal Surfaces. <i>Physical Review Letters</i> , <b>1999</b> , 82, 4010-4013	7.4	66
112	dc-electric-field-induced and low-frequency electromodulation second-harmonic generation spectroscopy of Si(001)/BiO2 interfaces. <i>Physical Review B</i> , <b>1999</b> , 60, 8924-8938	3.3	62
111	Optical second harmonic spectroscopy of semiconductor surfaces: advances in microscopic understanding. <i>Surface and Interface Analysis</i> , <b>2001</b> , 31, 966-986	1.5	59
110	Production and characterization of a fully ionized He plasma channel. <i>Applied Physics Letters</i> , <b>2000</b> , 77, 4112-4114	3.4	56
109	Single-beam and enhanced two-beam second-harmonic generation from silicon nanocrystals by use of spatially inhomogeneous femtosecond pulses. <i>Physical Review Letters</i> , <b>2005</b> , 94, 047401	7.4	55
108	Frequency-domain interferometric second-harmonic spectroscopy. <i>Optics Letters</i> , <b>1999</b> , 24, 496-8	3	53
107	Single-shot tomographic movies of evolving light-velocity objects. <i>Nature Communications</i> , <b>2014</b> , 5, 3085	17.4	51

106	Compact tunable Compton x-ray source from laser-plasma accelerator and plasma mirror. <i>Physics of Plasmas</i> , <b>2015</b> , 22, 023106	2.1	50
105	Femtosecond carrier-induced screening of dc electric-field-induced second-harmonic generation at the Si(001) SiO <sub>2</sub> interface. <i>Optics Letters</i> , <b>1997</b> , 22, 901-3	3	43
104	Second-harmonic generation from silicon nanocrystals embedded in SiO <sub>2</sub> . <i>Applied Physics Letters</i> , <b>2001</b> , 78, 766-768	3.4	43
103	Optical second harmonic spectroscopy of boron-reconstructed Si(001). <i>Physical Review Letters</i> , <b>2000</b> , 84, 3406-9	7.4	40
102	Numerical modelling of a 10-cm-long multi-GeV laser wakefield accelerator driven by a self-guided petawatt pulse. <i>New Journal of Physics</i> , <b>2010</b> , 12, 045019	2.9	34
101	In situ optical second-harmonic-generation monitoring of disilane adsorption and hydrogen desorption during epitaxial growth on Si(001). <i>Applied Physics Letters</i> , <b>1997</b> , 71, 1376-1378	3.4	34
100	Studies of laser wakefield structures and electron acceleration in underdense plasma(s). <i>Physics of Plasmas</i> , <b>2008</b> , 15, 056703	2.1	33
99	Formation of optical bullets in laser-driven plasma bubble accelerators. <i>Physical Review Letters</i> , <b>2010</b> , 104, 134801	7.4	32
98	Analysis of second-harmonic generation by unamplified, high-repetition-rate, ultrashort laser pulses at Si(001) interfaces. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , <b>1995</b> , 1, 1145-1155	3.8	31
97	Optical characterization of temperature- and composition-dependent microstructure in asphalt binders. <i>Journal of Microscopy</i> , <b>2016</b> , 262, 216-25	1.9	30
96	Generation and acceleration of electron bunches from a plasma photocathode. <i>Nature Physics</i> , <b>2019</b> , 15, 1156-1160	16.2	27
95	Absolute phase and amplitude of second-order nonlinear optical susceptibility components at Si(001) interfaces. <i>Physical Review B</i> , <b>2007</b> , 75,	3.3	25
94	New Mechanism for Ferroelectricity in the Perovskite CaMnTiO <sub>3</sub> Synthesized by Spark Plasma Sintering. <i>Journal of the American Chemical Society</i> , <b>2018</b> , 140, 2214-2220	16.4	22
93	Plasma-based accelerator diagnostics based upon longitudinal interferometry with ultrashort optical pulses. <i>IEEE Transactions on Plasma Science</i> , <b>1996</b> , 24, 301-315	1.3	22
92	Dielectric function and electrical resistivity of liquid carbon determined by femtosecond spectroscopy. <i>International Journal of Thermophysics</i> , <b>1993</b> , 14, 361-370	2.1	19
91	Second-harmonic and reflectance-anisotropy spectroscopy of vicinal Si(001)/SiO <sub>2</sub> interfaces: Experiment and simplified microscopic model. <i>Physical Review B</i> , <b>2006</b> , 73,	3.3	18
90	Optical second-harmonic spectra of Si(001) with H and Ge adatoms: First-principles theory and experiment. <i>Physical Review B</i> , <b>2001</b> , 63,	3.3	18
89	Frequency-domain streak camera for ultrafast imaging of evolving light-velocity objects. <i>Optics Letters</i> , <b>2010</b> , 35, 4087-9	3	17

88	Spectroscopic evaluation of band alignment of atomic layer deposited BeO on Si(100). <i>Applied Physics Letters</i> , <b>2012</b> , 100, 122906	3.4	17
87	Second-harmonic amplitude and phase spectroscopy by use of broad-bandwidth femtosecond pulses. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2003</b> , 20, 2548	1.7	16
86	Morphology and kinetics of asphalt binder microstructure at gas, liquid and solid interfaces. <i>Journal of Microscopy</i> , <b>2019</b> , 276, 109-117	1.9	16
85	Optical second harmonic spectra of silicon-adatom surfaces: theory and experiment. <i>Thin Solid Films</i> , <b>2000</b> , 364, 1-5	2.2	15
84	Third and fourth harmonic generation at Si-SiO <sub>2</sub> interfaces and in Si-SiO <sub>2</sub> -Cr MOS structures. <i>Applied Physics B: Lasers and Optics</i> , <b>1999</b> , 68, 325-332	1.9	15
83	Single-shot visualization of evolving laser wakefields using an all-optical streak camera. <i>Physical Review Letters</i> , <b>2014</b> , 113, 085001	7.4	14
82	Fourth-harmonic generation at a crystalline GaAs(001) surface. <i>Optics Letters</i> , <b>1997</b> , 22, 973-5	3	14
81	Reflected fourth-harmonic radiation from a centrosymmetric crystal. <i>Optics Letters</i> , <b>1998</b> , 23, 918-20	3	14
80	Second-harmonic and linear optical spectroscopic study of silicon nanocrystals embedded in SiO <sub>2</sub> . <i>Physical Review B</i> , <b>2011</b> , 84,	3.3	13
79	Second-harmonic spectroscopy of bulk boron-doped Si(001). <i>Applied Physics Letters</i> , <b>2000</b> , 77, 181-183	3.4	13
78	Second-harmonic spectroscopy of Ge/Si(001) and Si <sub>1-x</sub> Gex(001)/Si(001). <i>Applied Physics B: Lasers and Optics</i> , <b>1999</b> , 68, 641-648	1.9	13
77	In situ control and monitoring of doped and compositionally graded SiGe films using spectroscopic ellipsometry and second harmonic generation. <i>Applied Surface Science</i> , <b>2000</b> , 154-155, 229-237	6.7	12
76	Optical properties of La-incorporated HfO <sub>2</sub> upon crystallization. <i>Applied Physics Letters</i> , <b>2011</b> , 98, 122904	3.4	11
75	Size-dependent optical properties of Si nanocrystals embedded in amorphous SiO <sub>2</sub> measured by spectroscopic ellipsometry. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , <b>2011</b> , 29, 04D112	1.3	11
74	Simulation study of CO <sub>2</sub> laser-plasma interactions and self-modulated wakefield acceleration. <i>Physics of Plasmas</i> , <b>2019</b> , 26, 083106	2.1	10
73	Laser wakefield electron acceleration on Texas petawatt facility: Towards multi-GeV electron energy in a single self-guided stage. <i>High Energy Density Physics</i> , <b>2010</b> , 6, 200-206	1.2	10
72	Frequency-domain measurement of second harmonic phase. <i>Physica Status Solidi (B): Basic Research</i> , <b>2005</b> , 242, 3001-3006	1.3	10
71	Measurement of Two-Photon Absorption of Silicon Nanocrystals in Colloidal Suspension for Bio-Imaging Applications. <i>Physica Status Solidi (B): Basic Research</i> , <b>2018</b> , 255, 1700501	1.3	9

70	Band offsets of atomic layer deposited Al <sub>2</sub> O <sub>3</sub> and HfO <sub>2</sub> on Si measured by linear and nonlinear internal photoemission. <i>Physica Status Solidi (B): Basic Research</i> , <b>2012</b> , 249, 1160-1165	1.3	9
69	Resonant photoionization of defects in Si/SiO <sub>2</sub> /HfO <sub>2</sub> film stacks observed by second-harmonic generation. <i>Applied Physics Letters</i> , <b>2009</b> , 95, 052906	3.4	9
68	Self-aligning concave relativistic plasma mirror with adjustable focus. <i>Physics of Plasmas</i> , <b>2017</b> , 24, 013106	1.6	8
67	Role of photo-assisted tunneling in time-dependent second-harmonic generation from Si surfaces with ultrathin oxides. <i>Applied Physics Letters</i> , <b>2013</b> , 102, 051602	3.4	8
66	Spatio-temporal profiling of cluster mass fraction in a pulsed supersonic gas jet by frequency-domain holography. <i>Journal of Applied Physics</i> , <b>2013</b> , 114, 034903	2.5	8
65	Surface energy transport following relativistic laser-solid interaction. <i>Physics of Plasmas</i> , <b>2009</b> , 16, 072702	1.1	8
64	Reflected optical fourth harmonic generation at crystalline surfaces. <i>Thin Solid Films</i> , <b>2000</b> , 364, 80-85	2.2	8
63	Propagation of intense laser pulses through inhomogeneous ionizing gas profiles. <i>IEEE Transactions on Plasma Science</i> , <b>2000</b> , 28, 1218-1225	1.3	8
62	Dissipation of electron-beam-driven plasma wakes. <i>Nature Communications</i> , <b>2020</b> , 11, 4753	17.4	8
61	Electron Self-Injection into an Evolving Plasma Bubble: The Way to a Dark Current Free GeV-Scale Laser Accelerator <b>2010</b> ,		7
60	Piezoelectric modulation of nonlinear optical response in BaTiO <sub>3</sub> thin film. <i>Applied Physics Letters</i> , <b>2018</b> , 113, 132902	3.4	7
59	Correlated time-variation of bulk microstructure and rheology in asphalt binders. <i>Journal of Microscopy</i> , <b>2018</b> , 271, 282-292	1.9	7
58	Analytic height correlation function of rough surfaces derived from light scattering. <i>Physical Review E</i> , <b>2016</b> , 94, 042809	2.4	6
57	Characterization of anti-phase boundaries in hetero-epitaxial polar-on-nonpolar semiconductor films by optical second-harmonic generation. <i>Applied Physics Letters</i> , <b>2013</b> , 102, 152103	3.4	6
56	Optical second-harmonic and reflectance-anisotropy spectroscopy of clean and hydrogen-terminated vicinal Si(001) surfaces. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2010</b> , 27, 981	1.7	6
55	Hot carrier injection from nanometer-thick silicon-on-insulator films measured by optical second-harmonic generation. <i>Applied Physics Letters</i> , <b>2010</b> , 96, 241105	3.4	6
54	Observation of interfacial electrostatic field-induced changes in the silicon dielectric function using spectroscopic ellipsometry. <i>Physica Status Solidi (A) Applications and Materials Science</i> , <b>2008</b> , 205, 918-921	1.6	6
53	Second-harmonic microscopy of strain fields around through-silicon-vias. <i>Applied Physics Letters</i> , <b>2016</b> , 108, 151602	3.4	6

52	Real-time microscopic and rheometric observations of strain-driven cavitation instability underlying micro-crack formation in asphalt binders. <i>International Journal of Pavement Engineering</i> , <b>2020</b> , 21, 977-989	3.6	6
51	Coherent Optical Signatures of Electron Microbunching in Laser-Driven Plasma Accelerators. <i>Physical Review Letters</i> , <b>2020</b> , 125, 014801	7.4	5
50	Single-shot visualization of evolving plasma wakefields <b>2016</b> ,		5
49	Self-injected petawatt laser-driven plasma electron acceleration in 1017 cm <sup>3</sup> plasma. <i>Journal of Plasma Physics</i> , <b>2012</b> , 78, 413-419	2.7	5
48	Picosecond time scale dynamics of short pulse laser-driven shocks in tin. <i>Journal of Applied Physics</i> , <b>2009</b> , 105, 093523	2.5	5
47	Hot-wire chemical vapor deposition of silicon nanoparticles on fused silica. <i>Thin Solid Films</i> , <b>2009</b> , 517, 3481-3483	2.2	5
46	Electric-field-induced second-harmonic microscopy. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2003</b> , 3081-3085		5
45	Charge trapping defects in Si/SiO <sub>2</sub> /Hf(1%)SiO <sub>2</sub> film stacks characterized by spectroscopic second-harmonic generation. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , <b>2011</b> , 29, 04D101	1.3	4
44	Second-harmonic spectroscopy of Si nanocrystals embedded in silica. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2008</b> , 5, 2662-2666		4
43	Distinctive physical effects and applications approaching the relativistic lambda-cubed regime. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , <b>2006</b> , 12, 223-232	3.8	4
42	Optical Second Harmonic Spectroscopy of Silicon Surfaces, Interfaces and Nanocrystals. <i>Physica Status Solidi A</i> , <b>2001</b> , 188, 1371-1381		4
41	Optics. A new low for nonlinear optics. <i>Science</i> , <b>2002</b> , 298, 373-5	33.3	4
40	Compact spectroscopy of keV to MeV X-rays from a laser wakefield accelerator. <i>Scientific Reports</i> , <b>2021</b> , 11, 14368	4.9	4
39	Effects of laser polarization and wavelength on hybrid laser wakefield and direct acceleration. <i>Plasma Physics and Controlled Fusion</i> , <b>2018</b> , 60, 105002	2	4
38	Strain-dependence of $\epsilon_2$ in thin film barium strontium titanate. <i>AIP Advances</i> , <b>2019</b> , 9, 025312	1.5	3
37	Mid-IR, CO <sub>2</sub> -Laser driven, Self-Modulated Wakes <b>2017</b> ,		3
36	Polarization retention in ultra-thin barium titanate films on Ge(001). <i>Applied Physics Letters</i> , <b>2018</b> , 112, 162901	3.4	3
35	Blue-shift of E <sub>2</sub> critical point resonance in optical second-harmonic spectrum of Si nanocrystals. <i>Physica Status Solidi (B): Basic Research</i> , <b>2012</b> , 249, 1166-1172	1.3	3

34	Guiding characteristics of an acoustic standing wave in a piezoelectric tube. <i>Applied Physics Letters</i> , <b>1998</b> , 73, 2902-2904	3-4	3
33	Optical Second Harmonic Spectroscopy of Silicon Surfaces, Interfaces and Nanocrystals <b>2001</b> , 188, 1371		3
32	Compact tunable Compton x-ray source from laser wakefield accelerator and plasma mirror <b>2016</b> ,		2
31	Spin freezing into a disordered state in CaFeTi <sub>2</sub> O <sub>6</sub> synthesized under high pressure. <i>Physical Review B</i> , <b>2018</b> , 98,	3-3	2
30	Global optimization of quasi-monoenergetic electron beams from laser wakefield accelerators <b>2013</b> ,		2
29	Two-color terawatt laser system for high-intensity laser-plasma experiments <b>2013</b> ,		2
28	Optical second-harmonic and reflectance-anisotropy spectroscopy of molecular adsorption at Si(001) step-edges. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2008</b> , 5, 2551-2555		2
27	Phase-sensitive electric-field-induced second-harmonic microscopy of metal-semiconductor junctions. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2007</b> , 24, 2736	1-7	2
26	Reflectance-difference and second-harmonic generation: a meeting of two surface spectroscopies. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2003</b> , 3055-3059		2
25	Simplified bond model of spectroscopic SHG and RAS of oxidized and reconstructed vicinal Si(001). <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2005</b> , 2, 3973-3977		2
24	Second-harmonic spectroscopy of nano-interfaces. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2005</b> , 2, 4067-4071		2
23	Evolution of the self-injection process in long wavelength infrared laser driven LWFA. <i>Physics of Plasmas</i> , <b>2021</b> , 28, 013102	2-1	2
22	Stable Positron Acceleration in Thin, Warm, Hollow Plasma Channels. <i>Physical Review Letters</i> , <b>2021</b> , 127, 104801	7-4	2
21	Generation of tens-of-MeV photons by compton backscatter from laser-plasma-accelerated GeV electrons <b>2017</b> ,		1
20	Frequency-Domain Streak Camera and Tomography for Ultrafast Imaging of Evolving and Channeled Plasma Accelerator Structures <b>2010</b> ,		1
19	Optical second-harmonic generation study of charge trapping dynamics in HfO <sub>2</sub> /SiO <sub>2</sub> films on Si(100). <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , <b>2008</b> , 5, 2667-2670		1
18	Snapshots of Laser-Generated Wakefields. <i>AIP Conference Proceedings</i> , <b>2006</b> ,	0	1
17	Second-harmonic imaging of ZnO nanoparticles <b>2007</b> ,		1



16	Real-Time Femtosecond Ellipsometry of SixGe1-x Epilayers. <i>Materials Research Society Symposia Proceedings</i> , <b>1992</b> , 263, 317		1
15	Bulk microstructures in bitumen and its influence on rheology <b>2018</b> , 411-414		1
14	Im{ $\epsilon$ } spectra of 110-cut GaAs, GaP, and Si near the two-photon absorption band edge. <i>Journal of Applied Physics</i> , <b>2021</b> , 129, 183109	2.5	1
13	Surface second harmonic generation induced by 3D strain fields. <i>Physica Status Solidi (B): Basic Research</i> , <b>2016</b> , 253, 218-225	1.3	1
12	Betatron x-rays from GeV laser-plasma-accelerated electrons <b>2016</b> ,		1
11	In-line Spectral Interferometry in Shortwave-Infrared Laser Filaments in Air. <i>Physical Review Letters</i> , <b>2019</b> , 123, 223203	7.4	1
10	Spectral Analysis of 50–100 MeV Thomson Backscatter Gamma-rays from GeV Laser-Plasma Accelerator <b>2018</b> ,		1
9	Optical second harmonic spectroscopy of semiconductor surfaces: advances in microscopic understanding <b>2001</b> , 31, 966		1
8	Ion dynamics driven by a strongly nonlinear plasma wake. <i>Plasma Physics and Controlled Fusion</i> , <b>2022</b> , 64, 045003	2	0
7	Detection of Subsurface, Nanometer-Scale Crystallographic Defects by Nonlinear Light Scattering and Localization. <i>Advanced Optical Materials</i> , <b>2021</b> , 9, 2002252	8.1	0
6	Charge Disproportionation and Complex Magnetism in a PbMnO <sub>3</sub> Perovskite Synthesized under High Pressure. <i>Chemistry of Materials</i> , <b>2021</b> , 33, 92-101	9.6	0
5	Faraday rotation study of plasma bubbles in GeV wakefield accelerators. <i>Physics of Plasmas</i> , <b>2021</b> , 28, 123105	2.1	0
4	Femtosecond Laser Melting of Graphite and Diamond. <i>Materials Research Society Symposia Proceedings</i> , <b>1989</b> , 157, 425		
3	Terawatt chirped pulse Raman amplified laser for two-color experiments. <i>Optical Engineering</i> , <b>2020</b> , 59, 1	1.1	
2	Calorimeter with Bayesian unfolding of spectra of high-flux broadband x rays.. <i>Review of Scientific Instruments</i> , <b>2022</b> , 93, 043102	1.7	
1	A Study of Second-Order Susceptibility in Digital Alloy-Grown InAs/AlSb Multiple Quantum Wells. <i>Advanced Optical Materials</i> , 2102845	8.1	