

# Douglas J Thomson

## List of Publications by Year in descending order

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109  
papers

2,518  
citations

279798

23  
h-index

214800

47  
g-index

109  
all docs

109  
docs citations

109  
times ranked

2384  
citing authors

#	ARTICLE	IF	CITATIONS
1	Imaging alkane layers at the liquid/graphite interface with the scanning tunneling microscope. Applied Physics Letters, 1990, 57, 28-30.	3.3	420
2	Optical fiber refractometer using narrowband cladding-mode resonance shifts. Applied Optics, 2007, 46, 1142.	2.1	223
3	Localized Electrochemical Deposition of Copper Microstructures. Journal of the Electrochemical Society, 2000, 147, 586.	2.9	145
4	A microwave interferometric system for simultaneous actuation and detection of single biological cells. Lab on A Chip, 2009, 9, 3406.	6.0	98
5	Tip artifacts in atomic force microscope imaging of thin film surfaces. Journal of Applied Physics, 1993, 74, 3608-3610.	2.5	96
6	Delineation of semiconductor doping by scanning resistance microscopy. Applied Physics Letters, 1994, 64, 342-344.	3.3	77
7	A Wireless Passive Sensor for Temperature Compensated Remote pH Monitoring. IEEE Sensors Journal, 2013, 13, 2428-2436.	4.7	65
8	Activated T lymphocytes migrate toward the cathode of DC electric fields in microfluidic devices. Lab on A Chip, 2011, 11, 1298.	6.0	62
9	Low-temperature deposition of silicon dioxide films from electron cyclotron resonant microwave plasmas. Journal of Applied Physics, 1989, 65, 2457-2463.	2.5	54
10	Non-destructive detection of fish spoilage using a wireless basic volatile sensor. Talanta, 2015, 134, 718-723.	5.5	51
11	Thermionic field emission from interface states at grain boundaries in silicon. Journal of Applied Physics, 1984, 55, 312-317.	2.5	47
12	The microstructure of thin films observed using atomic force microscopy. Thin Solid Films, 1995, 257, 15-21.	1.8	47
13	The changing dielectric properties of CHO cells can be used to determine early apoptotic events in a bioprocess. Biotechnology and Bioengineering, 2013, 110, 2902-2914.	3.3	46
14	On acoustic emission for damage detection and failure prediction in fiber reinforced polymer rods using pattern recognition analysis. Smart Materials and Structures, 2017, 26, 065023.	3.5	44
15	Differential electronic detector to monitor apoptosis using dielectrophoresis-induced translation of flowing cells (dielectrophoresis cytometry). Biomicrofluidics, 2013, 7, 024101.	2.4	39
16	1 Zeptofarad (10 <sup>-21</sup> F) resolution capacitance sensor for scanning capacitance microscopy. Review of Scientific Instruments, 2001, 72, 2618-2623.	1.3	38
17	Torque-mixing magnetic resonance spectroscopy. Science, 2015, 350, 798-801.	12.6	37
18	Effects of interface potential nonuniformities on carrier transport across silicon grain boundaries. Journal of Applied Physics, 1983, 54, 1976-1980.	2.5	35

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19	Membrane dielectric dispersion in nanosecond pulsed electroporation of biological cells. IEEE Transactions on Dielectrics and Electrical Insulation, 2013, 20, 1256-1265.	2.9	33
20	Monitoring acidic and basic volatile concentration using a pH-electrode based wireless passive sensor. Sensors and Actuators B: Chemical, 2015, 209, 803-810.	7.8	33
21	Corrosion Potential Sensor for Remote Monitoring of Civil Structure Based on Printed Circuit Board Sensor. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 2422-2431.	4.7	29
22	Electronic transport at grain boundaries in silicon. Physical Review B, 1983, 28, 5908-5922.	3.2	26
23	A prototype clamp-on magneto-optical current transducer for power system metering and relaying. IEEE Transactions on Power Delivery, 1995, 10, 1764-1770.	4.3	24
24	Characterization of volatile organic compounds released by granivorous insects in stored wheat. Journal of Stored Products Research, 2012, 48, 91-96.	2.6	24
25	Acoustic guided wave techniques for detecting corrosion damage of electrical grounding rods. Measurement: Journal of the International Measurement Confederation, 2019, 147, 106858.	5.0	24
26	Fluid Embeddable Coupled Coil Sensor for Wireless pH Monitoring in a Bioreactor. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 1337-1346.	4.7	23
27	Multi-Frequency DEP Cytometer Employing a Microwave Sensor for Dielectric Analysis of Single Cells. IEEE Transactions on Microwave Theory and Techniques, 2016, , 1-9.	4.6	23
28	Study of FRP bars under tension using acoustic emission detection technique. Journal of Civil Structural Health Monitoring, 2018, 8, 285-300.	3.9	23
29	Electrode Potential-Based Coupled Coil Sensor for Remote pH Monitoring. IEEE Sensors Journal, 2011, 11, 2813-2819.	4.7	22
30	Fabrication and Optimization of a Conducting Polymer Sensor Array Using Stored Grain Model Volatiles. Journal of Agricultural and Food Chemistry, 2012, 60, 2863-2873.	5.2	22
31	A wireless embedded passive sensor for monitoring the corrosion potential of reinforcing steel. Smart Materials and Structures, 2013, 22, 075019.	3.5	22
32	Electronic detection of dielectrophoretic forces exerted on particles flowing over interdigitated electrodes. Biomicrofluidics, 2012, 6, 024117.	2.4	21
33	Effects of substrate temperature on the electrical and physical properties of silicon dioxide films deposited from electron cyclotron resonant microwave plasmas. Journal of Applied Physics, 1990, 67, 6347-6352.	2.5	19
34	Accurate strain measurements with fiber Bragg sensors and wavelength references. Smart Materials and Structures, 2006, 15, 325-330.	3.5	19
35	Characterization of the surface morphology of durum wheat starch granules using atomic force microscopy. Microscopy Research and Technique, 2008, 71, 125-132.	2.2	19
36	Quantitative Model for Ion Transport and Cytoplasm Conductivity of Chinese Hamster Ovary Cells. Scientific Reports, 2018, 8, 17818.	3.3	19

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37	Scanned electrostatic force microscope for noninvasive high frequency potential measurement. Applied Physics Letters, 1994, 64, 1442-1444.	3.3	18
38	Comparison between the electrical junction properties of H-terminated and methyl-terminated individual Si microwire/polymer assemblies for photoelectrochemical fuel production. Energy and Environmental Science, 2012, 5, 9789.	30.8	18
39	Sampled waveform measurement in integrated circuits using heterodyne electrostatic force microscopy. Review of Scientific Instruments, 1994, 65, 3378-3381.	1.3	17
40	Field-Induced Carrier Generation in Conjugated Polymer Semiconductors for Dynamic, Asymmetric Junctions. Advanced Materials, 2008, 20, 49-53.	21.0	17
41	Electrical Characterization of Si Microwires and of Si Microwire/Conducting Polymer Composite Junctions. Journal of Physical Chemistry Letters, 2011, 2, 675-680.	4.6	17
42	Progression of change in membrane capacitance and cytoplasm conductivity of cells during controlled starvation using dual-frequency DEP cytometry. Analytica Chimica Acta, 2019, 1059, 59-67.	5.4	16
43	Characterization of the Electrical Properties of Individual p-Si Microwire/Polymer/n-Si Microwire Assemblies. Journal of Physical Chemistry C, 2011, 115, 24945-24950.	3.1	15
44	Passive Wireless Sensor for Measuring AC Electric Field in the Vicinity of High-Voltage Apparatus. IEEE Transactions on Industrial Electronics, 2016, 63, 4432-4441.	7.9	14
45	Dielectric Properties of Single Cells Subjected to Heat Shock Using DEP Cytometry. IEEE Transactions on Microwave Theory and Techniques, 2018, 66, 5933-5940.	4.6	13
46	Single cell dielectrophoresis study of apoptosis progression induced by controlled starvation. Bioelectrochemistry, 2018, 124, 73-79.	4.6	13
47	Behavior of downstream plasmas generated in a microwave plasma chemical-vapor deposition reactor. Journal of Applied Physics, 1988, 64, 4398-4403.	2.5	12
48	Dynamic resistive crossbar memory based on conjugated polymer composite. Applied Physics Letters, 2009, 94, 092113.	3.3	12
49	CMOS single cell dielectrophoresis cytometer. Sensors and Actuators B: Chemical, 2017, 249, 246-255.	7.8	12
50	Noninvasive scanned probe potentiometry for integrated circuit diagnostics. IEEE Transactions on Instrumentation and Measurement, 1994, 43, 469-474.	4.7	11
51	Microelectromechanical Resonator Characterization Using Noncontact Parametric Electrostatic Excitation and Probing. Journal of Microelectromechanical Systems, 2007, 16, 1054-1060.	2.5	11
52	Crack detection of steel girders using Brillouin optical time domain analysis. Journal of Civil Structural Health Monitoring, 2011, 1, 61-68.	3.9	11
53	The economic case for service life extension of structures using structural health monitoring based on the delayed cost of borrowing. Journal of Civil Structural Health Monitoring, 2013, 3, 335-340.	3.9	11
54	The STM as an information storage device. Journal of Microscopy, 1988, 152, 627-630.	1.8	10

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55	Compensation Doping in Conjugated Polymers: Engineering Dopable Heterojunctions for Modulating Conductivity in the Solid State. <i>Journal of the American Chemical Society</i> , 2009, 131, 15600-15601.	13.7	10
56	Polymer-based gas sensor on a thermally stable micro-cantilever. <i>Procedia Engineering</i> , 2010, 5, 21-24.	1.2	10
57	Evaluation of dielectric based and other methods for moisture content measurement in building stones. <i>Journal of Civil Structural Health Monitoring</i> , 2012, 2, 137-148.	3.9	9
58	Wireless overhead line temperature sensor based on RF cavity resonance. <i>Smart Materials and Structures</i> , 2013, 22, 075010.	3.5	9
59	Charges and defects in SiO <sub>2</sub> films deposited by plasma-enhanced chemical vapor deposition at low temperatures. <i>Solid-State Electronics</i> , 1991, 34, 123-129.	1.4	8
60	Field enhanced charge carrier reconfiguration in electronic and ionic coupled dynamic polymer resistive memory. <i>Nanotechnology</i> , 2010, 21, 134003.	2.6	8
61	Wireless passive sensor for pH monitoring inside a small bioreactor. , 2013, , .		8
62	Controlling volatility in solid-state, redox-based memory devices using heterojunction barriers to ion transport. <i>Chemical Communications</i> , 2012, 48, 9409.	4.1	7
63	Polymer-Based Chemicapacitor Sensor for 1-Octanol and Relative Humidity Detections at Different Temperatures and Frequencies. <i>IEEE Sensors Journal</i> , 2013, 13, 519-527.	4.7	7
64	Cytoplasmic conductivity as a marker for bioprocess monitoring: Study of Chinese hamster ovary cells under nutrient deprivation and reintroduction. <i>Biotechnology and Bioengineering</i> , 2019, 116, 2896-2905.	3.3	7
65	Near field chipless tag for food quality monitoring. , 2014, , .		6
66	Parallel single-cell optical transit dielectrophoresis cytometer. <i>Electrophoresis</i> , 2020, 41, 720-728.	2.4	6
67	Full Beta-Dispersion Region Dielectric Spectra and Dielectric Models of Viable and Non-Viable CHO Cells. <i>IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology</i> , 2021, 5, 70-77.	3.4	6
68	Bridge pier scour level quantification based on output-only Kalman filtering. <i>Structural Health Monitoring</i> , 2022, 21, 2116-2135.	7.5	6
69	Location of current carrying failure sites in integrated circuits by magnetic force microscopy at large probe-to-sample separation. <i>Microelectronic Engineering</i> , 2009, 86, 16-23.	2.4	5
70	Carbon Black Polymer Sensor Array for Incipient Grain Spoilage Monitoring. <i>Agricultural Research</i> , 2012, 1, 87-94.	1.7	5
71	Electroporation and dielectrophoresis of single cells using a microfluidic system employing a microwave interferometric sensor. , 2013, , .		5
72	A compact microwave frequency reflectometer with attoFarad sensitivity: A path towards an integrated dielectrophoresis cytometer. <i>Sensors and Actuators A: Physical</i> , 2015, 232, 132-140.	4.1	5

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73	Change in the dielectric response of single cells induced by nutrient deprivation over a wide frequency range. , 2017, , .		5
74	Acoustic guided wave detection of grounding rod corrosion: equivalent circuit model and implementation. Smart Materials and Structures, 2020, 29, 055040.	3.5	5
75	High-injection conditions at dislocations in silicon: A mechanism for dependence of lifetime on photogeneration rate. IEEE Transactions on Electron Devices, 1984, 31, 523-527.	3.0	4
76	High-resolution cross-sectional imaging of MOSFETs by scanning resistance microscopy. IEEE Electron Device Letters, 1997, 18, 71-73.	3.9	4
77	Heterodyne electrostatic imaging of polarization due to a surface acoustic wave. Applied Physics Letters, 2001, 79, 3729-3731.	3.3	4
78	Accurate strain measurements with fiber Bragg grating sensors and wavelength references. , 2004, , .		4
79	Sub-micron resolution magnetic force microscopy mapping of current paths with large probe-to-sample separation. Measurement Science and Technology, 2007, 18, L19-L22.	2.6	4
80	Development of a polymer-based gas sensor - humidity and CO2 sensitivity. , 2009, , .		4
81	An embedded inductively coupled printed circuit board based corrosion potential sensor. , 2013, , .		4
82	Multi-frequency DEP cytometer employing a microwave interferometer for the dielectric analysis of micro-particles. , 2015, , .		4
83	Integrated 0.35 pm CMOS capacitance sensor with atto-farad sensitivity for single cell analysis. , 2016, , .		4
84	Reducing carbon dioxide emissions through structural health monitoring of bridges. Journal of Civil Structural Health Monitoring, 2021, 11, 679-689.	3.9	4
85	Silicon dioxide films fabricated by electron cyclotron resonant microwave plasmas. IEEE Transactions on Electrical Insulation, 1990, 25, 593-598.	0.8	3
86	<title>Civionics specifications for fiber optic sensors for structural health monitoring</title>. , 2004, , .		3
87	Civionics for structural health monitoring. Canadian Journal of Civil Engineering, 2007, 34, 430-437.	1.3	3
88	Dielectric response of particles in flowing media: The effect of shear-induced rotation on the variation in particle polarizability. Physical Review E, 2011, 84, 011922.	2.1	3
89	Calibration of dielectric based moisture sensing in stone, mortar and stone-mortar sandwiches. Journal of Civil Structural Health Monitoring, 2014, 4, 277-288.	3.9	3
90	In-flow dielectric characterization of single biological cells using a wideband DEP cytometer. , 2016, , .		3

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91	Microwave Near-Field Detection of Single Biological Cells and Nanoparticles. , 2018, , .		3
92	Placement of distributed crack sensor on I-shaped steel girders of medium-span bridges, using available field data. Structural Control and Health Monitoring, 2019, 26, e2432.	4.0	3
93	In-Flow Dielectrophoresis Sensor for Measuring the Dielectric Spectrum of Single Cells: Viable and Non-viable Cells. , 2019, , .		3
94	Wireless strain sensor based on resonant RF cavities. , 2004, , .		2
95	Wireless Passive Sensor for Remote pH Monitoring. Journal of Nanotechnology in Engineering and Medicine, 2011, 2, .	0.8	2
96	Microfluidic device for simultaneous pulsed electric field electroporation and dielectrophoresis studies of single biological cells. , 2013, , .		2
97	DEP Measurement of the Dielectric Properties of Single CHO Cells Under Thermal Stress. , 2018, , .		2
98	Acoustic Emission Signal Entropy as a Means to Estimate Loads in Fiber Reinforced Polymer Rods. Sensors, 2021, 21, 1089.	3.8	2
99	Novel near-field probe for on-wafer integrated circuit measurements. Microelectronics Journal, 1992, 23, 363-369.	2.0	1
100	Dopant characterization round-robin study performed on two-dimensional test structures fabricated at Texas Instruments. , 1998, , .		1
101	Scaling and Anisotropic Conduction in Electrochemically Deposited Polypyrrole Hybrid Junctions. IEEE Electron Device Letters, 2011, 32, 815-817.	3.9	1
102	Semi-automated detection of single cell signatures from a dielectrophoretic cytometer. , 2013, , .		1
103	An inductively coupled passive tag for remote basic volatile sensing. , 2014, , .		1
104	Wireless pulse echo interrogation of an AC electric potential resonator sensor. , 2015, , .		1
105	Near-field coupled RFID tag for carbon dioxide concentration sensing. , 2015, , .		1
106	Dynamic heterodyned polarization imaging: a scanning probe technique for studying polarization dynamics in materials. , 2002, , .		0
107	A wireless volatile organic absorption pH sensor using a mixed metal oxide electrode. , 2013, , .		0
108	Dielectrophoresis study of electroporation effects on Chinese hamster ovary cells. , 2014, , .		0

#	ARTICLE	IF	CITATIONS
109	The differential polarizability of CHO cells can be used to monitor changes in metabolism. BMC Proceedings, 2015, 9, P47.	1.6	0