

Joshua E-Y Lee

List of Publications by Year in descending order

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143
papers

1,953
citations

279701

23
h-index

315616

38
g-index

144
all docs

144
docs citations

144
times ranked

1100
citing authors

#	ARTICLE	IF	CITATIONS
1	Micromachined Resonators: A Review. <i>Micromachines</i> , 2016, 7, 160.	1.4	155
2	Parasitic feedthrough cancellation techniques for enhanced electrical characterization of electrostatic microresonators. <i>Sensors and Actuators A: Physical</i> , 2009, 156, 36-42.	2.0	99
3	Study of lateral mode SOI-MEMS resonators for reduced anchor loss. <i>Journal of Micromechanics and Microengineering</i> , 2011, 21, 045010.	1.5	72
4	A bulk acoustic mode single-crystal silicon microresonator with a high-quality factor. <i>Journal of Micromechanics and Microengineering</i> , 2008, 18, 064001.	1.5	71
5	An axial strain modulated double-ended tuning fork electrometer. <i>Sensors and Actuators A: Physical</i> , 2008, 148, 395-400.	2.0	64
6	5.4-MHz single-crystal silicon wine glass mode disk resonator with quality factor of 2 million. <i>Sensors and Actuators A: Physical</i> , 2009, 156, 28-35.	2.0	64
7	A Single-Crystal-Silicon Bulk-Acoustic-Mode Microresonator Oscillator. <i>IEEE Electron Device Letters</i> , 2008, 29, 701-703.	2.2	54
8	Ultrasensitive mass balance based on a bulk acoustic mode single-crystal silicon resonator. <i>Applied Physics Letters</i> , 2007, 91, .	1.5	53
9	Crystallographic Effects on Energy Dissipation in High- Q Silicon Bulk-Mode Resonators. <i>Journal of Microelectromechanical Systems</i> , 2013, 22, 262-264.	1.7	52
10	Low loss HF band SOI wine glass bulk mode capacitive square-plate resonator. <i>Journal of Micromechanics and Microengineering</i> , 2009, 19, 074003.	1.5	49
11	Methods for enhanced electrical transduction and characterization of micromechanical resonators. <i>Sensors and Actuators A: Physical</i> , 2010, 158, 263-272.	2.0	49
12	Single-Device and On-Chip Feedthrough Cancellation for Hybrid MEMS Resonators. <i>IEEE Transactions on Industrial Electronics</i> , 2012, 59, 4930-4937.	5.2	48
13	Direct parameter extraction in feedthrough-embedded capacitive MEMS resonators. <i>Sensors and Actuators A: Physical</i> , 2011, 167, 237-244.	2.0	47
14	Room temperature electrometry with SUB-10 electron charge resolution. <i>Journal of Micromechanics and Microengineering</i> , 2008, 18, 025033.	1.5	36
15	Frequency-based magnetic field sensing using Lorentz force axial strain modulation in a double-ended tuning fork. <i>Sensors and Actuators A: Physical</i> , 2014, 211, 145-152.	2.0	36
16	AlN piezoelectric on silicon MEMS resonator with boosted Q using planar patterned phononic crystals on anchors. , 2015, , .		36
17	Planar ring-shaped phononic crystal anchoring boundaries for enhancing the quality factor of Lamb mode resonators. <i>Applied Physics Letters</i> , 2016, 109, .	1.5	35
18	VHF-band biconvex AlN-on-silicon micromechanical resonators with enhanced quality factor and suppressed spurious modes. <i>Journal of Micromechanics and Microengineering</i> , 2016, 26, 065012.	1.5	34

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19	Diameter dependence of electron mobility in InGaAs nanowires. <i>Applied Physics Letters</i> , 2013, 102, .	1.5	31
20	Electrical characterization of piezoelectric-on-silicon contour mode resonators fully immersed in liquid. <i>Sensors and Actuators A: Physical</i> , 2016, 241, 216-223.	2.0	30
21	Wide Acoustic Bandgap Solid Disk-Shaped Phononic Crystal Anchoring Boundaries for Enhancing Quality Factor in AlN-on-Si MEMS Resonators. <i>Micromachines</i> , 2018, 9, 413.	1.4	30
22	A Resonant Micromachined Electrostatic Charge Sensor. <i>IEEE Sensors Journal</i> , 2008, 8, 1499-1505.	2.4	26
23	Design of Phononic Crystal Tethers for Frequency-selective Quality Factor Enhancement in AlN Piezoelectric-on-silicon Resonators. <i>Procedia Engineering</i> , 2015, 120, 516-519.	1.2	25
24	System-level simulation of a micromachined electrometer using a time-domain variable capacitor circuit model. <i>Journal of Micromechanics and Microengineering</i> , 2007, 17, 1059-1065.	1.5	24
25	Dissipation Analysis Methods and Q-Enhancement Strategies in Piezoelectric MEMS Laterally Vibrating Resonators: A Review. <i>Sensors</i> , 2020, 20, 4978.	2.1	24
26	A Horseshoe Micromachined Resonant Magnetic Field Sensor With High Quality Factor. <i>IEEE Electron Device Letters</i> , 2013, 34, 1310-1312.	2.2	22
27	Piezoresistive Readout Mechanically Coupled Lam ^Å Mode SOI Resonator With \$Q\$ of a Million. <i>Journal of Microelectromechanical Systems</i> , 2015, 24, 771-780.	1.7	22
28	Quality factor improvement of piezoelectric MEMS resonator by the conjunction of frame structure and phononic crystals. <i>Sensors and Actuators A: Physical</i> , 2019, 297, 111541.	2.0	20
29	A semi-analytical modeling approach for laterally-vibrating thin-film piezoelectric-on-silicon micromechanical resonators. <i>Journal of Micromechanics and Microengineering</i> , 2015, 25, 115020.	1.5	19
30	Enhancing quality factor by etch holes in piezoelectric-on-silicon lateral mode resonators. <i>Sensors and Actuators A: Physical</i> , 2017, 259, 144-151.	2.0	19
31	Thermoelastic Dissipation in Etch-Hole Filled Lam ^Å Bulk-Mode Silicon Microresonators. <i>IEEE Electron Device Letters</i> , 2012, 33, 450-452.	2.2	17
32	Dependence of temperature coefficient of frequency (TCf) on crystallography and eigenmode in N-doped silicon contour mode micromechanical resonators. <i>Sensors and Actuators A: Physical</i> , 2014, 215, 189-196.	2.0	17
33	Fully Differential Piezoelectric Button-Like Mode Disk Resonator for Liquid Phase Sensing. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2019, 66, 600-608.	1.7	16
34	System-level circuit simulation of nonlinearity in micromechanical resonators. <i>Sensors and Actuators A: Physical</i> , 2012, 186, 15-20.	2.0	15
35	A two-chip acoustofluidic particle manipulation platform with a detachable and reusable surface acoustic wave device. <i>Analyst, The</i> , 2020, 145, 7752-7758.	1.7	15
36	Increased dissipation from distributed etch holes in a lateral breathing mode silicon micromechanical resonator. <i>Applied Physics Letters</i> , 2012, 101, .	1.5	14

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37	Thermal-Piezoresistive Tuning of the Effective Quality Factor of a Micromechanical Resonator. Physical Review Applied, 2018, 10, .	1.5	14
38	Numerical analysis of anchor loss and thermoelastic damping in piezoelectric AlN-on-Si Lamb wave resonators. Journal of Micromechanics and Microengineering, 2019, 29, 105013.	1.5	14
39	Square wine glass mode resonator with quality factor of 4 million. , 2008, , .		13
40	A piezoelectric-on-silicon width-extensional mode Lorentz force resonant MEMS magnetometer. Sensors and Actuators A: Physical, 2017, 260, 169-177.	2.0	13
41	Enhanced transduction methods for electrostatically driven MEMS resonators. , 2009, , .		12
42	Differential-capacitive-input and differential-piezoresistive-output enhanced transduction of a silicon bulk-mode microelectromechanical resonator. Sensors and Actuators A: Physical, 2014, 210, 41-50.	2.0	12
43	A Lorentz force magnetometer based on a piezoelectric-on-silicon square-extensional mode micromechanical resonator. Applied Physics Letters, 2017, 110, 253507.	1.5	12
44	An Aluminum Nitride on Silicon resonant MEMS accelerometer operating in ambient pressure. , 2017, , .		12
45	Effect of mode order, resonator length, curvature, and electrode coverage on enhancing the performance of biconvex resonators. Journal of Micromechanics and Microengineering, 2018, 28, 094002.	1.5	12
46	Piezoresistive Sensing in a SOI Mechanically Coupled Micromechanical Multiple-Resonator Array. IEEE Transactions on Electron Devices, 2012, 59, 3091-3096.	1.6	11
47	Direct inference of parameters for piezoresistive micromechanical resonators embedded in feedthrough. Sensors and Actuators A: Physical, 2012, 186, 257-263.	2.0	11
48	Piezoresistive Transduction in a Double-Ended Tuning Fork SOI MEMS Resonator for Enhanced Linear Electrical Performance. IEEE Transactions on Electron Devices, 2015, 62, 1596-1602.	1.6	11
49	Effects of cryogenic cooling on the quality factor of lamb wave mode aluminium nitride piezoelectric-on-silicon MEMS resonators. Sensors and Actuators A: Physical, 2016, 244, 15-23.	2.0	11
50	Phase Noise Reduction in a VHF MEMS-CMOS Oscillator Using Phononic Crystals. IEEE Journal of the Electron Devices Society, 2016, 4, 149-154.	1.2	11
51	Acoustofluidic localization of sparse particles on a piezoelectric resonant sensor for nanogram-scale mass measurements. Microsystems and Nanoengineering, 2021, 7, 61.	3.4	11
52	Reversed Nonlinear Oscillations in Lam ^o -Mode Single-Crystal-Silicon Microresonators. IEEE Electron Device Letters, 2012, 33, 1492-1494.	2.2	10
53	Piezoelectric-on-Silicon Square Wine-Glass Mode Resonator for Enhanced Electrical Characterization in Water. IEEE Transactions on Electron Devices, 2018, 65, 1925-1931.	1.6	10
54	AlN-on-Si Square Diaphragm Piezoelectric Micromachined Ultrasonic Transducer with Extended Range of Detection. Proceedings (mdpi), 2018, 2, 913.	0.2	10

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55	Enhancing parametric sensitivity using mode localization in electrically coupled MEMS resonators. , 2009, , .		9
56	Differential-input piezoresistively-sensed square-extensional mode resonator for parasitic feedthrough cancellation. , 2011, , .		9
57	Shear dependent nonlinear vibration in a high quality factor single crystal silicon micromechanical resonator. Applied Physics Letters, 2012, 101, 034102.	1.5	9
58	Single device on-chip feedthrough cancellation for enhanced electrical characterization of piezoelectric-on-silicon resonators in liquid. Sensors and Actuators A: Physical, 2017, 260, 131-138.	2.0	9
59	Very-low phase noise RF-MEMS reference oscillator using AlN-on-Si resonators achieved by accurate co-simulation. , 2017, , .		9
60	Piezoelectric-on-silicon Lorentz force magnetometers based on radial contour mode disk resonators. Sensors and Actuators A: Physical, 2018, 281, 185-195.	2.0	9
61	A micromechanical electrometer approaching single-electron charge resolution at room temperature. Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS), 2008, , .	0.0	8
62	Anchor limited Q in flexural mode resonators. , 2008, , .		8
63	Characterization and modeling of a contour mode mechanical resonator using piezoresistive sensing with quasi-differential inputs. Journal of Micromechanics and Microengineering, 2012, 22, 125018.	1.5	8
64	Orientation dependence of nonlinearity and TCf in high-Q shear-modes of silicon MEMS resonators. , 2014, , .		8
65	Fully-differential AlN-on-Si wine glass mode resonator for enhanced characterization in water. , 2016, , .		8
66	High-Q low impedance UHF-band ALN-ON-SI mems resonators using quasi-symmetrical Lamb wave modes. , 2016, , .		8
67	Plug-and-play acoustic tweezer enables droplet centrifugation on silicon superstrate with surface multi-layered microstructures. Sensors and Actuators A: Physical, 2021, 321, 112432.	2.0	8
68	Study on thermoelastic dissipation in bulk mode resonators with etch holes. , 2012, , .		7
69	Characterization and modeling of electro-thermal frequency tuning in a mechanical resonator with integral crossbar heaters. Sensors and Actuators A: Physical, 2013, 202, 69-74.	2.0	7
70	Applying laser Doppler vibrometry to probe anchor losses in MEMS AlN-on-Si contour mode resonators. Sensors and Actuators A: Physical, 2017, 263, 188-197.	2.0	7
71	AlN-on-Si MEMS resonator bounded by wide acoustic bandgap two-dimensional phononic crystal anchors. , 2018, , .		7
72	Acoustically Driven Manipulation of Microparticles and Cells on a Detachable Surface Micromachined Silicon Chip. IEEE Sensors Journal, 2021, 21, 11999-12008.	2.4	7

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73	Novel Platform for Resonant Sensing in Liquid with Fully-Electrical Interface Based on an In-Plane-Mode Piezoelectric-on-Silicon Resonator. <i>Procedia Engineering</i> , 2015, 120, 1217-1220.	1.2	6
74	An ultra-sensitive piezoelectric-on-silicon flapping mode MEMS lateral field magnetometer. , 2017, , .		6
75	Piezoelectric-on-Silicon MEMS Lorentz Force Lateral Field Magnetometers. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2019, 66, 965-974.	1.7	6
76	Acoustic Centrifugation Facilitating Particle Sensing in Liquid on a Piezoelectric Resonator. <i>IEEE Electron Device Letters</i> , 2022, 43, 801-804.	2.2	6
77	Mechanically coupled SOI Lamé-mode resonator-arrays: Synchronized oscillations with high quality factors of 1 million. , 2013, , .		5
78	Reducing anchor loss in piezoelectric-on-silicon laterally vibrating resonators by combination of etched-slots and convex edges. , 2015, , .		5
79	Low-cost laser-cut patterned chips for acoustic concentration of micro- to nanoparticles and cells by operating over a wide frequency range. <i>Analyst, The</i> , 2021, 146, 3280-3288.	1.7	5
80	MEMS Electrometer System Simulation using a Time-Domain Variable Capacitor Model. , 2007, , .		4
81	Evidence on the impact of T-shaped tether variations on Q factor of bulk-mode square-plate resonators. , 2012, , .		4
82	Ambient temperature and bias conditions induced frequency drifts in an uncompensated SOI piezoresistive resonator. <i>Sensors and Actuators A: Physical</i> , 2013, 202, 140-146.	2.0	4
83	Piezoresistive sensing in a strongly-coupled high Q Lamé-mode silicon MEMS resonator-pair. , 2014, , .		4
84	Active electronic cancellation of nonlinearity in a High-Q longitudinal-mode silicon resonator by current biasing. , 2014, , .		4
85	Low Temperature Quality Factor Scaling of Laterally-vibrating AlN Piezoelectric-on-silicon Resonators. <i>Procedia Engineering</i> , 2015, 120, 7-10.	1.2	4
86	Air-coupled Ultrasonic Rangefinder with Meter-long Detection Range Based on a Dual-electrode PMUT Fabricated Using a Multi-user MEMS Process. , 2019, , .		4
87	Technique and Circuit for Contactless Readout of Piezoelectric MEMS Resonator Sensors. <i>Sensors</i> , 2020, 20, 3483.	2.1	4
88	Sub-10e Charge Resolution for Room Temperature Electrometry. , 2007, , .		3
89	Direct parameter extraction in capacitively transduced micromechanical resonators using the anti-resonance. , 2010, , .		3
90	Simulating Nonlinearity in MEMS Resonators by a Charge Controlled Capacitor. <i>Procedia Engineering</i> , 2011, 25, 403-406.	1.2	3

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91	Crystallographic and eigenmode dependence of TCf for single crystal silicon contour mode resonators. , 2013, , .		3
92	Electronic tuning of Q and apparent TCf in a piezoresistive micromechanical resonator. , 2013, , .		3
93	Anomalous DC-current-induced attenuation of Q factor in a silicon contour mode micromechanical resonator. , 2013, , .		3
94	Boosting the Quality Factor of Low Impedance VHF Piezoelectric-on-Silicon Lateral Mode Resonators Using Etch Holes. Procedia Engineering, 2016, 168, 1261-1264.	1.2	3
95	On-chip Feedthrough Cancellation Technique for Enhanced Electrical Characterization of a Piezoelectric MEMS Resonator in Water. Procedia Engineering, 2016, 168, 1573-1576.	1.2	3
96	Square-extensional mode piezoelectric-on-silicon resonator for physical measurements of liquids. , 2016, , .		3
97	Effect of curvature and electrode coverage on the quality factor of biconvex ALN-on-Si MEMS resonators. , 2017, , .		3
98	A lorentz force magnetometer based on a piezoelectric-on-silicon radial-contour mode disk. , 2017, , .		3
99	Resonant tuning fork strain gauge operating in air with decoupled piezoelectric transducers. , 2017, , .		3
100	Mass Sensitivity Measurements of a Novel High Q-Factor Disk Resonator for Liquid-Phase Sensing Applications. , 2019, , .		3
101	Quality Factor Enhancement of ALN-on-Si Lamb Wave Resonators Using a Hybrid of Phononic Crystal Shapes in Anchoring Boundaries. , 2019, , .		3
102	Piezoelectric Elliptical Plate Micromechanical Resonator With Low Motional Resistance for Resonant Sensing in Liquid. IEEE Sensors Journal, 2021, 21, 7339-7347.	2.4	3
103	Fully differential higher order transverse mode piezoelectric membrane resonators for enhanced liquid-phase quality factors. Journal of Micromechanics and Microengineering, 2021, 31, 104004.	1.5	3
104	Design and prototyping of a MEMS-based crackmeter for structural monitoring. , 2009, , .		2
105	Material nonlinearity limits on a Lam#x00E9;-mode single crystal bulk resonator. , 2012, , .		2
106	In situ study of thermal deformation of metal resistive heater on silicon nitride membrane by digital holographic microscopy. , 2012, , .		2
107	Frequency Tuning in a MEMS Resonator via an Integral Crossbar Heater. Procedia Engineering, 2012, 47, 949-952.	1.2	2
108	Does greater piezo-resistive transduction give rise to higher anchor loss in a square-extensional mode micromechanical resonator?. Sensors and Actuators A: Physical, 2013, 202, 111-117.	2.0	2

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109	Enhanced piezoresistive sensing via synchronized oscillations in a mechanically coupled disk array. , 2013, , .		2
110	Lorentz Force Magnetic Sensor based on a Thin-Film Piezoelectric-on-Silicon Laterally Vibrating Micromechanical Resonator. Procedia Engineering, 2016, 168, 654-657.	1.2	2
111	Probing anchor losses in ALN-on-Si contour mode MEMS resonators through laser Doppler vibrometry. , 2016, , .		2
112	Piezoelectric transduction of a button-like mode disk resonator for enhanced quality factor in water. , 2017, , .		2
113	Reusable acoustic tweezers enable 2D patterning of microparticles in microchamber on a disposable silicon chip superstrate. , 2020, , .		2
114	Thin film monitoring with silicon bulk acoustic resonators. , 2008, , .		1
115	Feedthrough cancellation in micromechanical square resonators via differential transduction. , 2010, , .		1
116	Observations on Stability in a Carrier Injected SOI Piezoresistive Resonator. Procedia Engineering, 2012, 47, 969-972.	1.2	1
117	Characterization and model validation of a micromechanical resonant magnetic field sensor. , 2013, , .		1
118	Etch-hole-assisted energy dispersion for enhancing quality factor in silicon bulk acoustic resonators. , 2014, , .		1
119	Electromagnetic induction readout silicon-on-insulator MEMS resonant magnetometer. , 2014, , .		1
120	Modal analysis of out-of-plane vibrations in switchable piezoelectric Gallium Nitride micromechanical resonators. , 2015, , .		1
121	Engineering high Q-factor MEMS resonators and probing losses. , 2017, , .		1
122	Self-Sustaining Square-Extensional Mode Resonator Oscillator for Mass Sensing in Liquid. Proceedings (mdpi), 2018, 2, 976.	0.2	1
123	Lorentz Force Magnetic Sensors Based on Piezoelectric Aluminum Nitride on Silicon Micromechanical Resonators. , 2018, , .		1
124	Eleventh Order Lamb Wave Mode Biconvex Piezoelectric Lorentz Force Magnetometer for Scaling Up Responsivity and Bandwidth. , 2019, , .		1
125	Centrifugation of Microparticles Inside a Sessile Droplet on a Micromachined Silicon Chip Using Acoustic Tweezers. , 2020, , .		1
126	Boosting Q of <math>\omega</math> Aligned ALN-on-Silicon Laterally Vibrating Resonators by Wide Acoustic Bandgap Phononic Crystal Anchors. , 2021, , .		1

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127	Lam ^Å Mode MEMS Resonators. , 2015, , 1-9.		1
128	Lam ^Å Mode MEMS Resonators. , 2016, , 1731-1739.		1
129	Effect of crystal orientation on liquid phase performance of piezoelectric-on-silicon elliptical plate resonators. Sensors and Actuators A: Physical, 2022, 340, 113548.	2.0	1
130	Binary Excitation of a High-Q Bulk Acoustic Microresonator by Actuation Polarity Inversion. , 2008, , .		0
131	Transduction Dependent Optimization of Electromechanical Parameters for Electrostatically Actuated MEMS/NEMS Resonators. Journal of Nanoscience and Nanotechnology, 2010, 10, 7533-7536.	0.9	0
132	MEMS resonators in health monitoring prognostics. , 2011, , .		0
133	Direct Parameter Extraction for Piezoresistively-sensed MEMS Resonators Embedded in Parasitic Capacitive Feedthrough. Procedia Engineering, 2011, 25, 515-518.	1.2	0
134	Benchmarking the passive differential input technique to shielded GSG probes. , 2012, , .		0
135	Empirical Correlations between Quality Factor and Piezoresistive Gain with T-shaped Tether Variations in Bulk Mode Microresonators. Procedia Engineering, 2012, 47, 1001-1004.	1.2	0
136	The effects of tight capacitive coupling on phase noise performance: A Lam ^Å -mode MEMS oscillator study. , 2013, , .		0
137	A parallel-class thermally-actuated micromechanical filter with tunable center frequency and bandwidth. , 2013, , .		0
138	Higher-order wine glass mode piezoelectric square resonator with improved quality factor in water. , 2017, , .		0
139	Extended Bandwidth Piezoelectric Lorentz Force Magnetometer Based on a Mechanically Coupled Beam Resonator Array. IEEE Transactions on Magnetics, 2018, 54, 1-7.	1.2	0
140	Acoustically Driven Droplet Centrifugation Enabled by Frequency Operations Beyond Phononic Bandgaps. , 2021, , .		0
141	Reconfigurable Acoustofluidic Manipulation of Particles in Ring-Like Rich Patterns Enabled on a Bulk Micromachined Silicon Chip. , 2021, , .		0
142	A Millimeter Scale Piezoelectric Receiver with Sub-Milliwatt Output for Ultrasonic Wireless Power Transfer in Water. , 2021, , .		0
143	Micro Electrometers Based on Micromachined Time-Modulated Variable Capacitors. , 2020, , 129-153.		0