

# Arantxa Uranga

## List of Publications by Year in descending order

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120  
papers

1,483  
citations

394421

19  
h-index

377865

34  
g-index

120  
all docs

120  
docs citations

120  
times ranked

981  
citing authors

#	ARTICLE	IF	CITATIONS
1	Monolithic CMOS MEMS Oscillator Circuit for Sensing in the Attogram Range. IEEE Electron Device Letters, 2008, 29, 146-148.	3.9	117
2	CMOS MEMS resonators: From devices to applications. Microelectronic Engineering, 2015, 132, 58-73.	2.4	79
3	Integration of RF-MEMS resonators on submicrometric commercial CMOS technologies. Journal of Micromechanics and Microengineering, 2009, 19, 015002.	2.6	77
4	Integrated CMOS-MEMS with on-chip readout electronics for high-frequency applications. IEEE Electron Device Letters, 2006, 27, 495-497.	3.9	74
5	A CMOS MEMS RF-Tunable Bandpass Filter Based on Two High-Q 22-MHz Polysilicon Clamped-Clamped Beam Resonators. IEEE Electron Device Letters, 2009, 30, 718-720.	3.9	64
6	Design, fabrication, and characterization of a submicroelectromechanical resonator with monolithically integrated CMOS readout circuit. Journal of Microelectromechanical Systems, 2005, 14, 508-519.	2.5	59
7	Monolithic mass sensor fabricated using a conventional technology with attogram resolution in air conditions. Applied Physics Letters, 2007, 91, .	3.3	58
8	Exploitation of non-linearities in CMOS-NEMS electrostatic resonators for mechanical memories. Sensors and Actuators A: Physical, 2013, 197, 88-95.	4.1	55
9	Localized and distributed mass detectors with high sensitivity based on thin-film bulk acoustic resonators. Applied Physics Letters, 2006, 89, 033507.	3.3	45
10	System on chip mass sensor based on polysilicon cantilevers arrays for multiple detection. Sensors and Actuators A: Physical, 2006, 132, 154-164.	4.1	38
11	Monolithic Single PMUT-on-CMOS Ultrasound System With +17 dB SNR for Imaging Applications. IEEE Access, 2020, 8, 142785-142794.	4.2	30
12	Miniaturized 0.13- $\mu$ m CMOS Front-End Analog for AlN PMUT Arrays. Sensors, 2020, 20, 1205.	3.8	30
13	Integration of NEMS resonators in a 65nm CMOS technology. Microelectronic Engineering, 2013, 110, 246-249.	2.4	29
14	Integrated CMOS Amplifier for ENG Signal Recording. IEEE Transactions on Biomedical Engineering, 2004, 51, 2188-2194.	4.2	28
15	Nanomechanical Mass Sensor for Spatially Resolved Ultrasensitive Monitoring of Deposition Rates in Stencil Lithography. Small, 2009, 5, 176-180.	10.0	28
16	Fully integrated MIXLER based on VHF CMOS-MEMS clamped-clamped beam resonator. Electronics Letters, 2007, 43, 452.	1.0	24
17	Localized-mass detection based on thin-film bulk acoustic wave resonators (FBAR): Area and mass location aspects. Sensors and Actuators A: Physical, 2008, 142, 322-328.	4.1	22
18	Metal microelectromechanical oscillator exhibiting ultra-high water vapor resolution. Lab on A Chip, 2011, 11, 2670.	6.0	20

#	ARTICLE	IF	CITATIONS
19	Tent-Plate AlN PMUT With a Piston-Like Shape Under Liquid Operation. IEEE Sensors Journal, 2020, 20, 11128-11137.	4.7	20
20	Single-Resonator Dual-Frequency BEOL-Embedded CMOS-MEMS Oscillator With Low-Power and Ultra-Compact TIA Core. IEEE Electron Device Letters, 2017, 38, 273-276.	3.9	19
21	Fully CMOS integrated low voltage 100 MHz MEMS resonator. Electronics Letters, 2005, 41, 1327.	1.0	17
22	Dynamic Properties of Three-Terminal Tungsten CMOS-NEM Relays Under Nonlinear Tapping Mode. IEEE Sensors Journal, 2016, 16, 5283-5291.	4.7	17
23	High-frequency sensor technologies for inertial force detection based on thin-film bulk acoustic wave resonators (FBAR). Microelectronic Engineering, 2009, 86, 1254-1257.	2.4	16
24	Zero-level packaging of MEMS in standard CMOS technology. Journal of Micromechanics and Microengineering, 2010, 20, 064009.	2.6	16
25	Suppression of the A-f-mediated noise at the top bifurcation point in a MEMS resonator with both hardening and softening hysteretic cycles. Sensors and Actuators A: Physical, 2017, 256, 59-65.	4.1	16
26	From VHF to UHF CMOS-MEMS monolithically integrated resonators. , 2008, , .		15
27	Nanomechanical switches based on metal-insulator-metal capacitors from a standard complementary-metal-oxide semiconductor technology. Applied Physics Letters, 2014, 104, 243105.	3.3	15
28	Electrodeâ€Tissue Impedance Measurement CMOS ASIC for Functional Electrical Stimulation Neuroprostheses. IEEE Transactions on Instrumentation and Measurement, 2007, 56, 2043-2050.	4.7	14
29	A fully integrated programmable dual-band RF filter based on electrically and mechanically coupled CMOS-MEMS resonators. Journal of Micromechanics and Microengineering, 2012, 22, 055020.	2.6	14
30	Fully CMOS integrated bandpass filter based on mechanical coupling of two RF MEMS resonators. Electronics Letters, 2010, 46, 640.	1.0	13
31	9.5 % Scandium Doped ALN PMUT Compatible with Pre-Processed CMOS Substrates. , 2021, , .		13
32	Harvester-on-chip: Design of a proof of concept prototype. Microelectronic Engineering, 2009, 86, 1183-1186.	2.4	12
33	Analytical and Finite-Element Modeling of Localized-Mass Sensitivity of Thin-Film Bulk Acoustic-Wave Resonators (FBAR). IEEE Sensors Journal, 2009, 9, 892-901.	4.7	12
34	CMOS-MEMS switches based on back-end metal layers. Microelectronic Engineering, 2014, 119, 127-130.	2.4	12
35	CMOS-NEMS Copper Switches Monolithically Integrated Using a 65 nm CMOS Technology. Micromachines, 2016, 7, 30.	2.9	12
36	Monolithically Integrated Double-Ended Tuning Fork- Based Oscillator with Low Bias Voltage in Air Conditions. Procedia Chemistry, 2009, 1, 614-617.	0.7	11

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37	Monolithic PMUT-on-CMOS Ultrasound System for Single Pixel Acoustic Imaging. , 2021, , .		11
38	VHF band-pass filter based on a single CMOS-MEMS doubleended tuning fork resonator. Procedia Chemistry, 2009, 1, 1131-1134.	0.7	10
39	A 3V CMOS-MEMS oscillator in 0.35&#x03BC;m CMOS technology. , 2013, , .		10
40	Packaged CMOS&#x201c;MEMS free&#x201c;free beam oscillator. Journal of Micromechanics and Microengineering, 2013, 23, 115018.	2.6	10
41	Enhancement of Frequency Stability Using Synchronization of a Cantilever Array for MEMS-Based Sensors. Sensors, 2016, 16, 1690.	3.8	10
42	Temperature-drift rejection and sensitivity to mismatch of synchronized strongly-coupled M/NEMS resonators. , 2016, , .		10
43	Single-cell system using monolithic PMUTs-on-CMOS to monitor fluid hydrodynamic properties. Microsystems and Nanoengineering, 2022, 8, .	7.0	10
44	Time-Resolved Evaporation Rate of Attoliter Glycerine Drops Using On-Chip CMOS Mass Sensors Based on Resonant Silicon Micro Cantilevers. IEEE Nanotechnology Magazine, 2007, 6, 509-512.	2.0	9
45	Focused-ion-beam-assisted tuning of thin-film bulk acoustic wave resonators (FBARs). Journal of Micromechanics and Microengineering, 2007, 17, 2380-2389.	2.6	9
46	Thin-Film Bulk Acoustic Wave Resonator Floating Above CMOS Substrate. IEEE Electron Device Letters, 2008, 29, 28-30.	3.9	9
47	Dual-clock with single and monolithical 0-level vacuum packaged MEMS-on-CMOS resonator. , 2015, , .		9
48	A monolithically integrated torsional CMOS-MEMS relay. Journal of Micromechanics and Microengineering, 2016, 26, 115012.	2.6	9
49	Fabrication and characterization of a hammer-shaped CMOS/BEOL-embedded nanoelectromechanical (NEM) relay. Microelectronic Engineering, 2018, 192, 44-51.	2.4	9
50	Squared PMUT with Enhanced Pressure Sensitivities. Proceedings (mdpi), 2018, 2, 925.	0.2	9
51	AlN Piezoelectric Micromachined Ultrasonic Transducer Array Monolithically Fabricated on Top of Pre-Processed CMOS Substrates. , 2019, , .		9
52	Phased Array Based on AlScN Piezoelectric Micromachined Ultrasound Transducers Monolithically Integrated on CMOS. IEEE Electron Device Letters, 2022, 43, 1113-1116.	3.9	9
53	Electrically Enhanced Readout System for a High-Frequency CMOS-MEMS Resonator. ETRI Journal, 2009, 31, 478-480.	2.0	8
54	Phase-Noise Reduction in a CMOS-MEMS Oscillator Under Nonlinear MEMS Operation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 3047-3055.	5.4	8

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55	Enhancing AlN PMUTs™ Acoustic Responsivity within a MEMS-on-CMOS Process. <i>Sensors</i> , 2021, 21, 8447.	3.8	8
56	Nanometer scale gaps for capacitive transduction improvement on RF-MEMS resonators. <i>Microelectronic Engineering</i> , 2007, 84, 1384-1387.	2.4	7
57	Cancellation of the parasitic feedthrough current in an integrated CMOS MEMS clamped-clamped beam resonator. <i>Microelectronic Engineering</i> , 2012, 98, 599-602.	2.4	7
58	Optimization of the Close-to-Carrier Phase Noise in a CMOS MEMS Oscillator Using a Phase Tunable Sustaining-Amplifier. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2017, 64, 888-897.	3.0	7
59	High-sensitivity capacitive sensing interfacing circuit for monolithic CMOS M/NEMS resonators. <i>Electronics Letters</i> , 2007, 43, 1274.	1.0	6
60	Monolithic CMOS-MEMS oscillators with micro-degree temperature resolution in air conditions. , 2009, , .		6
61	A Novel Architecture for Differential Resonant Sensing. <i>Procedia Engineering</i> , 2014, 87, 1573-1576.	1.2	6
62	Thin film piezoelectric devices integrated on CMOS. , 2016, , .		6
63	A reliable fast miniaturized RF MEMS-on-CMOS switched capacitor with zero-level vacuum package. , 2017, , .		6
64	High Q CMOS-MEMS resonators and its applications as RF tunable band-pass filters. , 2009, , .		5
65	Cross coupled beams CMOS MEMS resonator for VHF range with enhanced electrostatic detection. <i>Microelectronic Engineering</i> , 2011, 88, 2325-2329.	2.4	5
66	Above-IC 300 Mhz AlN SAW oscillator. , 2017, , .		5
67	An Integrated Implantable Electrical Sacral Root Stimulator for Bladder Control. <i>Neuromodulation</i> , 2002, 5, 238-247.	0.8	4
68	High-sensitivity capacitive readout system for resonant submicrometer-scale cantilevers based sensors. , 0, , .		4
69	Coupling Resonant Micro and Nanocantilevers to Improve Mass Responsivity by Detectability Product. , 2007, , .		4
70	Electrical detection of multiple resonant modes in a CMOS MEMS cantilever. <i>Microelectronic Engineering</i> , 2007, 84, 1374-1378.	2.4	4
71	A CMOS-MEMS filter using a V-coupler and electrical phase inversion. , 2010, , .		4
72	A 230MHz CMOS-MEMS bulk acoustic wave resonator. <i>Microelectronic Engineering</i> , 2012, 98, 458-462.	2.4	4

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73	ALN Pmut with Crossed-Cavity for Better Acoustic Pressure Outputs in Liquid at High Frequency. , 2019, , .		4
74	Multielement Ring Array Based on Minute Size PMUTs for High Acoustic Pressure and Tunable Focus Depth. Sensors, 2021, 21, 4786.	3.8	4
75	ALN-based HBAR ultrasonic sensor for fluid detection in microchannels with multi-frequency operation capability over the GHz range. , 2021, , .		4
76	Fluid compressional properties sensing at microscale using a longitudinal bulk acoustic wave transducer operated in a pulse-echo scheme. Sensors and Actuators A: Physical, 2022, 334, 113334.	4.1	4
77	Automated onâ€wafer extraction of equivalentâ€circuit parameters in thinâ€film bulk acoustic wave resonators and substrate. Microwave and Optical Technology Letters, 2008, 50, 4-7.	1.4	3
78	VHF monolithically integrated CMOS-MEMS longitudinal bulk acoustic resonator. Electronics Letters, 2012, 48, 514.	1.0	3
79	Ultra compact CMOS-MEMS oscillator based on a reliable metal-via MEMS resonators with noise-matched high-gain transimpedance CMOS amplifier. , 2017, , .		3
80	Monolithical ALN PMUT on Pre-Processed CMOS Substrate. , 2018, , .		3
81	Multi-Frequency Thin Film HBAR Microsensor for Acoustic Impedance Sensing Over the GHz Range. , 2021, , .		3
82	High Accuracy Ultrasound Micro-Distance Measurements with PMUTs under Liquid Operation. Sensors, 2021, 21, 4524.	3.8	3
83	Improved Electromechanical Transduction for PiezoMUMPS HBAR Impedance Sensors. , 2020, , .		3
84	A read-out strategy and circuit design for high frequency MEMS resonators. , 0, , .		2
85	P2K-2 Sensitivity Considerations in Localized Mass Detection Based on Thin-Film Bulk Acoustic Wave Resonators. , 2006, , .		2
86	12E-1 Accelerometer Based on Thin-Film Bulk Acoustic Wave Resonators. Proceedings IEEE Ultrasonics Symposium, 2007, , .	0.0	2
87	Third-mode 48MHz freeâ€free beam resonator used as a RF balun. Microelectronic Engineering, 2010, 87, 1256-1258.	2.4	2
88	Characterization of CMOS-MEMS resonator by pulsed mode electrostatic actuation. , 2010, , .		2
89	Linear operation of a 11MHz CMOS-MEMS resonator. , 2010, , .		2
90	Towards a fully-integrated CMOS microcalorimeter with on-chip quasi-digital output signal. , 2013, , .		2

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91	Multi-cantilever Oscillator. Procedia Engineering, 2014, 87, 32-35.	1.2	2
92	Top-Down CMOS-NEMS Polysilicon Nanowire with Piezoresistive Transduction. Sensors, 2015, 15, 17036-17047.	3.8	2
93	Intrinsic feedthrough current cancellation in a seesaw CMOS-MEMS resonator for integrated oscillators. , 2016, , .		2
94	Fully Integrated CMOS-PMUT Transceiver. , 2018, , .		2
95	High Performance Seesaw Torsional CMOS-MEMS Relay Using Tungsten VIA Layer. Micromachines, 2018, 9, 579.	2.9	2
96	Reliability study on thin film capped monolithic CMOS-MEMS resonator with standard plastic packaging. , 2018, , .		2
97	A feasibility study of AlN ultrasonic transducers fabrication using the multi-user PiezoMUMPs process for fingerprint scanning at GHz range. , 2019, , .		2
98	Liquid operable AlN PMUT with high output pressure capabilities. , 2019, , .		2
99	CMOS-SOI platform for monolithic integration of crystalline silicon MEMS. Electronics Letters, 2006, 42, 800.	1.0	1
100	Instantaneous de-embedding of the on-wafer equivalent-circuit parameters of acoustic resonator (FBAR) for integrated circuit applications. , 2007, , .		1
101	Monolithic 0.35- $\mu\text{m}$ CMOS Cantilever for Mass Sensing in the Attogram Range with Self-Excitation. , 2007, , .		1
102	Double-ended tuning fork resonator in 0.35 $\mu\text{m}$ CMOS technology for RF applications. , 2008, , .		1
103	UHF CMOS-MEMS bulk acoustic wave resonator. , 2011, , .		1
104	Noise effects on resonator bias polarization in CMOS-MEMS oscillators. , 2014, , .		1
105	NEMS Switches Monolithically Fabricated on CMOS MIM Capacitors. Procedia Engineering, 2014, 87, 943-946.	1.2	1
106	Tunable transimpedance sustaining-amplifier for high impedance CMOS-MEMS resonators. , 2014, , .		1
107	Design of self-sustained CMOS amplifiers for all-CMOS MEMS based oscillators. , 2016, , .		1
108	<title>Band-pass transimpedance read-out circuit for UHF MEMS resonator applications</title>. , 2005, , .		0

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109	Frequency synthesis using on-chip micromechanical resonator. , 0, , .		0
110	Automated on-wafer characterization in micro-machined resonators: towards an integrated test vehicle for bulk acoustic wave resonators (FBAR). , 2007, , .		0
111	Analytical and finite-element modeling of a localized-mass sensor. , 2008, , .		0
112	Nanomechanical mass sensor for monitoring deposition rates through confined apertures. , 2009, , .		0
113	Mass Sensors: Small 2/2009. Small, 2009, 5, n/a-n/a.	10.0	0
114	NEMS/CMOS sensor for monitoring deposition rates in stencil lithography. Procedia Chemistry, 2009, 1, 425-428.	0.7	0
115	Nanomechanical test structure for optimal alignment in stencil-based lithography. , 2009, , .		0
116	CMOS-MEMS free-free beam resonators. , 2010, , .		0
117	Enhancement of higher harmonics detectability in a nonlinear nanoresonator. , 2014, , .		0
118	Passive temperature compensation method in nonlinear NEMS resonators based on the nonlinear duffing effect. , 2016, , .		0
119	Nonlinear behavior of the capacitively coupled NEMS resonator operating close to the nonlinear regime cancellation. , 2017, , .		0
120	DESIGN OF A FULLY INTEGRATED CMOS-PMUT SYSTEM. , 2018, , .		0