

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
g-index

158
all docs

158
docs citations

158
times ranked

1602
citing authors

#	ARTICLE	IF	CITATIONS
1	Power Sources for Wireless Sensor Networks. Lecture Notes in Computer Science, 2004, , 1-17.	1.3	205
2	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
3	1997 Best Paper Award "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
4	High-speed microfabricated silicon turbomachinery and fluid film bearings. Journal of Microelectromechanical Systems, 2005, 14, 141-152.	2.5	120
5	Mechanism of wettability transition in copper metal foams: From superhydrophilic to hydrophobic. Applied Surface Science, 2012, 258, 6416-6424.	6.1	67
6	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
7	Active Stabilization of Rotating Stall and Surge in a Transonic Single Stage Axial Compressor. , 1997, , .		55
8	Stepwise varying width microchannel cooling device for uniform wall temperature: Experimental and numerical study. Applied Thermal Engineering, 2015, 78, 30-38.	6.0	53
9	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
10	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
11	An electric induction micromotor. Journal of Microelectromechanical Systems, 2005, 14, 1127-1143.	2.5	45
12	Heat flux splitter for near-field thermal radiation. Applied Physics Letters, 2015, 107, .	3.3	45
13	Amorphization and reduction of thermal conductivity in porous silicon by irradiation with swift heavy ions. Journal of Applied Physics, 2013, 114, .	2.5	38
14	An electrostatic induction micromotor supported on gas-lubricated bearings. , 0, , .		37
15	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
16	Scaling laws for free piston Stirling engine design: Benefits and challenges of miniaturization. Energy, 2013, 57, 796-808.	8.8	32
17	Numerical parametric study of a hotspot-targeted microfluidic cooling array for microelectronics. Applied Thermal Engineering, 2018, 144, 71-80.	6.0	32
18	Tamm plasmon-polaritons in a metal coated porous silicon photonic crystal. Optical Materials Express, 2018, 8, 2774.	3.0	31

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19	Micromachined silicon structures for free-convection PEM fuel cells. Journal of Micromechanics and Microengineering, 2005, 15, S193-S201.	2.6	30
20	Characterization of the thermal conductivity of insulating thin films by scanning thermal microscopy. Microelectronics Journal, 2013, 44, 1029-1034.	2.0	28
21	A Silicon Microturbopump for a Rankine-Cycle Power Generation Microsystem Part I: Component and System Design. Journal of Microelectromechanical Systems, 2011, 20, 312-325.	2.5	26
22	Dynamical Response of a Radiative Thermal Transistor Based on Suspended Insulator-Metal-Transition Membranes. Physical Review Applied, 2019, 11, .	3.8	26
23	Temperature-Regulated Nonlinear Microvalves for Self-Adaptive MEMS Cooling. Journal of Microelectromechanical Systems, 2008, 17, 998-1009.	2.5	24
24	Controlling damping and quality factors of silicon microcantilevers by selective metallization. Journal of Micromechanics and Microengineering, 2011, 21, 105010.	2.6	24
25	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
26	Performance Analysis of Brayton and Rankine Cycle Microsystems for Portable Power Generation. , 2002, , 513.		23
27	A Silicon Microturbopump for a Rankine-Cycle Power-Generation Microsystem Part II: Fabrication and Characterization. Journal of Microelectromechanical Systems, 2011, 20, 326-338.	2.5	23
28	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
29	A new microchannel heat exchanger configuration using CNT-nanofluid and allowing uniform temperature on the active wall. Case Studies in Thermal Engineering, 2022, 32, 101866.	5.7	21
30	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
31	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
32	Structural properties of porous 6H silicon carbide. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 1950-1953.	0.8	18
33	A practical Tamm plasmon sensor based on porous Si. AIP Advances, 2021, 11, .	1.3	18
34	Thermal conductivity of partially amorphous porous silicon by photoacoustic technique. Materials Letters, 2014, 128, 71-74.	2.6	16
35	Performance validation of printed strain sensors for active control of intelligent tires. Applied Acoustics, 2017, 123, 73-84.	3.3	16
36	Innovative thermal energy harvesting for zero power electronics. , 2012, , .		14

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37	Swift heavy ion irradiation reduces porous silicon thermal conductivity. Nuclear Instruments & Methods in Physics Research B, 2014, 341, 27-31.	1.4	14
38	Self-adaptive microvalve array for energy efficient fluidic cooling in microelectronic systems. , 2017, , .		14
39	Tamm phonon-polaritons: Localized states from phonon-light interactions. Applied Physics Letters, 2019, 114, .	3.3	14
40	How evaporation and condensation lead to self-oscillations in the single-branch pulsating heat pipe. Physical Review Fluids, 2019, 4, .	2.5	14
41	Design Methodology for a Rankine Microturbine: Thermomechanical Analysis and Material Selection. Journal of Microelectromechanical Systems, 2011, 20, 339-351.	2.5	13
42	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
43	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
44	Experimental characterization of a self-adaptive shape memory alloy cooling approach to regulate temperature under varying heat loads. International Journal of Heat and Mass Transfer, 2019, 139, 632-640.	4.8	13
45	Water evaporation phenomena on micro and nanostructured surfaces. International Journal of Thermal Sciences, 2015, 90, 112-121.	4.9	10
46	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
47	Design and Experimental Validation of a Supersonic Concentric Micro Gas Turbine. Journal of Turbomachinery, 2016, 138, .	1.7	10
48	Microfluidic cell cooling system for electronics. , 2017, , .		10
49	Capabilities and Limits to Form High Aspect-Ratio Microstructures by Molding of Borosilicate Glass. Journal of Microelectromechanical Systems, 2019, 28, 432-440.	2.5	10
50	Design and test of shape memory alloy fins for self-adaptive liquid cooling device. Applied Thermal Engineering, 2022, 206, 118010.	6.0	10
51	Extreme temperature stability of thermally insulating graphene-mesoporous-silicon nanocomposite. Nanotechnology, 2018, 29, 145701.	2.6	9
52	Optimization and design guidelines for high flux micro-channel heat sinks for liquid and gaseous single-phase flow. , 0, , .		7
53	A MEMS-Based Shear Stress Sensor for High Temperature Applications. , 2008, , .		7
54	A Parametric Investigation of Operating Limits in Heat Pipes Using Novel Metal Foams as Wicks. , 2010, , .		7

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55	Experimental demonstration of a tailored-width microchannel heat exchanger configuration for uniform wall temperature. <i>Journal of Physics: Conference Series</i> , 2013, 476, 012075.	0.4	7
56	Hot spot aware microchannel cooling add-on for microelectronic chips in mobile devices. , 2017, , .		7
57	Design Principles and Measured Performance of Multistage Radial Flow Microturbomachinery at Low Reynolds Numbers. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2008, 130, .	1.5	6
58	Experimental and numerical investigation of a shaped microchannel evaporator for a micro Rankine cycle application. <i>International Journal of Thermal Sciences</i> , 2015, 96, 191-200.	4.9	6
59	A silicon rectangular micro-orifice for gas flow measurement at moderate Reynolds numbers: design, fabrication and flow analyses. <i>Microfluidics and Nanofluidics</i> , 2018, 22, 1.	2.2	6
60	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
61	Dimensionless Analysis of Micro Pirani Gauges for Broad Pressure Sensing Range. <i>IEEE Sensors Journal</i> , 2020, 20, 9937-9946.	4.7	6
62	Thermal Resistance and Heat Spreading Characterization Platform for Concentrated Photovoltaic Cell Receivers. <i>IEEE Transactions on Components, Packaging and Manufacturing Technology</i> , 2013, 3, 1673-1682.	2.5	5
63	Uniform temperature profile for a dense array CPV receiver under non uniform illumination profile. <i>AIP Conference Proceedings</i> , 2014, , .	0.4	5
64	Effect of squeezing conditions on the particle distribution and bond line thickness of particle filled polymeric thermal interface materials. , 2014, , .		5
65	Smoothing effect of the thermal interface material on the temperature distribution in a stepwise varying width microchannel cooling device. <i>Heat and Mass Transfer</i> , 2017, 53, 2987-2997.	2.1	5
66	Trough-Lens-Cone optics with microcell arrays: High efficiency at low cost. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	5
67	Dense array CPV receivers: Impact of the cooling device on the net PV output for different illumination profiles. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	5
68	Toward applications of near-field radiative heat transfer with micro-hotplates. <i>Scientific Reports</i> , 2021, 11, 14347.	3.3	5
69	What limits the oscillationsâ€™ amplitude in the single-branch pulsating heat pipe. <i>Nonlinear Dynamics</i> , 2022, 108, 27-59.	5.2	5
70	Design Space Exploration of Centimeter-Scale Wind Turbines using a Physics-Modified Optimization Formulation. <i>Journal of Mechanics</i> , 2014, 30, 537-548.	1.4	4
71	A novel silicon bi-textured micropillar array to provide fully evaporated steam for a micro-Rankine cycle application. <i>Journal Physics D: Applied Physics</i> , 2014, 47, 475301.	2.8	4
72	Thermostatic Fins for Spatially and Temporally Adaptive Microfluidic Cooling. , 2018, , .		4

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73	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
74	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
75	Challenges for Lubrication in High Speed MEMS. , 2003, , 197-220.		4
76	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stallâ€”Part II: Evaluation of Approaches. <i>Journal of Turbomachinery</i> , 2004, 126, 63-72.	1.7	3
77	Energy Scavenging and Nontraditional Power Sources for Wireless Sensor Networks. , 2005, , 75-105.		3
78	Preliminary Testing of a MEMS-based Shear Stress Sensor for High Speed Flow Applications. , 2008, , .		3
79	A MEMS sensor for mean shear stress measurements in high-speed turbulent flows with backside interconnects. , 2009, , .		3
80	Very high temperature (800°C) ohmic contact of Au/Ni²/Si on n-type polycrystalline silicon carbide aged in air. , 2011, , .		3
81	Microfabrication of a Polymer Based Bi-Conductive Membrane for a Polymer Electrolyte Membrane Fuel Cell. <i>Journal of Physics: Conference Series</i> , 2013, 476, 012109.	0.4	3
82	Effect of Meniscus Recession on the Effective Pore Radius and Capillary Pumping of Copper Metal Foams. <i>Journal of Electronic Packaging, Transactions of the ASME</i> , 2014, 136, .	1.8	3
83	Microchannel Design Study for 3D Microelectronics Cooling Using a Hybrid Analytical and Finite Element Method. , 2015, , .		3
84	Multi-physics modelling approach for oscillatory microengines: application for a microStirling generator design. <i>Journal of Physics: Conference Series</i> , 2015, 660, 012071.	0.4	3
85	Distributed and self-adaptive microfluidic cell cooling for CPV dense array receivers. <i>AIP Conference Proceedings</i> , 2017, , .	0.4	3
86	Superalloy Cooling System for the Composite Rim of an Inside-Out Ceramic Turbine. , 2017, , .		3
87	Thermoregulated Microvalve for Self-Adaptive Microfluidic Cooling. , 2018, , .		3
88	H2020 European project STREAMS: general overview. , 2018, , .		3
89	Microfabricated Membranes for Radiative Near Field Measurements. , 2019, , .		3
90	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

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91	Thin micro-cold plate for hot-spot aware chip cooling. , 2016, , .		3
92	Characterization of a Wafer-Level Packaged Au~Ru/AlCu Contact for Micro-Switches. Journal of Microelectromechanical Systems, 2022, 31, 700-711.	2.5	3
93	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stall~Part I: Development of Models and Metrics. Journal of Turbomachinery, 2004, 126, 52-62.	1.7	2
94	Water Management and Mass Transport Studies in Free Convection Proton-Exchange Membrane Fuel Cells. ECS Transactions, 2006, 1, 419-428.	0.5	2
95	THROUGH SILICON VIAS INTEGRABLE WITH THIN-FILM PIEZOELECTRIC STRUCTURES. International Journal of Nanoscience, 2012, 11, 1240015.	0.7	2
96	A Modified Disjoining Pressure Model for Thin Film Evaporation of Water. , 2013, , .		2
97	On-sun testing of a 100-shingled-cell dense receiver array at $\hat{\sim}1/450\hat{\sim}W/cm^2$ using overlapped single-axis foci. AIP Conference Proceedings, 2018, , .	0.4	2
98	Experimental Validation of a Smart Microfluidic Cell Cooling Solution. , 2020, , .		2
99	Demonstration and Characterization of a Multi-Stage Silicon Microturbine. , 2005, , .		2
100	Computational Investigation of the Three-Dimensional Flow Structure and Losses in a Low Reynolds Number Microturbine. , 2011, , .		2
101	Engineering visible light emitting point defects in Zr-implanted polycrystalline AlN films. Journal of Applied Physics, 2020, 128, .	2.5	2
102	Characterization and Modeling of Thermal Buckling in Eccentrically Loaded Microfabricated Nickel Beams for Adaptive Cooling. , 2005, , 689.		1
103	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
104	Numerical Analysis of Sub-Millimeter-Scale Microturbomachinery Aerothermodynamics. , 2008, , .		1
105	Effect of Thin Aluminum Coatings on Structural Damping of Silicon Microresonators. Materials Research Society Symposia Proceedings, 2009, 1222, 1.	0.1	1
106	Investigation of capillary properties of copper metal foams by the rate of rise method in the presence of evaporation. , 2012, , .		1
107	Fabrication and Testing of a Bi-Conductive Polymer Membrane Fuel Cell. Journal of Physics: Conference Series, 2014, 557, 012007.	0.4	1
108	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

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109	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
110	A 1000x utility-scale parabolic frame tracker for multidisciplinary CPV research. AIP Conference Proceedings, 2017, , .	0.4	1
111	A wafer-level process for bulk tungsten integration in MEMS vibration energy harvesters and inertial sensors. , 2017, , .		1
112	Theoretical Study of Miniaturization of a Silicon Vapor Chamber for Compact Microelectronics. , 2018, , .		1
113	Shaping circuit environment to face the thermal challenge Innovative technologies from low to high power electronics. , 2018, , .		1
114	Variable Pumping Control for Low Power Microfluidic Chip Cooling. , 2018, , .		1
115	Trade-offs and optimizations in trough-lens-cone optics for high efficiency at very low cost. AIP Conference Proceedings, 2019, , .	0.4	1
116	Achieving High Quality Factor Without Vacuum Packaging by High Density Proof Mass Integration in Vibration Energy Harvesters. Journal of Microelectromechanical Systems, 2019, 28, 558-568.	2.5	1
117	MISTIC - Micro Stirling Heat Engines for Thermal Energy Harvesting. Journal of Physics: Conference Series, 2019, 1407, 012041.	0.4	1
118	Microfabrication of a Silicon Turbopump with Embedded Thermal Isolation for a Rankine MEMS Heat Engine. Journal of Physics: Conference Series, 2019, 1407, 012091.	0.4	1
119	Cooling Arrangements for Hybrid Thermal-CPV Receivers with High Output Coolant Temperature for Combined Electricity Generation and Water Desalination. Complexity, 2021, 2021, 1-9.	1.6	1
120	Viability of a hybrid desalination system using concentrated photovoltaics receivers to power seawater desalination. AEJ - Alexandria Engineering Journal, 2022, 61, 5667-5675.	6.4	1
121	Micro Energy Conversion Devices. , 2008, , 1119-1127.		1
122	Analytical Solution of the Flow Along Parallel Microchannels Separated by a Porous Membrane. , 2002, , 425.		0
123	A MEMS-Based Shear Stress Sensor for High Temperature Applications. , 2007, , 1477.		0
124	Controlled Flow Evaporation in Complex Microchannels With Non-Uniform Wall Temperatures. , 2009, , .		0
125	An Analytical and Numerical Study of Rectangular Orifice Plate Micro-Flowmeters. , 2010, , .		0
126	Comparative thermal analysis of solar cells mounted on ceramic and metallic carriers and their optimization for CPV applications. , 2010, , .		0

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127	Thermal Test Platform for Solar Cell Modules in Concentrated Photovoltaics. , 2011, , .		0
128	Thermal Test Platform for Solar Cell Modules in Concentrated Photovoltaics. , 2011, , .		0
129	High Performance Concentrated Photovoltaic Module Development Using Temperature Sensors. , 2011, , .		0
130	3D Numerical Analysis of Heat Transfer in a Low Reynolds Number Microturbine Cascade. , 2012, , .		0
131	Measurements of Car Vibrations Under Real-Life Driving Conditions and Assessment of Energy Harvesting for Wireless Sensor Nodes. , 2013, , .		0
132	Piezoelectric pressure microsensor arrays. , 2013, , .		0
133	Experimental, Numerical and Analytical Investigation of Thermal Resistance in High Brightness LED Arrays. , 2014, , .		0
134	On designing low pressure loss working spaces for a planar Stirling micromachine. Journal of Physics: Conference Series, 2015, 660, 012138.	0.4	0
135	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
136	Modeling the Performance of Bi-Textured Micropillar Array as a Wicked Evaporator. , 2016, , .		0
137	Enhanced Coherent Thermal Emission From SiO ₂ on a Porous Silicon Photonic Crystal. , 2017, , .		0
138	Calibration-less method for measuring pressure with microfabricated Pirani gauges. , 2017, , .		0
139	Paper-based water management system for microfabricated packageless fuel cell. Journal of Physics: Conference Series, 2018, 1052, 012054.	0.4	0
140	Fabrication and Demonstration of Planar Micro-Reactors for Solar Steam Methane Reforming. Journal of Physics: Conference Series, 2018, 1052, 012055.	0.4	0
141	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stall: Part II "Evaluation of Approaches. , 2003, , .		0
142	Tailored Structural Design and Aeromechanical Control of Axial Compressor Stall: Part I "Development of Models and Metrics. , 2003, , .		0
143	Effect of Meniscus Recession on the Effective Pore Radius and Capillary Pumping of Copper Metal Foams. , 2013, , .		0
144	Microturbines. , 2014, , 1-13.		0

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145	Microturbines. , 2015, , 2231-2241.		0
146	Microstructured Hydrogen Fuel Cells. , 2015, , 2221-2225.		0
147	Micro Energy Conversion Devices. , 2015, , 1802-1812.		0
148	Massively-parallel microcell arrays and thermal runaway in unilluminated cells. AIP Conference Proceedings, 2020, , .	0.4	0
149	Microstructured Hydrogen Fuel Cells. , 2008, , 1351-1354.		0
150	Microturbines. , 2008, , 1359-1368.		0
151	Exploring Ru Compatibility With Al-Ge Eutectic Wafer Bonding. Journal of Microelectromechanical Systems, 2022, 31, 599-603.	2.5	0