

Joel L Plawsky

List of Publications by Year in descending order

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100
papers

1,726
citations

279487

23
h-index

329751

37
g-index

100
all docs

100
docs citations

100
times ranked

1412
citing authors

#	ARTICLE	IF	CITATIONS
1	A transport model describing how defect accumulation leads to intrinsic dielectric breakdown and post-breakdown conduction. <i>Microelectronics Reliability</i> , 2022, 128, 114459.	0.9	1
2	Transport in mazes; simple geometric representations to guide the design of engineered systems. <i>Chemical Engineering Science</i> , 2022, 250, 117416.	1.9	1
3	The effect of bubble nucleation on the performance of a wickless heat pipe in microgravity. <i>Npj Microgravity</i> , 2022, 8, 12.	1.9	1
4	The effect of condenser temperature on the performance of the evaporator in a wickless heat pipe performance. <i>International Journal of Heat and Mass Transfer</i> , 2021, 176, 121484.	2.5	4
5	The ICECool Fundamentals Effort on Evaporative Cooling of Microelectronics. <i>IEEE Transactions on Components, Packaging and Manufacturing Technology</i> , 2021, 11, 1546-1564.	1.4	25
6	2020 Max Jacob Memorial Award (P. C. Wayner, Jr.) Review: Change-of-Phase in an Extended Meniscus. <i>Journal of Heat Transfer</i> , 2021, , .	1.2	0
7	Enhanced mandrel design for electrospinning aligned fiber mats from low volatility solvents. <i>Polymer Engineering and Science</i> , 2021, 61, 793-801.	1.5	4
8	“Linking microstructure of membranes and performance” <i>Journal of Membrane Science</i> , 2020, 594, 117419.	4.1	12
9	Radical Lifetimes in Atom Transfer Radical Polymerization: A Monte Carlo and Deterministic Investigation. <i>Macromolecules</i> , 2020, 53, 7224-7238.	2.2	10
10	Antimicrobial effects of positively charged, conductive electrospun polymer fibers. <i>Materials Science and Engineering C</i> , 2020, 116, 111247.	3.8	7
11	Rip currents: A spontaneous heat transfer enhancement mechanism in a wickless heat pipe. <i>International Journal of Heat and Mass Transfer</i> , 2020, 149, 119170.	2.5	12
12	High-Conductivity and High-Capacitance Electrospun Fibers for Supercapacitor Applications. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 19369-19376.	4.0	54
13	Interactions of nuclear transport factors and surface-conjugated FG nucleoporins: Insights and limitations. <i>PLoS ONE</i> , 2019, 14, e0217897.	1.1	9
14	Fabrication and simulation investigation of zig-zag nanorod-structured graded-index anti-reflection coatings for LED applications. <i>Journal of Applied Physics</i> , 2019, 125, 173102.	1.1	4
15	Ultra-high heat flux dissipation with Piranha Pin Fins. <i>International Journal of Heat and Mass Transfer</i> , 2019, 128, 504-515.	2.5	53
16	Spontaneously oscillating menisci: Maximizing evaporative heat transfer by inducing condensation. <i>International Journal of Thermal Sciences</i> , 2018, 128, 137-148.	2.6	6
17	The Development of the Charge Transport Model To Predict Dielectric Failure. , 2018, , .		1
18	Charge transport model to predict dielectric breakdown as a function of voltage, temperature, and thickness. <i>Microelectronics Reliability</i> , 2018, 91, 232-242.	0.9	3

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19	Advancing micro-scale cooling by utilizing liquid-liquid phase separation. Scientific Reports, 2018, 8, 12093.	1.6	11
20	Experimental study of the heated contact line region for a pure fluid and binary fluid mixture in microgravity. Journal of Colloid and Interface Science, 2017, 488, 48-60.	5.0	9
21	Method to Determine the Root Cause of Low- κ SiCOH Dielectric Failure Distributions. IEEE Electron Device Letters, 2017, 38, 119-122.	2.2	1
22	Condensation on Highly Superheated Surfaces: Unstable Thin Films in a Wickless Heat Pipe. Physical Review Letters, 2017, 118, 094501.	2.9	23
23	Special Issue From International Workshop on New Understanding in Nanoscale/Microscale Phase Change Phenomena Held in Trondheim, Norway, June 12-16, 2016. Journal of Heat Transfer, 2017, 139, .	1.2	0
24	Wickless heat pipes in microgravity. Physics Today, 2017, 70, 82-83.	0.3	1
25	Solid-State Dewetting of Gold Aggregates/Islands on TiO ₂ Nanorod Structures Grown by Oblique Angle Deposition. Langmuir, 2017, 33, 14066-14077.	1.6	4
26	Electron transport and dielectric breakdown in silicon nitride using a charge transport model. Applied Physics Letters, 2016, 109, 152904.	1.5	11
27	A Tribute to William N. Gill. Chemical Engineering Communications, 2016, 203, 1413-1413.	1.5	0
28	Arresting the phenomenon of heater flooding in a wickless heat pipe in microgravity. International Journal of Multiphase Flow, 2016, 82, 65-73.	1.6	7
29	The effect of an ideal fluid mixture on the evaporator performance of a heat pipe in microgravity. International Journal of Heat and Mass Transfer, 2016, 95, 765-772.	2.5	10
30	Effects of cooling temperature on heat pipe evaporator performance using an ideal fluid mixture in microgravity. Experimental Thermal and Fluid Science, 2016, 75, 108-117.	1.5	7
31	Charge transport model to predict intrinsic reliability for dielectric materials. Journal of Applied Physics, 2015, 118, 124102.	1.1	12
32	On the sintering of gold nanorod assemblies towards continuous networks. RSC Advances, 2015, 5, 55678-55685.	1.7	2
33	Piranha Pin Fin (PPF) – Advanced flow boiling microstructures with low surface tension dielectric fluids. International Journal of Heat and Mass Transfer, 2015, 90, 591-604.	2.5	74
34	Thermocapillary Phenomena and Performance Limitations of a Wickless Heat Pipe in Microgravity. Physical Review Letters, 2015, 114, 146105.	2.9	28
35	Effect of Capillary and Marangoni Forces on Transport Phenomena in Microgravity. Langmuir, 2015, 31, 5377-5386.	1.6	18
36	Current leakage relaxation and charge trapping in ultra-porous low-k materials. Journal of Applied Physics, 2014, 115, 084107.	1.1	12

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37	Surface area and porosity in obliquely grown photocatalytic titanium dioxide for air purification. <i>Journal of Applied Physics</i> , 2014, 115, .	1.1	7
38	Thermophysical characteristics of a wickless heat pipe in microgravity – Constrained vapor bubble experiment. <i>International Journal of Heat and Mass Transfer</i> , 2014, 78, 1105-1113.	2.5	14
39	Piranha Pin-Fins (PPF): Voracious boiling heat transfer by vapor venting from microchannels - system calibration and single-phase fluid dynamics. , 2014, , .		9
40	Parameters Governing the Formation of Photopolymerized Silica Sol-Gel Monoliths in PDMS Microfluidic Chips. <i>Chromatographia</i> , 2013, 76, 993-1002.	0.7	4
41	Penetration of Copper-Manganese Self-Forming Barrier into SiO ₂ -Pore-Sealed SiCOH during Deposition. <i>ECS Journal of Solid State Science and Technology</i> , 2013, 2, N175-N178.	0.9	4
42	On the dynamics of Cu ions injection into low-k nanoporous materials under oscillating applied fields. <i>Journal of Applied Physics</i> , 2013, 113, 034104.	1.1	13
43	Constrained Vapor Bubble Heat Pipe Experiment Aboard the International Space Station. <i>Journal of Thermophysics and Heat Transfer</i> , 2013, 27, 309-319.	0.9	16
44	Explosive nucleation in microgravity: The Constrained Vapor Bubble experiment. <i>International Journal of Heat and Mass Transfer</i> , 2012, 55, 6473-6484.	2.5	14
45	High thermal conductivity epoxy-silver composites based on self-constructed nanostructured metallic networks. <i>Journal of Applied Physics</i> , 2012, 111, .	1.1	108
46	Impact of Frequency From a Bipolar Applied Field on Dielectric Breakdown for Low- ϵ_r Materials. <i>IEEE Transactions on Electron Devices</i> , 2012, 59, 1745-1749.	1.6	8
47	Impact of interfacial solubility on penetration of metals into dielectrics and the mechanism of failure. <i>Journal of Materials Science: Materials in Electronics</i> , 2012, 23, 48-55.	1.1	3
48	The Constrained Vapor Bubble Fin Heat Pipe in Microgravity. <i>Industrial & Engineering Chemistry Research</i> , 2011, 50, 8917-8926.	1.8	18
49	Disjoining pressure and capillarity in the constrained vapor bubble heat transfer system. <i>Advances in Colloid and Interface Science</i> , 2011, 168, 40-49.	7.0	32
50	The role of solid surface structure on dropwise phase change processes. <i>International Journal of Heat and Mass Transfer</i> , 2010, 53, 910-922.	2.5	25
51	Modeling time-dependent dielectric breakdown with and without barriers. <i>Journal of Micro/Nanolithography, MEMS, and MOEMS</i> , 2010, 9, 041104.	1.0	1
52	Constrained Vapor Bubble Experiment for International Space Station: Earth's Gravity Results. <i>Journal of Thermophysics and Heat Transfer</i> , 2010, 24, 400-410.	0.9	9
53	Role of solid surface structure on evaporative phase change from a completely wetting corner meniscus. <i>Physics of Fluids</i> , 2010, 22, .	1.6	33
54	Predicting the lifetime of copper/barrier/dielectric systems: Insights for designing better barriers for reducing copper ion drift/diffusion into the dielectric. <i>Journal of Applied Physics</i> , 2009, 106, 074906.	1.1	12

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55	Engineered nanoporous and nanostructured films. <i>Materials Today</i> , 2009, 12, 36-45.	8.3	53
56	The effect of metallic barriers in inhibiting copper ion transport in low-k dielectrics: Implications for time-to-failure. <i>Thin Solid Films</i> , 2009, 517, 5630-5633.	0.8	6
57	New Type of Draft Tube Spout-Fluid Bed. Part 1: Hydraulic Transport of 1.94 mm Glass Particles in Water. <i>Industrial & Engineering Chemistry Research</i> , 2009, 48, 9286-9298.	1.8	7
58	Potential of <i>Eichhornia crassipes</i> for biomass refining. <i>Journal of Industrial Microbiology and Biotechnology</i> , 2008, 35, 393-402.	1.4	32
59	Comprehensive experimental and theoretical study of fluid flow and heat transfer in a microscopic evaporating meniscus in a miniature heat exchanger. <i>International Journal of Heat and Mass Transfer</i> , 2008, 51, 5368-5379.	2.5	83
60	REVIEW OF THE EFFECTS OF SURFACE TOPOGRAPHY, SURFACE CHEMISTRY, AND FLUID PHYSICS ON EVAPORATION AT THE CONTACT LINE. <i>Chemical Engineering Communications</i> , 2008, 196, 658-696.	1.5	99
61	Synthesis and characterization of particle loaded sol-gel composite material for microfluidic chip system. <i>Journal of Sol-Gel Science and Technology</i> , 2008, 45, 133-141.	1.1	3
62	Copper ion drift in integrated circuits: Effect of boundary conditions on reliability and breakdown of low-k dielectrics. <i>Journal of Applied Physics</i> , 2008, 103, 014907.	1.1	33
63	Copper ion transport induced dielectric failure: Inclusion of elastic drift and consequences for reliability. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2008, 26, 1497-1500.	0.9	6
64	Continuum Models With Slip for the Evaporating Meniscus and Comparison With Experimental Results. , 2008, , .		3
65	Experimental Evaluation of Marangoni Shear in the Contact Line Region of an Evaporating 99+% Pure Octane Meniscus. <i>Journal of Heat Transfer</i> , 2007, 129, 1476-1485.	1.2	9
66	A time dependent dielectric breakdown model for field accelerated low-k breakdown due to copper ions. <i>Applied Physics Letters</i> , 2007, 91, .	1.5	46
67	Design of diffusion barriers. <i>Thin Solid Films</i> , 2007, 515, 4794-4800.	0.8	6
68	Spreading Characteristics and Microscale Evaporative Heat Transfer in an Ultrathin Film Containing a Binary Mixture. <i>Journal of Heat Transfer</i> , 2006, 128, 1266-1275.	1.2	18
69	Role of reactive surface oxygen in causing enhanced copper ionization in a low-k polymer. <i>Journal of Vacuum Science & Technology B</i> , 2006, 24, 1417.	1.3	5
70	Selective Filling for Patterning in Microfluidic Channels. <i>Langmuir</i> , 2005, 21, 4458-4463.	1.6	6
71	Experimental Determination of the Effect of Disjoining Pressure on Shear in the Contact Line Region of a Moving Evaporating Thin Film. <i>Journal of Heat Transfer</i> , 2005, 127, 231-243.	1.2	51
72	Spreading, Evaporation, and Contact Line Dynamics of Surfactant-Laden Microdrops. <i>Langmuir</i> , 2005, 21, 8188-8197.	1.6	45

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73	Plasma silicon oxideâ€™silica xerogel based planar optical waveguides. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2004, 22, 902.	1.6	3
74	Effect of Surface Chemistry on the diffusion of Copper in nanoporous dielectrics. Materials Research Society Symposia Proceedings, 2004, 812, F6.8.1.	0.1	0
75	Modification of Nanoporous Silica Structures by Fluorocarbon Plasma Treatment. Materials Research Society Symposia Proceedings, 2004, 812, F6.7.1.	0.1	3
76	Enhanced Surface Diffusion in Low-temperature a-Si:H Processing. Materials Research Society Symposia Proceedings, 2004, 808, 521.	0.1	1
77	Inferred pressure gradient and fluid flow in a condensing sessile droplet based on the measured thickness profile. Physics of Fluids, 2004, 16, 1942-1955.	1.6	51
78	Energy transport in plasma etching of nanoporous dielectric materials. Superlattices and Microstructures, 2004, 35, 195-204.	1.4	3
79	A study of the oscillating corner meniscus in a vertical constrained vapor bubble system. Superlattices and Microstructures, 2004, 35, 559-572.	1.4	15
80	Modelling the interaction between the atmosphere and curing concrete bridge decks with the SLABS model. Meteorological Applications, 2003, 10, 165-186.	0.9	8
81	Microscale Transport Processes in the Evaporator of a Constrained Vapor Bubble. Journal of Thermophysics and Heat Transfer, 2003, 17, 166-173.	0.9	5
82	Fabrication of controlled sidewall angles in thin films using isotropic etches. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2003, 21, 1240.	1.6	9
83	Modelling the interaction between the atmosphere and curing concrete bridge decks with the SLABS model. Meteorological Applications, 2003, 10, 165-186.	0.9	1
84	Surface Roughness Study of Low-temperature PECVD a-Si:H . Materials Research Society Symposia Proceedings, 2003, 762, 5141.	0.1	6
85	Processing dependent thermal conductivity of nanoporous silica xerogel films. Journal of Applied Physics, 2002, 91, 3275-3281.	1.1	57
86	Optical Evaluation of the Effect of Curvature and Apparent Contact Angle in Droplet Condensate Removal. Journal of Heat Transfer, 2002, 124, 729-738.	1.2	5
87	Silicon CMOS BEOL Compatible Optical Waveguide Micro-mirrors. Materials Research Society Symposia Proceedings, 2002, 744, 1.	0.1	1
88	Effect of Curvature, Contact Angle, and Interfacial Subcooling on Contact Line Spreading in a Microdrop in Dropwise Condensation. Langmuir, 2002, 18, 5170-5177.	1.6	24
89	Surface Roughness Evolution of PECVD Cathodic and Anodic a-Si:H . Materials Research Society Symposia Proceedings, 2002, 715, 1941.	0.1	6
90	Kinetic model for the pyrolysis of polysiloxane polymers to ceramic composites. AIChE Journal, 2002, 48, 2315-2323.	1.8	20

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91	Condensate Removal Mechanisms in a Constrained Vapor Bubble Heat Exchanger. Annals of the New York Academy of Sciences, 2002, 974, 274-287.	1.8	0
92	Effects of processing history on the modulus of silica xerogel films. Journal of Applied Physics, 2001, 90, 5832-5834.	1.1	53
93	Processing, Characterization and Reliability of Silica Xerogel Films for Interlayer Dielectric Applications. Materials Research Society Symposia Proceedings, 2000, 612, 5251.	0.1	6
94	Thermal conductivity study of porous low-k dielectric materials. Applied Physics Letters, 2000, 77, 145-147.	1.5	79
95	Processing and Characterization of Silica Xerogel Films for Low-K Dielectric Applications. Materials Research Society Symposia Proceedings, 1999, 565, 29.	0.1	13
96	Drainage of a Partially Wetting Film:Â Dodecane on Silicon. Industrial & Engineering Chemistry Research, 1996, 35, 2955-2963.	1.8	2
97	Interfacial force field characterization in a constrained vapor bubble thermosyphon. AIChE Journal, 1995, 41, 2140-2149.	1.8	49
98	TRANSPORT IN BRANCHED SYSTEMS I: TRANSIENT RESPONSE. Chemical Engineering Communications, 1993, 123, 87-109.	1.5	10
99	TRANSPORT IN BRANCHED SYSTEMS I: STEADY-STATE RESPONSE. Chemical Engineering Communications, 1993, 123, 71-86.	1.5	17
100	Nonlinear Optical Material Fabrication via Sol-Gel Processing. Materials Research Society Symposia Proceedings, 1992, 247, 135.	0.1	1