Farrokh Ayazi

List of Publications by Year
in descending order

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105	3,771	31	57
papers	citations	h-index	g-index
		147801	144013

106	106	106	2202
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Monocrystalline 4H Silicon Carbide-on-Insulator Substrates for Nav-Grade Planar BAW Gyroscopes. , 2021, , .		7
2	A temperature compensated biaxial eFM accelerometer in Epi-seal process. Sensors and Actuators A: Physical, 2021, 330, 112860.	4.1	6
3	An FPGA-Based Interface System for High-Frequency Bulk-Acoustic-Wave Microgyroscopes With In-Run Automatic Mode-Matching. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 1783-1793.	4.7	28
4	Investigating Elastic Anisotropy of 4H-SiC Using Ultra-High <i>Q</i> Bulk Acoustic Wave Resonators. Journal of Microelectromechanical Systems, 2020, 29, 1473-1482.	2.5	9
5	A Film Bulk Acoustic Resonator Based on Ferroelectric Aluminum Scandium Nitride Films. Journal of Microelectromechanical Systems, 2020, 29, 741-747.	2.5	84
6	A High-$k_{t}{}^{2}$ Switchable Ferroelectric Al_{0.7}Sc_{0.3}N Film Bulk Acoustic Resonator. , 2020, , .		8
7	Eigenmode operation of piezoelectric resonant gyroscopes. Microsystems and Nanoengineering, 2020, 6, 108.	7.0	19
8	(Invited) Nano-Precision Deep Reactive Ion Etching of Monocrystalline 4H-SiCOI for Bulk Acoustic Wave Resonators with Ultra-Low Dissipation. ECS Transactions, 2020, 97, 3-13.	0.5	4
9	Low motional impedance distributed LamÃ© mode resonators for high frequency timing applications. Microsystems and Nanoengineering, 2020, 6, 53.	7.0	14
10	A digital force-to-rebalance scheme for high-frequency bulk-acoustic-wave micro-gyroscopes. Sensors and Actuators A: Physical, 2020, 313, 112181.	4.1	8
11	(Invited) Nano-Precision Deep Reactive Ion Etching of Monocrystalline 4H-SiCOI for Bulk Acoustic Wave Resonators with Ultra-Low Dissipation. ECS Meeting Abstracts, 2020, MA2020-01, 1333-1333.	0.0	0
12	Robust characterization of microfabricated atomic beams on a six-month time scale. Physical Review Research, 2020, 2, .	3.6	4
13	Performance Analysis of Gyroscope and Accelerometer Sensors for Seismocardiography-Based Wearable Pre-Ejection Period Estimation. IEEE Journal of Biomedical and Health Informatics, 2019, 23, 2365-2374.	6.3	44
14	Cascaded collimator for atomic beams traveling in planar silicon devices. Nature Communications, 2019, 10, 1831.	12.8	17
15	Monocrystalline Silicon Carbide Disk Resonators on Phononic Crystals with Ultra-Low Dissipation Bulk Acoustic Wave Modes. Scientific Reports, 2019, 9, 18698.	3.3	27
16	A Dual-Mode Actuation and Sensing Scheme for In-Run Calibration of Bias and Scale Factor Errors in Axisymmetric Resonant Gyroscopes. IEEE Sensors Journal, 2018, 18, 1993-2005.	4.7	31
17	A High-Frequency Resonant Framed-Annulus Pitch or Roll Gyroscope for Robust High-Performance Single-Chip Inertial Measurement Units. Journal of Microelectromechanical Systems, 2018, 27, 995-1008.	2.5	18
18	High-Q monocrystalline silicon carbide disk resonators fabricated using drie of thick SiC-on-insulator substrates. , 2018, , .		10

#	ARTICLE	IF	CITATIONS
19	Microscale pierced shallow shell resonators: A test vehicle to study surface loss. , 2017, , .		7
20	Resonant pitch and roll silicon gyroscopes with sub-micron-gap slanted electrodes: Breaking the barrier toward high-performance monolithic inertial measurement units. Microsystems and Nanoengineering, 2017, 3, 16092.	7.0	30
21	Low-Pressure Wafer-Level-Packaged Capacitive Accelerometers With High Dynamic Range and Wide Bandwidth Using Nano-Gap Sloped Electrode Design. Journal of Microelectromechanical Systems, 2017, 26, 1335-1344.	2.5	19
22	Substrate-decoupled, bulk-acoustic wave gyroscopes: Design and evaluation of next-generation environmentally robust devices. Microsystems and Nanoengineering, 2016, 2, 16015.	7.0	67
23	Gyroscope sensing and self-calibration architecture based on signal phase shift. Sensors and Actuators A: Physical, 2016, 241, 1-11.	4.1	10
24	Threeâ€dimensional, ultraâ€wideband micromachined millimetreâ€wave hemispherical shell antenna: theoretical concept and calibration. IET Microwaves, Antennas and Propagation, 2016, 10, 525-535.	1.4	3
25	Highly-symmetric silicon dioxide shallow shell resonators with angstrom-level roughness. , 2015, , .		6
26	Temperature compensated MEMS oscillator using structural resistance based temperature sensing. , 2015, , .		0
27	Bulk and Surface Thermoelastic Dissipation in Micro-Hemispherical Shell Resonators. Journal of Microelectromechanical Systems, 2015, 24, 486-502.	2.5	28
28	A 3D-HARPSS Polysilicon Microhemispherical Shell Resonating Gyroscope: Design, Fabrication, and Characterization. IEEE Sensors Journal, 2015, 15, 4974-4985.	4.7	26
29	High-<inline-formula> <tex-math notation="LaTeX">Q </tex-math></inline-formula> AlN-on-Silicon Resonators With Annexed Platforms for Portable Integrated VOC Sensing. Journal of Microelectromechanical Systems, 2015, 24, 503-509.	2.5	11
30	A Band-Reject Nested-PLL Clock Cleaner Using a Tunable MEMS Oscillator. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 653-662.	5.4	3
31	Dual-Mode AlN-on-Silicon Micromechanical Resonators for Temperature Sensing. IEEE Transactions on Electron Devices, 2014, 61, 591-597.	3.0	42
32	Localized Eutectic Trimming of Polysilicon Microhemispherical Resonating Gyroscopes. IEEE Sensors Journal, 2014, 14, 3498-3505.	4.7	19
33	A Polysilicon Microhemispherical Resonating Gyroscope. Journal of Microelectromechanical Systems, 2014, 23, 762-764.	2.5	47
34	A Digital Phase Demodulation Technique for Resonant MEMS Gyroscopes. IEEE Sensors Journal, 2014, 14, 3260-3266.	4.7	24
35	High-Frequency AlN-on-Silicon Resonant Square Gyroscopes. Journal of Microelectromechanical Systems, 2013, 22, 1007-1009.	2.5	36
36	Temperature-Stable Silicon Oxide (SilOx) Micromechanical Resonators. IEEE Transactions on Electron Devices, 2013, 60, 2656-2663.	3.0	113

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37	Acoustically-engineered multi-port AlN-on-silicon resonators for accurate temperature sensing. , 2013, , .		12
38	Eutectic trimming of polysilicon micro hemispherical resonating Gyroscope. , 2013, , .		5
39	A 100 MHz MEMS SiBAR phase modulator for quadrature phase shift keying. , 2012, , .		0
40	Process compensated CMOS temperature sensor for microprocessor application. , 2012, , .		14
41	Electronic Temperature Compensation of Lateral Bulk Acoustic Resonator Reference Oscillators Using Enhanced Series Tuning Technique. IEEE Journal of Solid-State Circuits, 2012, 47, 1381-1393.	5.4	29
42	An Empirical Phase-Noise Model for MEMS Oscillators Operating in Nonlinear Regime. IEEE Transactions on Circuits and Systems I: Regular Papers, 2012, 59, 979-988.	5.4	28
43	Compact parametric model of capacitive BAW resonators. , 2011, , .		0
44	Energy dissipation in micromechanical resonators. Proceedings of SPIE, 2011, , .	0.8	21
45	Postfabrication Electrical Trimming of Silicon Micromechanical Resonators via Joule Heating. Journal of Microelectromechanical Systems, 2011, 20, 1081-1088.	2.5	20
46	A 76 dB$Omega $ 1.7 GHz 0.18 mum CMOS Tunable TIA Using Broadband Current Pre-Amplifier for High Frequency Lateral MEMS Oscillators. IEEE Journal of Solid-State Circuits, 2011, 46, 224-235.	5.4	66
47	Linear acoustic bandgap arrays for spurious mode suppression in piezoelectric MEMS resonators. , 2011, , .		4
48	Tunable silicon bulk acoustic resonators with multi-face AlN transduction. , 2011, , .		4
49	Dual-mode piezo-on-silicon resonant temperature and humidity sensor for portable air quality monitoring systems. , 2010, , .		10
50	Lamb Waves and Resonant Modes in Rectangular-Bar Silicon Resonators. Journal of Microelectromechanical Systems, 2010, 19, 827-839.	2.5	14
51	Self-polarized capacitive silicon micromechanical resonators via charge trapping. , 2010, , .		8
52	Intrinsic temperature compensation of highly resistive high-Q silicon microresonators via charge carrier depletion. , 2010, , .		8
53	An electronically temperature-compensated 427MHz low phase-noise AlN-on-Si micromechanical reference oscillator. , 2010, , .		4
54	Micromechanical IBARs: Tunable High-Q Resonators for Temperature-Compensated Reference Oscillators. Journal of Microelectromechanical Systems, 2010, 19, 503-515.	2.5	62

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55	Micromechanical IBARs: Modeling and Process Compensation. Journal of Microelectromechanical Systems, 2010, 19, 516-525.	2.5	15
56	SiGe digital frequency dividers with reduced residual phase noise. , 2009, , .		3
57	High-frequency monolithic thin-film piezoelectric-on-substrate filters. International Journal of Microwave and Wireless Technologies, 2009, 1, 29-35.	1.9	65
58	A Sub-0.2$^{circ}/$hr Bias Drift Micromechanical Silicon Gyroscope With Automatic CMOS Mode-Matching. IEEE Journal of Solid-State Circuits, 2009, 44, 1593-1608.	5.4	130
59	The Resonating Star Gyroscope: A Novel Multiple-Shell Silicon Gyroscope With Sub-5 deg/hr Allan Deviation Bias Instability. IEEE Sensors Journal, 2009, 9, 616-624.	4.7	32
60	An Integrated 800-MHz Coupled-Resonator Tunable Bandpass Filter in Silver With a Constant Bandwidth. Journal of Microelectromechanical Systems, 2009, 18, 942-949.	2.5	11
61	Temperature compensation of silicon micromechanical resonators via degenerate doping. , 2009, , .		60
62	Low-loss MEMS band-pass filters with improved out-of-band rejection by exploiting inductive parasitics. , 2009, , .		5
63	High-Density Embedded Deep Trench Capacitors in Silicon With Enhanced Breakdown Voltage. IEEE Transactions on Components and Packaging Technologies, 2009, 32, 808-815.	1.3	39
64	An advanced reactive ion etching process for very high aspect-ratio sub-micron wide trenches in silicon. Sensors and Actuators A: Physical, 2008, 144, 109-116.	4.1	118
65	A Mode-Matched Silicon-Yaw Tuning-Fork Gyroscope With Subdegree-Per-Hour Allan Deviation Bias Instability. Journal of Microelectromechanical Systems, 2008, 17, 1526-1536.	2.5	148
66	Piezoelectric-on-Silicon Lateral Bulk Acoustic Wave Micromechanical Resonators. Journal of Microelectromechanical Systems, 2008, 17, 512-520.	2.5	261
67	Multiple-frequency thickness-mode thin-film piezoelectric-on-substrate filter array. , 2008, , .		2
68	High Performance Inductors on CMOS-Grade Trenched Silicon Substrate. IEEE Transactions on Components and Packaging Technologies, 2008, 31, 126-134.	1.3	16
69	MEMS Switched Tunable Inductors. Journal of Microelectromechanical Systems, 2008, 17, 78-84.	2.5	43
70	A 0.1°/HR bias drift electronically matched tuning fork microgyroscope. Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS), 2008, , .	0.0	48
71	High frequency XYZ-axis single-disk silicon gyroscope. Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS), 2008, , .	0.0	6
72	A 145MHz low phase-noise capacitive silicon micromechanical oscillator. , 2008, , .		17

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73	CMOS-Compatible Encapsulated Silver Bandpass Filters. IEEE MTT-S International Microwave Symposium Digest IEEE MTT-S International Microwave Symposium, 2007, , .	0.0	3
74	Wafer-Level Encapsulation and Sealing of Electrostatic HARPSS Transducers. , 2007, , .		10
75	High-order composite bulk acoustic resonators. , 2007, , .		31
76	Electronically Temperature Compensated Silicon Bulk Acoustic Resonator Reference Oscillators. IEEE Journal of Solid-State Circuits, 2007, 42, 1425-1434.	5.4	102
77	A 104-dB Dynamic Range Transimpedance-Based CMOS ASIC for Tuning Fork Microgyroscopes. IEEE Journal of Solid-State Circuits, 2007, 42, 1790-1802.	5.4	95
78	High-Q Tunable Silver Capacitors for RFIC's. , 2007, , .		5
79	Single-Resonator Dual-Frequency Thin-Film Piezoelectric-on-Substrate Oscillator. , 2007, , .		12
80	Monolithic Thin-Film Piezoelectric-on-Substrate Filters. IEEE MTT-S International Microwave Symposium Digest IEEE MTT-S International Microwave Symposium, 2007, , .	0.0	13
81	Process compensated micromechanical resonators. , 2007, , .		5
82	Wafer-Level Packaging of Micromechanical Resonators. IEEE Transactions on Advanced Packaging, 2007, 30, 19-26.	1.6	34
83	A Low-Voltage Temperature-Stable Micromechanical Piezoelectric Oscillator. , 2007, , .		14
84	High-frequency capacitive disk gyroscopes in (100) and (111) silicon. , 2007, , .		33
85	Sub-Micro-Gravity In-Plane Accelerometers With Reduced Capacitive Gaps and Extra Seismic Mass. Journal of Microelectromechanical Systems, 2007, 16, 1036-1043.	2.5	114
86	Support loss in the radial bulk-mode vibrations of center-supported micromechanical disk resonators. Sensors and Actuators A: Physical, 2007, 134, 582-593.	4.1	64
87	Low-Impedance VHF and UHF Capacitive Silicon Bulk Acoustic Wave Resonatorsâ€"Part I: Concept and Fabrication. IEEE Transactions on Electron Devices, 2007, 54, 2017-2023.	3.0	138
88	Low-Impedance VHF and UHF Capacitive Silicon Bulk Acoustic-Wave Resonatorsâ€"Part II: Measurement and Characterization. IEEE Transactions on Electron Devices, 2007, 54, 2024-2030.	3.0	51
89	A Smart Angular Rate Sensor System. , 2007, , .		5
90	High-Q Micromachined Silver Passives and Filters. , 2006, , .		15

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91	A Temperature-Compensated ZnO-on-Diamond Resonant Mass Sensor. , 2006, , .		9
92	A 4.5-mW Closed-Loop $DeltaSigma$ Micro-Gravity CMOS SOI Accelerometer. IEEE Journal of Solid-State Circuits, 2006, 41, 2983-2991.	5.4	93
93	Wafer-level MEMS packaging via thermally released metal-organic membranes. Journal of Micromechanics and Microengineering, 2006, 16, 742-750.	2.6	54
94	Capacitive Bulk Acoustic Wave Silicon Disk Gyroscopes. , 2006, , .		40
95	A Low Phase Noise 100MHz Silicon BAW Reference Oscillator. , 2006, , .		34
96	A 104dB SNDR Transimpedance-based CMOS ASIC for Tuning Fork Microgyroscopes. , 2006, , .		7
97	Electrically coupled MEMS bandpass filters. Sensors and Actuators A: Physical, 2005, 122, 307-316.	4.1	59
98	Micro-gravity capacitive silicon-on-insulator accelerometers. Journal of Micromechanics and Microengineering, 2005, 15, 2113-2120.	2.6	77
99	Characterization of high-Qspiral inductors on thick insulator-on-silicon. Journal of Micromechanics and Microengineering, 2005, 15, 2105-2112.	2.6	19
100	Voltage-tunable piezoelectrically-transduced single-crystal silicon micromechanical resonators. Sensors and Actuators A: Physical, 2004, 111, 71-78.	4.1	95
101	An analytical model for support loss in micromachined beam resonators with in-plane flexural vibrations. Sensors and Actuators A: Physical, 2003, 109, 156-164.	4.1	328
102	Finite Ground Coplanar Lines on CMOS Grade Silicon with a Thick Embedded Silicon Oxide Layer Using Micromachining Techniques. , 2003, , .		4
103	The HARPSS process for fabrication of precision MEMS inertial sensors. Mechatronics, 2002, 12, 1185-1199.	3.3	9
104	High aspect-ratio polysilicon micromachining technology. Sensors and Actuators A: Physical, 2000, 87, 46-51.	4.1	38
105	Compensation, Tuning, and Trimming of MEMS Resonators. Advanced Micro & Nanosystems, 0, , 305-325.	0.2	2