

Luc G. FrÃ©chette

List of Publications by Year in descending order

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151
papers

2,077
citations

279798

23
h-index

276875

41
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158
all docs

158
docs citations

158
times ranked

1602
citing authors

#	ARTICLE	IF	CITATIONS
1	What limits the oscillationsâ€™ amplitude in the single-branch pulsating heat pipe. <i>Nonlinear Dynamics</i> , 2022, 108, 27-59.	5.2	5
2	Design and test of shape memory alloy fins for self-adaptive liquid cooling device. <i>Applied Thermal Engineering</i> , 2022, 206, 118010.	6.0	10
3	Viability of a hybrid desalination system using concentrated photovoltaics receivers to power seawater desalination. <i>AEJ - Alexandria Engineering Journal</i> , 2022, 61, 5667-5675.	6.4	1
4	A new microchannel heat exchanger configuration using CNT-nanofluid and allowing uniform temperature on the active wall. <i>Case Studies in Thermal Engineering</i> , 2022, 32, 101866.	5.7	21
5	Exploring Ru Compatibility With Al-Ge Eutectic Wafer Bonding. <i>Journal of Microelectromechanical Systems</i> , 2022, 31, 599-603.	2.5	0
6	Characterization of a Wafer-Level Packaged Au~Ru/AlCu Contact for Micro-Switches. <i>Journal of Microelectromechanical Systems</i> , 2022, 31, 700-711.	2.5	3
7	A practical Tamm plasmon sensor based on porous Si. <i>AIP Advances</i> , 2021, 11, .	1.3	18
8	Cooling Arrangements for Hybrid Thermal-CPV Receivers with High Output Coolant Temperature for Combined Electricity Generation and Water Desalination. <i>Complexity</i> , 2021, 2021, 1-9.	1.6	1
9	Toward applications of near-field radiative heat transfer with micro-hotplates. <i>Scientific Reports</i> , 2021, 11, 14347.	3.3	5
10	Fabrication and Demonstration of a Self-Adaptive Microvalve Array for Distributed Liquid Cooling in Microelectronic Interposers. <i>Journal of Microelectromechanical Systems</i> , 2020, 29, 769-775.	2.5	4
11	A MEMS Turbopump for High Temperature Rankine Micro Heat Enginesâ€™Part I: Design and Fabrication. <i>Journal of Microelectromechanical Systems</i> , 2020, 29, 1278-1292.	2.5	3
12	A MEMS Turbopump for High-Temperature Rankine Micro Heat Enginesâ€™Part II: Experimental Demonstration. <i>Journal of Microelectromechanical Systems</i> , 2020, 29, 1293-1303.	2.5	4
13	Experimental Validation of a Smart Microfluidic Cell Cooling Solution. , 2020, , .		2
14	Dimensionless Analysis of Micro Pirani Gauges for Broad Pressure Sensing Range. <i>IEEE Sensors Journal</i> , 2020, 20, 9937-9946.	4.7	6
15	Engineering visible light emitting point defects in Zr-implanted polycrystalline AlN films. <i>Journal of Applied Physics</i> , 2020, 128, .	2.5	2
16	Massively-parallel microcell arrays and thermal runaway in unilluminated cells. <i>AIP Conference Proceedings</i> , 2020, , .	0.4	0
17	Experimental characterization of a self-adaptive shape memory alloy cooling approach to regulate temperature under varying heat loads. <i>International Journal of Heat and Mass Transfer</i> , 2019, 139, 632-640.	4.8	13
18	Trade-offs and optimizations in trough-lens-cone optics for high efficiency at very low cost. <i>AIP Conference Proceedings</i> , 2019, , .	0.4	1

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19	Achieving High Quality Factor Without Vacuum Packaging by High Density Proof Mass Integration in Vibration Energy Harvesters. <i>Journal of Microelectromechanical Systems</i> , 2019, 28, 558-568.	2.5	1
20	Microfabricated Membranes for Radiative Near Field Measurements. , 2019, , .		3
21	Dynamical Response of a Radiative Thermal Transistor Based on Suspended Insulator-Metal-Transition Membranes. <i>Physical Review Applied</i> , 2019, 11, .	3.8	26
22	Tamm phonon-polaritons: Localized states from phonon-light interactions. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	14
23	Capabilities and Limits to Form High Aspect-Ratio Microstructures by Molding of Borosilicate Glass. <i>Journal of Microelectromechanical Systems</i> , 2019, 28, 432-440.	2.5	10
24	MISTIC - Micro Stirling Heat Engines for Thermal Energy Harvesting. <i>Journal of Physics: Conference Series</i> , 2019, 1407, 012041.	0.4	1
25	Microfabrication of a Silicon Turbopump with Embedded Thermal Isolation for a Rankine MEMS Heat Engine. <i>Journal of Physics: Conference Series</i> , 2019, 1407, 012091.	0.4	1
26	Add-On Microchannels for Hotspot Thermal Management of Microelectronic Chips in Compact Applications. <i>IEEE Transactions on Components, Packaging and Manufacturing Technology</i> , 2019, 9, 434-445.	2.5	6
27	How evaporation and condensation lead to self-oscillations in the single-branch pulsating heat pipe. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	14
28	Extreme temperature stability of thermally insulating graphene-mesoporous-silicon nanocomposite. <i>Nanotechnology</i> , 2018, 29, 145701.	2.6	9
29	Thermoregulated Microvalve for Self-Adaptive Microfluidic Cooling. , 2018, , .		3
30	Thermostatic Fins for Spatially and Temporally Adaptive Microfluidic Cooling. , 2018, , .		4
31	Theoretical Study of Miniaturization of a Silicon Vapor Chamber for Compact Microelectronics. , 2018, , .		1
32	Shaping circuit environment to face the thermal challenge Innovative technologies from low to high power electronics. , 2018, , .		1
33	Trough-Lens-Cone optics with microcell arrays: High efficiency at low cost. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	5
34	Variable Pumping Control for Low Power Microfluidic Chip Cooling. , 2018, , .		1
35	H2020 European project STREAMS: general overview. , 2018, , .		3
36	On-sun testing of a 100-shingled-cell dense receiver array at $\sim 1450 \text{ W/cm}^2$ using overlapped single-axis foci. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	2

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37	Paper-based water management system for microfabricated packageless fuel cell. Journal of Physics: Conference Series, 2018, 1052, 012054.	0.4	0
38	Fabrication and Demonstration of Planar Micro-Reactors for Solar Steam Methane Reforming. Journal of Physics: Conference Series, 2018, 1052, 012055.	0.4	0
39	Tamm plasmon-polaritons in a metal coated porous silicon photonic crystal. Optical Materials Express, 2018, 8, 2774.	3.0	31
40	Dense array CPV receivers: Impact of the cooling device on the net PV output for different illumination profiles. AIP Conference Proceedings, 2018, , .	0.4	5
41	A silicon rectangular micro-orifice for gas flow measurement at moderate Reynolds numbers: design, fabrication and flow analyses. Microfluidics and Nanofluidics, 2018, 22, 1.	2.2	6
42	Experimental and numerical study of micro-pin-fin heat sinks with variable density for increased temperature uniformity. International Journal of Thermal Sciences, 2018, 132, 424-434.	4.9	50
43	Numerical parametric study of a hotspot-targeted microfluidic cooling array for microelectronics. Applied Thermal Engineering, 2018, 144, 71-80.	6.0	32
44	Smoothing effect of the thermal interface material on the temperature distribution in a stepwise varying width microchannel cooling device. Heat and Mass Transfer, 2017, 53, 2987-2997.	2.1	5
45	Performance validation of printed strain sensors for active control of intelligent tires. Applied Acoustics, 2017, 123, 73-84.	3.3	16
46	Distributed and self-adaptive microfluidic cell cooling for CPV dense array receivers. AIP Conference Proceedings, 2017, , .	0.4	3
47	Enhanced Coherent Thermal Emission From SiO ₂ on a Porous Silicon Photonic Crystal. , 2017, , .		0
48	Superalloy Cooling System for the Composite Rim of an Inside-Out Ceramic Turbine. , 2017, , .		3
49	Self-adaptive microvalve array for energy efficient fluidic cooling in microelectronic systems. , 2017, , .		14
50	Calibration-less method for measuring pressure with microfabricated Pirani gauges. , 2017, , .		0
51	Hot spot aware microchannel cooling add-on for microelectronic chips in mobile devices. , 2017, , .		7
52	A 1000x utility-scale parabolic frame tracker for multidisciplinary CPV research. AIP Conference Proceedings, 2017, , .	0.4	1
53	Microfluidic cell cooling system for electronics. , 2017, , .		10
54	A wafer-level process for bulk tungsten integration in MEMS vibration energy harvesters and inertial sensors. , 2017, , .		1

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55	Modeling the Performance of Bi-Textured Micropillar Array as a Wicked Evaporator. , 2016, , .		0
56	Improvement of vibration energy harvesters mechanical Q-factor through high density proof mass integration. Journal of Physics: Conference Series, 2016, 773, 012095.	0.4	1
57	Influence of nonlinearities on the power output of the Self-Oscillating Fluidic Heat Engine (SOFHE). Journal of Physics: Conference Series, 2016, 773, 012113.	0.4	1
58	First experimental demonstration of a Self-Oscillating Fluidic Heat Engine (SOFHE) with piezoelectric power generation. Journal of Physics: Conference Series, 2016, 773, 012039.	0.4	13
59	Design and Experimental Validation of a Supersonic Concentric Micro Gas Turbine. Journal of Turbomachinery, 2016, 138, .	1.7	10
60	Thin micro-cold plate for hot-spot aware chip cooling. , 2016, , .		3
61	Microchannel Design Study for 3D Microelectronics Cooling Using a Hybrid Analytical and Finite Element Method. , 2015, , .		3
62	On designing low pressure loss working spaces for a planar Stirling micromachine. Journal of Physics: Conference Series, 2015, 660, 012138.	0.4	0
63	Power density improvement of bi-conductive polymer membrane fuel cells by optimization of its internal resistances. Journal of Physics: Conference Series, 2015, 660, 012072.	0.4	0
64	Multi-physics modelling approach for oscillatory microengines: application for a microStirling generator design. Journal of Physics: Conference Series, 2015, 660, 012071.	0.4	3
65	Water evaporation phenomena on micro and nanostructured surfaces. International Journal of Thermal Sciences, 2015, 90, 112-121.	4.9	10
66	Experimental and numerical investigation of a shaped microchannel evaporator for a micro Rankine cycle application. International Journal of Thermal Sciences, 2015, 96, 191-200.	4.9	6
67	Nozzle to plate optimization of the jet impingement inlet of a tailored-width microchannel heat exchanger. Experimental Thermal and Fluid Science, 2015, 67, 81-87.	2.7	10
68	Heat flux splitter for near-field thermal radiation. Applied Physics Letters, 2015, 107, .	3.3	45
69	Stepwise varying width microchannel cooling device for uniform wall temperature: Experimental and numerical study. Applied Thermal Engineering, 2015, 78, 30-38.	6.0	53
70	Microturbines. , 2015, , 2231-2241.		0
71	Microstructured Hydrogen Fuel Cells. , 2015, , 2221-2225.		0
72	Micro Energy Conversion Devices. , 2015, , 1802-1812.		0

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73	Fabrication and Testing of a Bi-Conductive Polymer Membrane Fuel Cell. Journal of Physics: Conference Series, 2014, 557, 012007.	0.4	1
74	Effect of Meniscus Recession on the Effective Pore Radius and Capillary Pumping of Copper Metal Foams. Journal of Electronic Packaging, Transactions of the ASME, 2014, 136, .	1.8	3
75	Uniform temperature profile for a dense array CPV receiver under non uniform illumination profile. AIP Conference Proceedings, 2014, , .	0.4	5
76	Design Space Exploration of Centimeter-Scale Wind Turbines using a Physics-Modified Optimization Formulation. Journal of Mechanics, 2014, 30, 537-548.	1.4	4
77	Thermal conductivity of partially amorphous porous silicon by photoacoustic technique. Materials Letters, 2014, 128, 71-74.	2.6	16
78	A novel silicon bi-textured micropillar array to provide fully evaporated steam for a micro-Rankine cycle application. Journal Physics D: Applied Physics, 2014, 47, 475301.	2.8	4
79	Effect of squeezing conditions on the particle distribution and bond line thickness of particle filled polymeric thermal interface materials. , 2014, , .		5
80	Swift heavy ion irradiation reduces porous silicon thermal conductivity. Nuclear Instruments & Methods in Physics Research B, 2014, 341, 27-31.	1.4	14
81	Experimental, Numerical and Analytical Investigation of Thermal Resistance in High Brightness LED Arrays. , 2014, , .		0
82	Microturbines. , 2014, , 1-13.		0
83	Scaling laws for free piston Stirling engine design: Benefits and challenges of miniaturization. Energy, 2013, 57, 796-808.	8.8	32
84	Characterization of the thermal conductivity of insulating thin films by scanning thermal microscopy. Microelectronics Journal, 2013, 44, 1029-1034.	2.0	28
85	Tuning the electromagnetic local density of states in graphene-covered systems via strong coupling with graphene plasmons. Physical Review B, 2013, 87, .	3.2	56
86	Capillary and wetting properties of copper metal foams in the presence of evaporation and sintered walls. International Journal of Heat and Mass Transfer, 2013, 58, 282-291.	4.8	36
87	Amorphization and reduction of thermal conductivity in porous silicon by irradiation with swift heavy ions. Journal of Applied Physics, 2013, 114, .	2.5	38
88	Thermal Resistance and Heat Spreading Characterization Platform for Concentrated Photovoltaic Cell Receivers. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2013, 3, 1673-1682.	2.5	5
89	Measurements of Car Vibrations Under Real-Life Driving Conditions and Assessment of Energy Harvesting for Wireless Sensor Nodes. , 2013, , .		0
90	Piezoelectric pressure microsensors arrays. , 2013, , .		0

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91	A Modified Disjoining Pressure Model for Thin Film Evaporation of Water. , 2013, , .		2
92	Experimental demonstration of a tailored-width microchannel heat exchanger configuration for uniform wall temperature. Journal of Physics: Conference Series, 2013, 476, 012075.	0.4	7
93	Microfabrication of a Polymer Based Bi-Conductive Membrane for a Polymer Electrolyte Membrane Fuel Cell. Journal of Physics: Conference Series, 2013, 476, 012109.	0.4	3
94	Effect of Meniscus Recession on the Effective Pore Radius and Capillary Pumping of Copper Metal Foams. , 2013, , .		0
95	THROUGH SILICON VIAS INTEGRABLE WITH THIN-FILM PIEZOELECTRIC STRUCTURES. International Journal of Nanoscience, 2012, 11, 1240015.	0.7	2
96	3D Numerical Analysis of Heat Transfer in a Low Reynolds Number Microturbine Cascade. , 2012, , .		0
97	Investigation of capillary properties of copper metal foams by the rate of rise method in the presence of evaporation. , 2012, , .		1
98	Innovative thermal energy harvesting for zero power electronics. , 2012, , .		14
99	Mechanism of wettability transition in copper metal foams: From superhydrophilic to hydrophobic. Applied Surface Science, 2012, 258, 6416-6424.	6.1	67
100	A Silicon Microturbopump for a Rankine-Cycle Power-Generation Microsystemâ€”Part II: Fabrication and Characterization. Journal of Microelectromechanical Systems, 2011, 20, 326-338.	2.5	23
101	Design Methodology for a Rankine Microturbine: Thermomechanical Analysis and Material Selection. Journal of Microelectromechanical Systems, 2011, 20, 339-351.	2.5	13
102	A Silicon Microturbopump for a Rankine-Cycle Power Generation Microsystemâ€”Part I: Component and System Design. Journal of Microelectromechanical Systems, 2011, 20, 312-325.	2.5	26
103	Thermal Test Platform for Solar Cell Modules in Concentrated Photovoltaics. , 2011, , .		0
104	Thermal Test Platform for Solar Cell Modules in Concentrated Photovoltaics. , 2011, , .		0
105	High Performance Concentrated Photovoltaic Module Development Using Temperature Sensors. , 2011, , .		0
106	Structural properties of porous 6H silicon carbide. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 1950-1953.	0.8	18
107	Critical importance of humidification of the anode in miniature air-breathing polymer electrolyte membrane fuel cells. Journal of Power Sources, 2011, 196, 6242-6248.	7.8	13
108	A Microcantilever Platform for Measuring Internal Friction in Thin Films Using Thermoelastic Damping for Calibration. Journal of Microelectromechanical Systems, 2011, 20, 764-773.	2.5	21

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109	Controlling damping and quality factors of silicon microcantilevers by selective metallization. Journal of Micromechanics and Microengineering, 2011, 21, 105010.	2.6	24
110	Very high temperature (800°C) ohmic contact of Au/Ni ₂ Si on n-type polycrystalline silicon carbide aged in air. , 2011, , .		3
111	Computational Investigation of the Three-Dimensional Flow Structure and Losses in a Low Reynolds Number Microturbine. , 2011, , .		2
112	A Parametric Investigation of Operating Limits in Heat Pipes Using Novel Metal Foams as Wicks. , 2010, , .		7
113	An Analytical and Numerical Study of Rectangular Orifice Plate Micro-Flowmeters. , 2010, , .		0
114	Comparative thermal analysis of solar cells mounted on ceramic and metallic carriers and their optimization for CPV applications. , 2010, , .		0
115	A Low-Power Stand-Alone Adaptive Circuit for Harvesting Energy From a Piezoelectric Micropower Generator. IEEE Transactions on Industrial Electronics, 2010, 57, 840-849.	7.9	199
116	Effect of Thin Aluminum Coatings on Structural Damping of Silicon Microresonators. Materials Research Society Symposia Proceedings, 2009, 1222, 1.	0.1	1
117	A MEMS sensor for mean shear stress measurements in high-speed turbulent flows with backside interconnects. , 2009, , .		3
118	Controlled Flow Evaporation in Complex Microchannels With Non-Uniform Wall Temperatures. , 2009, , .		0
119	Understanding cathode flooding and dry-out for water management in air breathing PEM fuel cells. Journal of Power Sources, 2008, 180, 440-451.	7.8	49
120	An improved small-deflection electromechanical model for piezoelectric bending beam actuators and energy harvesters. Journal of Micromechanics and Microengineering, 2008, 18, 104009.	2.6	20
121	A MEMS-Based Shear Stress Sensor for High Temperature Applications. , 2008, , .		7
122	Preliminary Testing of a MEMS-based Shear Stress Sensor for High Speed Flow Applications. , 2008, , .		3
123	Temperature-Regulated Nonlinear Microvalves for Self-Adaptive MEMS Cooling. Journal of Microelectromechanical Systems, 2008, 17, 998-1009.	2.5	24
124	Design Principles and Measured Performance of Multistage Radial Flow Microturbomachinery at Low Reynolds Numbers. Journal of Fluids Engineering, Transactions of the ASME, 2008, 130, .	1.5	6
125	Numerical Analysis of Sub-Millimeter-Scale Microturbomachinery Aerothermodynamics. , 2008, , .		1
126	Microstructured Hydrogen Fuel Cells. , 2008, , 1351-1354.		0

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127	Microturbines. , 2008, , 1359-1368.		0
128	Micro Energy Conversion Devices. , 2008, , 1119-1127.		1
129	A MEMS-Based Shear Stress Sensor for High Temperature Applications. , 2007, , 1477.		0
130	The 6th International Workshop on Micro and Nanotechnologies for Power Generation and Energy Conversion Applications (PowerMEMS 2006). Journal of Micromechanics and Microengineering, 2007, 17, .	2.6	1
131	Thermal buckling of eccentric microfabricated nickel beams as temperature regulated nonlinear actuators for flow control. Sensors and Actuators A: Physical, 2007, 134, 37-46.	4.1	19
132	Water Management and Mass Transport Studies in Free Convection Proton-Exchange Membrane Fuel Cells. ECS Transactions, 2006, 1, 419-428.	0.5	2
133	Characterization and Modeling of Thermal Buckling in Eccentrically Loaded Microfabricated Nickel Beams for Adaptive Cooling. , 2005, , 689.		1
134	Energy Scavenging and Nontraditional Power Sources for Wireless Sensor Networks. , 2005, , 75-105.		3
135	Micromachined silicon structures for free-convection PEM fuel cells. Journal of Micromechanics and Microengineering, 2005, 15, S193-S201.	2.6	30
136	High-speed microfabricated silicon turbomachinery and fluid film bearings. Journal of Microelectromechanical Systems, 2005, 14, 141-152.	2.5	120
137	An electric induction micromotor. Journal of Microelectromechanical Systems, 2005, 14, 1127-1143.	2.5	45
138	Demonstration and Characterization of a Multi-Stage Silicon Microturbine. , 2005, , .		2
139	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stallâ€™Part I: Development of Models and Metrics. Journal of Turbomachinery, 2004, 126, 52-62.	1.7	2
140	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stallâ€™Part II: Evaluation of Approaches. Journal of Turbomachinery, 2004, 126, 63-72.	1.7	3
141	Power Sources for Wireless Sensor Networks. Lecture Notes in Computer Science, 2004, , 1-17.	1.3	205
142	Challenges for Lubrication in High Speed MEMS. , 2003, , 197-220.		4
143	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stall: Part II â€™ Evaluation of Approaches. , 2003, , .		0
144	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stall: Part I â€™ Development of Models and Metrics. , 2003, , .		0

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145	Performance Analysis of Brayton and Rankine Cycle Microsystems for Portable Power Generation. , 2002, , 513.		23
146	Analytical Solution of the Flow Along Parallel Microchannels Separated by a Porous Membrane. , 2002, , 425.		0
147	Tailoring etch directionality in a deep reactive ion etching tool. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2000, 18, 1412.	1.6	23
148	1997 Best Paper Awardâ€”Controls and Diagnostics Committee: Active Stabilization of Rotating Stall and Surge in a Transonic Single-Stage Axial Compressor. Journal of Turbomachinery, 1998, 120, 625-636.	1.7	142
149	Active Stabilization of Rotating Stall and Surge in a Transonic Single Stage Axial Compressor. , 1997, , .		55
150	An electrostatic induction micromotor supported on gas-lubricated bearings. , 0, , .		37
151	Optimization and design guidelines for high flux micro-channel heat sinks for liquid and gaseous single-phase flow. , 0, , .		7