

# Sheng-Shian Li

## List of Publications by Year in descending order

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162  
papers

1,999  
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361413

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164  
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times ranked

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#	ARTICLE	IF	CITATIONS
1	5V-Bias Cmos-Mems Capacitive Resonator with R<sub>M</sub>&lt;sup>2</sup> 5KÎ© Based On Metal-Insulator-Metal (Mim) Capacitor. , 2022, , .		2
2	Phase Noise Optimization of Piezoelectric Bulk Mode MEMS Oscillators Based on Phase Feedback in Secondary Loop. , 2022, , .		5
3	Development of Rolling Bearing Health Diagnosis and Prediction System Using MEMS Accelerometer Vibration Sensing Module. , 2022, , .		1
4	Investigation of support transducer enabled higher-order radial bulk mode MEMS resonator and low phase noise oscillator. Journal of Micromechanics and Microengineering, 2022, 32, 084004.	2.6	1
5	Sensitivity Enhancement of Thermal Piezoresistive Resonant MEMS Sensors Using Mechanical Coupling and DC Tuning. Journal of Microelectromechanical Systems, 2022, 31, 760-770.	2.5	2
6	Design of Piezoelectric MEMS Bulk Acoustic Wave Mode-Matched Gyroscopes Based on Support Transducer. , 2021, , .		2
7	A Low Impedance CMOS-MEMS Capacitive Resonator Based on Metal-Insulator-Metal (MIM) Capacitor Structure. IEEE Electron Device Letters, 2021, 42, 1045-1048.	3.9	8
8	Design of Piezoelectric MEMS Accelerometer Module and its Application in Surface Roughness Prediction of Fused Silica Substrate. IEEE Sensors Journal, 2021, 21, 21979-21988.	4.7	8
9	Standard CMOS Integrated Ultra-Compact Micromechanical Oscillating Active Pixel Arrays. , 2021, , .		2
10	Balanced Drive and Sense CMOS Thermal Piezoresistive Resonators and Oscillators. IEEE Electron Device Letters, 2021, 42, 232-235.	3.9	6
11	High-<i>Q</i> Support Transducer MEMS Resonators Enabled Low-Phase-Noise Oscillators. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2021, 68, 1387-1398.	3.0	11
12	Controllable multichannel acousto-optic modulator and frequency synthesizer enabled by nonlinear MEMS resonator. Scientific Reports, 2021, 11, 10898.	3.3	4
13	A Miniaturized PM2.5 Sensor Module Based on a Thin-Film Piezoelectric-on-Silicon MEMS Oscillator. , 2021, , .		1
14	A CMOS-MEMS Thermal-Piezoresistive Oscillator Implemented for Wide-Range Pressure Sensing Applications. , 2021, , .		1
15	Piezoelectric MEMS Resonators: A Review. IEEE Sensors Journal, 2021, 21, 12589-12605.	4.7	66
16	Exploration and Realization of Novel High-<i>Q</i> Bulk Modes Using Support Transducer Topology. Journal of Microelectromechanical Systems, 2021, 30, 696-702.	2.5	3
17	Detection of Polystyrene Beads Concentration Using an SOI-MEMS Differential Rotational Thermal Piezoresistive Resonator for Future Label-Free Biosensing Applications. IEEE Sensors Journal, 2021, 21, 21400-21409.	4.7	4
18	A chip-scale frequency down-conversion realized by MEMS-based filter and local oscillator. Sensors and Actuators A: Physical, 2020, 302, 111787.	4.1	6

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19	A PM2.5 Sensor Module Based on a TPoS MEMS Oscillator and an Aerosol Impactor. IEEE Sensors Journal, 2020, 20, 14722-14731.	4.7	14
20	Piezoelectric MEMS Vibration Sensor Module for Machining Quality Prediction. , 2020, , .		4
21	A Sub-mW/Pixel Zero-Bias CMUT-in-CMOS Receiver Front-End with TiN Electrode. , 2020, , .		0
22	Exploring the Parametric Energy Transfer in a Multi-Mode Piezoelectric Resonator with Nonlinear Harmonics. , 2020, , .		2
23	A Monolithic Tri-axis MEMS Gyroscope Operating in Air. , 2020, , .		2
24	A Thin-Film Piezoelectric-on-Silicon MEMS Oscillator for Mass Sensing Applications. IEEE Sensors Journal, 2020, 20, 7001-7009.	4.7	29
25	A CMOS-MEMS Thermal-Piezoresistive Oscillator for Mass Sensing Applications. IEEE Transactions on Electron Devices, 2020, 67, 1183-1191.	3.0	17
26	Quality factor boosting of bulk acoustic wave resonators based on a two dimensional array of high-Q resonant tanks. Applied Physics Letters, 2020, 116, .	3.3	11
27	CMOS-MEMS Resonant Transducers for Frequency Control and Sensing. , 2020, , .		2
28	Nonlinearity Driven Higher Order Harmonics in CMOS-MEMS Resonators. , 2020, , .		1
29	Low Phase Noise Wine-Glass Oscillator Realized Using Enhanced Support Transducer Design. , 2020, , .		0
30	A Compact Monolithic CMUT Receiver Front-End in a TiN-C CMOS-MEMS Platform. , 2020, , .		4
31	A Novel Thermal Piezoresistive Coupled Resonator Implementing Mode Localization for Mass Sensing. , 2020, , .		2
32	A Fully-Differential CMOS-MEMS DETF Resonator Design with Extended Mass and Electrodes to Enable High Power Handling. , 2019, , .		0
33	Interface Circuit Design to Enable Miniaturization of Thermal-Piezoresistive Oscillators for Mass Sensing Applications. , 2019, , .		2
34	Conceptual Design of a Resonant Pirani Gauge Toward Wide-Range Pressure Sensing. , 2019, 3, 1-4.		4
35	A Fully Differential SOI-MEMS Thermal Piezoresistive Ring Oscillator in Liquid Environment Intended for Mass Sensing. IEEE Sensors Journal, 2019, 19, 7261-7268.	4.7	18
36	A Generic TiN-C Process for CMOS FEOL/BEOL-Embedded Vertically-Coupled Capacitive and Piezoresistive Resonators. , 2019, , .		1

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37	A CMOS-Integrated MEMS Platform for Frequency Stable Resonators Part II: Design and Analysis. Journal of Microelectromechanical Systems, 2019, 28, 755-765.	2.5	10
38	A CMOS-Integrated MEMS Platform for Frequency Stable Resonators-Part I: Fabrication, Implementation, and Characterization. Journal of Microelectromechanical Systems, 2019, 28, 744-754.	2.5	20
39	Q-enhanced Lithium Niobate SH0 Resonators with Optimized Acoustic Boundaries. , 2019, , .		12
40	A Fully Differential Thin Film Piezo on Silicon Flexural Mode Ring Resonator with Exceptional Quality Factor. , 2019, , .		1
41	Piezoelectric-Based Support Transducer Design to Enable High-Performance Bulk Mode Resonators. Journal of Microelectromechanical Systems, 2019, 28, 4-13.	2.5	13
42	Thermal-Piezoresistive SOI-MEMS Oscillators Based on a Fully Differential Mechanically Coupled Resonator Array for Mass Sensing Applications. Journal of Microelectromechanical Systems, 2018, 27, 59-72.	2.5	41
43	Copper Like Thermal Conductivity and Silicon Like Coefficient of Thermal Expansion Copper Graphene for High Power IGBT by Metal Injection Molding. Materials Transactions, 2018, 59, 1677-1683.	1.2	6
44	A novel transducer design to enable high-performance piezoelectric MEMS resonators and oscillators. , 2018, , .		4
45	A Study on the Design Parameters for MEMS Oscillators Incorporating Nonlinearities. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 3424-3434.	5.4	8
46	A VHF temperature compensated lithium niobate-on-oxide resonator with $Q > 3900$ for low phase noise oscillators. , 2018, , .		11
47	Metal Injected Copper Carbon Nanotube Composite Material with High Thermal Conductivity and Low CTE for IGBT Power Modules. Materials Transactions, 2018, 59, 1251-1258.	1.2	4
48	Gated CMOS-MEMS thermal-piezoresistive oscillator-based PM2.5 sensor with enhanced particle collection efficiency. , 2018, , .		13
49	An effective temperature compensation algorithm for CMOS-MEMS thermal-piezoresistive oscillators with SUB PPM/ $\text{Å}^\circ\text{C}$ thermal stability. , 2017, , .		5
50	An innovative piezo-MEMS channel-select filter design based on non-monotonic coupled modes. , 2017, , .		3
51	A miniaturized aerosol sensor implemented by a silicon-based MEMS thermal-piezoresistive oscillator. , 2017, , .		5
52	An innovative 3-D mechanically-coupled array design for MEMS resonator and oscillators. , 2017, , .		4
53	CMOS-MEMS thermal-piezoresistive oscillators with high transduction efficiency for mass sensing applications. , 2017, , .		9
54	An apodized 3-GHz thin film piezoelectric on substrate FBAR. , 2017, , .		2

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55	Design and Optimization of SHF Composite FBAR Resonators. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2017, 64, 1864-1873.	3.0	23
56	A ring-down technique implemented in CMOS-MEMS resonator circuits for wide-range pressure sensing applications. , 2016, , .		3
57	An 8V 50 <sup>1</sup> / <sub>4</sub> W 1.2MHz CMOS-MEMS oscillator. , 2016, , .		2
58	Modeling of zero TCF and maximum bandwidth orientation for Lithium Tantalate RF MEMS resonators. , 2016, , .		2
59	Fabrication and characterization of lithium-niobate thin film MEMS piezoelectric resonators. , 2016, , .		4
60	A 1 MHz 4 ppm CMOS-MEMS oscillator with built-in self-test and sub-mW ovenization power. , 2016, , .		6
61	A Sub-150- BEOL-Embedded CMOS-MEMS Oscillator With a 138-dB Ultra-Low-Noise TIA. IEEE Electron Device Letters, 2016, 37, 648-651.	3.9	29
62	An ovenized CMOS-MEMS oscillator with isothermal resonator and sub-mW heating power. , 2016, , .		4
63	3-GHz BAW composite resonators integrated with CMOS in a single-chip configuration. , 2016, , .		4
64	A key more-than-moore technology: CMOS-MEMS resonant transducers. , 2016, , .		4
65	High- $Q$ UHF Spoke-Supported Ring Resonators. Journal of Microelectromechanical Systems, 2016, 25, 11-29.	2.5	25
66	Implementation of a CMOS-MEMS Filter Through a Mixed Electrical and Mechanical Coupling Scheme. Journal of Microelectromechanical Systems, 2016, 25, 262-274.	2.5	19
67	Acceleration-insensitive fully-decoupled tuning fork (FDTF) MEMS vibratory gyroscope with 1 <sup>o</sup> /HR BIAS instability. , 2016, , .		0
68	Real-time mass sensing and dynamic impact monitoring of printed pico-liter droplets realized by a thermal-piezoresistive self-sustained oscillator. , 2016, , .		12
69	CMOS-MEMS Resonators. , 2016, , 557-574.		0
70	A reliable CMOS-MEMS platform for titanium nitride composite (TiN-C) resonant transducers with enhanced electrostatic transduction and frequency stability. , 2015, , .		9
71	Exploring the Q-factor limit of temperature compensated CMOS-MEMS resonators. , 2015, , .		6
72	A CMOS-MEMS arrayed RGFET oscillator using a band-to-band tunneling bias scheme. , 2015, , .		1

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73	Statistical characterizat on of a CMOS-MEMS resonator for monolithic ovenized oscillator applications. , 2015, , .		2
74	A CMOSâ€MEMS arrayed resonant-gate field effect transistor (RGFET) oscillator. Journal of Micromechanics and Microengineering, 2015, 25, 115025.	2.6	10
75	Differentially piezoresistive transduction of high-q encapsulated SOI-MEMS resonators with sub-100 nm gaps. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2015, 62, 220-229.	3.0	4
76	A Monolithic CMOS-MEMS Oscillator Based on an Ultra-Low-Power Ovenized Micromechanical Resonator. Journal of Microelectromechanical Systems, 2015, 24, 360-372.	2.5	70
77	A Vertically Coupled MEMS Resonator Pair for Oscillator Applications. Journal of Microelectromechanical Systems, 2015, 24, 528-530.	2.5	19
78	A Low-Voltage CMOS-Microelectromechanical Systems Thermal-Piezoresistive Resonator With $Q > 10,000$ . IEEE Electron Device Letters, 2015, 36, 192-194.	3.9	16
79	Temperature coefficient of frequency modeling for CMOS-MEMS bulk mode composite resonators. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2015, 62, 1166-1178.	3.0	8
80	Effects of pressure and bias voltage on the phase noise of CMOS-MEMS oscillators. , 2015, , .		0
81	Performance evaluation of CMOS-MEMS thermal-piezoresistive resonators in ambient pressure for sensor applications. , 2015, , .		4
82	A single-chip oscillator based on a deep-submicron gap CMOS-MEMS resonator array with a high-stiffness driving scheme. , 2015, , .		9
83	A mode-matching 130-kHz ring-coupled gyroscope with 225 ppm initial driving/sensing mode frequency splitting. , 2015, , .		3
84	Transduction comparison of a resonant transducer realized in a commercially available CMOS-MEMS platform. , 2015, , .		3
85	Electronic hydroxyl radical microsensors based on the conductivity change of polyaniline. Sensors and Actuators B: Chemical, 2015, 208, 99-105.	7.8	10
86	Design and Characterization of a Dual-Mode CMOS-MEMS Resonator for TCF Manipulation. Journal of Microelectromechanical Systems, 2015, 24, 446-457.	2.5	24
87	Multimode characteristics of high-frequency CMOS-MEMS resonators. , 2014, , .		4
88	Optimizing the close-to-carrier phase noise of monolithic CMOS-MEMS oscillators using bias-dependent nonlinearity. , 2014, , .		12
89	Sensitivity improvement of a resonant 3-axis magnetometer using dual mass vibrating system. , 2014, , .		1
90	Combined electrical and mechanical coupling for mode-reconfigurable CMOS-MEMS filters. , 2014, , .		5

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91	Cost-effective and highly sensitive cholesterol microsensors with fast response based on the enzyme-induced conductivity change of polyaniline. Applied Physics Letters, 2014, 105, .	3.3	4
92	Fabrication and characterization of a charge-biased CMOS-MEMS resonant gate field effect transistor. Journal of Micromechanics and Microengineering, 2014, 24, 095005.	2.6	6
93	A self-sustained nanomechanical thermal-piezoresistive oscillator with ultra-low power consumption. , 2014, , .		6
94	A Novel Ultra-Low Detection Limit Hydrogen Peroxide Sensor Based on Horseradish Peroxidase Immobilized Polyaniline Film. ECS Transactions, 2014, 64, 45-50.	0.5	2
95	Design and characterization of mechanically coupled CMOS-MEMS filters for channel-select applications. Sensors and Actuators A: Physical, 2014, 216, 394-404.	4.1	19
96	Investigation of C-terminal domain of SARS nucleocapsid proteinâ€™Duplex DNA interaction using transistors and binding-site models. Sensors and Actuators B: Chemical, 2014, 193, 334-339.	7.8	6
97	Realization of an ultra-sensitive hydrogen peroxide sensor with conductance change of horseradish peroxidase-immobilized polyaniline and investigation of the sensing mechanism. Biosensors and Bioelectronics, 2014, 55, 294-300.	10.1	28
98	A CMOS-MEMS arrayed RGFET. , 2014, , .		0
99	Exploring parametric resonance effects in bulk-mode CMOS-MEMS resonators. , 2014, , .		1
100	An experimental investigation on the Q-boosted CMOS-MEMS flexural-mode resonator circuits. , 2014, , .		0
101	Analogy among microfluidics, micromechanics, and microelectronics. Lab on A Chip, 2013, 13, 3782.	6.0	22
102	A CMOS-MEMS Resonator Integrated System for Oscillator Application. IEEE Sensors Journal, 2013, 13, 2882-2889.	4.7	11
103	Temperature-Compensated CMOS-MEMS Oxide Resonators. Journal of Microelectromechanical Systems, 2013, 22, 1054-1065.	2.5	21
104	An ultra-low power ovenized CMOS-MEMS resonator monolithically integrated with interface circuits. , 2013, , .		4
105	A 17.6-MHz 2.5V ultra-low polarization voltage MEMS oscillator using an innovative high gain-bandwidth fully differential trans-impedance voltage amplifier. , 2013, , .		2
106	Enhancement of temperature stability via constant-structural-resistance control for MEMS resonators. , 2013, , .		7
107	Advances of CMOS-MEMS technology for resonator applications. , 2013, , .		1
108	Foundry-CMOS integrated oscillator circuits based on ultra-low power ovenized CMOS-MEMS resonators. , 2013, , .		21

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109	AlGaIn/GaN high electron mobility transistors for protein-peptide binding affinity study. Biosensors and Bioelectronics, 2013, 41, 717-722.	10.1	34
110	A piezoresistive CMOS-MEMS resonator with high Q and low TC. , 2013, , .		3
111	Design and characterization of mechanically-coupled CMOS-MEMS filters. , 2013, , .		4
112	A CMOS-MEMS resonant gate field effect transistor. , 2013, , .		3
113	CMOS-MEMS resonators and their applications. , 2013, , .		10
114	The effects of tight capacitive coupling on phase noise performance: A Lam-mode MEMS oscillator study. , 2013, , .		0
115	Viscosity-dependent drain current noise of AlGaIn/GaN high electron mobility transistor in polar liquids. Journal of Applied Physics, 2013, 114, 204503.	2.5	2
116	Differentially Piezoresistive Sensing for CMOS-MEMS Resonators. Journal of Microelectromechanical Systems, 2013, 22, 1361-1372.	2.5	18
117	Enhanced temperature sensitivity of a single CMOS-MEMS resonator via resonant modes in orthogonal axes. , 2013, , .		1
118	High-stiffness driven micromechanical resonators with enhanced power handling. Applied Physics Letters, 2012, 100, .	3.3	5
119	Differential measurement of piezoresistive transduction for silicon-based MEMS resonators. , 2012, , .		2
120	A fully-differential CMOS-MEMS resonator integrated with an on-chip amplifier. , 2012, , .		4
121	VHF CMOS-MEMS oxide resonators with Q &#x003E; 10,000. , 2012, , .		15
122	Realizing Deep-Submicron Gap Spacing for CMOS-MEMS Resonators. IEEE Sensors Journal, 2012, 12, 3399-3407.	4.7	10
123	Mechanically coupled CMOS-MEMS free-free beam resonator arrays with enhanced power handling capability. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2012, 59, 346-357.	3.0	34
124	High- $Q$ Integrated CMOS-MEMS Resonators With Deep-Submicrometer Gaps and Quasi-Linear Frequency Tuning. Journal of Microelectromechanical Systems, 2012, 21, 688-701.	2.5	31
125	Electroplated Ni-CNT Nanocomposite for Micromechanical Resonator Applications. IEEE Electron Device Letters, 2012, 33, 872-874.	3.9	4
126	Thermally-actuated and piezoresistively-sensed CMOS-MEMS resonator array using differential-mode operation. , 2012, , .		7



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127	Advanced CMOS-MEMS Resonator Platform. IEEE Electron Device Letters, 2012, 33, 272-274.	3.9	43
128	A balanced measurement and characterization technique for thermal-piezoresistive micromechanical resonators. , 2012, , .		8
129	A low-actuation voltage design for RF CMOS-MEMS switches. , 2012, , .		0
130	High-stiffness-driven micromechanical resonator oscillator with enhanced phase noise performance. , 2012, , .		2
131	Capacitively-driven and piezoresistively-sensed CMOS-MEMS resonators. , 2012, , .		4
132	A Fully Differential CMOS-MEMS DETF Oxide Resonator With $Q > 4800$ and Positive TCF. IEEE Electron Device Letters, 2012, 33, 721-723.	3.9	21
133	Mechanically-coupled CMOS-MEMS free-free beam resonator arrays with two-port configuration. , 2011, , .		2
134	Improvement of CMOS-MEMS accelerometer using the symmetric layers stacking design. , 2011, , .		17
135	A generalized CMOS-MEMS platform for micromechanical resonators monolithically integrated with circuits. Journal of Micromechanics and Microengineering, 2011, 21, 065012.	2.6	70
136	Effects of $CF_4$ Plasma Treatment on pH and pNa Sensing Properties of Light-Addressable Potentiometric Sensor with a 2-nm-Thick Sensitive $HfO_2$ Layer Grown by Atomic Layer Deposition. Japanese Journal of Applied Physics, 2011, 50, 04DL06.	1.5	6
137	CMOS-MEMS transverse-mode square plate resonator with high Q and low motional impedance. , 2011, , .		5
138	High-Q, large-stopband-rejection integrated CMOS-MEMS oxide resonators with embedded metal electrodes. , 2011, , .		4
139	Quasi-linear frequency tuning for CMOS-MEMS resonators. , 2011, , .		6
140	High-q integrated CMOS-MEMS resonators with deep-submicron gaps. , 2010, , .		3
141	An effective Pedestrian Dead Reckoning algorithm using a unified heading error model. , 2010, , .		50
142	A generalized foundry CMOS platform for capacitively-transduced resonators monolithically integrated with amplifiers. , 2010, , .		14
143	Realizing deep-submicron gap spacing for CMOS-MEMS resonators with frequency tuning capability via modulated boundary conditions. , 2010, , .		8
144	1.52-GHz micromechanical extensional wine-glass mode ring resonators. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2008, 55, 890-907.	3.0	83

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145	A Micromechanical Parallel-Class Disk-Array Filter. Frequency Control Symposium and Exhibition, Proceedings of the IEEE International, 2007, , .	0.0	8
146	Quality Factor Boosting via Mechanically-Coupled Arraying. , 2007, , .		14
147	UHF Micromechanical Compound-(2,4) Mode Ring Resonators With Solid-Gap Transducers. Frequency Control Symposium and Exhibition, Proceedings of the IEEE International, 2007, , .	0.0	3
148	An MSI Micromechanical Differential Disk-Array Filter. , 2007, , .		48
149	Series-resonant VHF micromechanical resonator reference oscillators. IEEE Journal of Solid-State Circuits, 2004, 39, 2477-2491.	5.4	250
150	Third-order intermodulation distortion in capacitively-driven VHF micromechanical resonators. , 0, , .		7
151	UHF micromechanical extensional wine-glass mode ring resonators. , 0, , .		19
152	Post-fabrication laser trinning of nflcromechanical filters. , 0, , .		2
153	Bridged micromechanical filters. , 0, , .		12
154	Micromechanical "hollow-disk" ring resonators. , 0, , .		58
155	Charge-biased vibrating micromechanical resonators. , 0, , .		4
156	Small percent bandwidth design of a 423-MHz notch-coupled micromechanical mixer. , 0, , .		3
157	Low phase noise array-composite micromechanical wine-glass disk oscillator. , 0, , .		34
158	Spurious mode suppression in UHF micromecranical extensional wine-glass ring resonators. , 0, , .		5
159	Self-switching vibrating micromechanical filter bank. , 0, , .		10
160	Vibrating micromechanical resonators with solid dielectric capacitive transducer gaps. , 0, , .		42
161	Disk-Array Design for Suppression of Unwanted Modes in Micromechanical Composite-Array Filters. , 0, , .		9
162	CMOS-MEMS Thermal-Piezoresistive Resonators and Oscillators for Sensors. Frontiers in Mechanical Engineering, 0, 8, .	1.8	0