L Guillermo Villanueva

List of Publications by Year
in descending order

103	4,568	117453	110170
papers	citations	34 h-index	64 g-index

108	108	108	4664
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Observation of a phononic quadrupole topological insulator. Nature, 2018, 555, 342-345.	13.7	684
2	Optical detection of radio waves through a nanomechanical transducer. Nature, 2014, 507, 81-85.	13.7	382
3	Frequency fluctuations in silicon nanoresonators. Nature Nanotechnology, 2016, 11, 552-558.	15.6	183
4	Surpassing Fundamental Limits of Oscillators Using Nonlinear Resonators. Physical Review Letters, 2013, 110, 177208.	2.9	143
5	A Nanoscale Parametric Feedback Oscillator. Nano Letters, 2011, 11, 5054-5059.	4.5	132
6	Fundamentals of Nanomechanical Resonators. , 2016, , .		129
7	5ÂGHz laterallyâ€excited bulkâ€wave resonators (XBARs) based on thin platelets of lithium niobate. Electronics Letters, 2019, 55, 98-100.	0.5	121
8	Nonlinear Mode-Coupling in Nanomechanical Systems. Nano Letters, 2013, 13, 1622-1626.	4.5	110
9	Nonlinearity in nanomechanical cantilevers. Physical Review B, 2013, 87, .	1.1	106
10	Metallic Nanowires by Full Wafer Stencil Lithography. Nano Letters, 2008, 8, 3675-3682.	4.5	101
11	Optimum ratio of hydrophobic to hydrophilic areas of biphilic surfaces in thermal fluid systems involving boiling. International Journal of Heat and Mass Transfer, 2019, 135, 164-174.	2.5	98
12	Evidence of Surface Loss as Ubiquitous Limiting Damping Mechanism in SiN Micro- and Nanomechanical Resonators. Physical Review Letters, 2014, 113, 227201.	2.9	96
13	Effective quality factor tuning mechanisms in micromechanical resonators. Applied Physics Reviews, 2018, 5, .	5.5	91
14	Stress-Induced Variations in the Stiffness of Micro- and Nanocantilever Beams. Physical Review Letters, 2012, 108, 236101.	2.9	89
15	Resistless nanofabrication by stencil lithography: A review. Microelectronic Engineering, 2015, 132, 236-254.	1.1	88
16	Metallic Nanodot Arrays by Stencil Lithography for Plasmonic Biosensing Applications. ACS Nano, 2011, 5, 844-853.	7.3	87
17	Modelling the Size Effects on the Mechanical Properties of Micro/Nano Structures. Sensors, 2015, 15, 28543-28562.	2.1	66
18	5ÂGHz Band n79 wideband microacoustic filter using thin lithium niobate membrane. Electronics Letters, 2019, 55, 942-944.	0.5	66

#	Article	IF	Citations
19	Detection of bacteria based on the thermomechanical noise of a nanomechanical resonator: origin of the response and detection limits. Nanotechnology, 2008, 19, 035503.	1.3	63
20	A single nanotrench in a palladium microwire for hydrogen detection. Nanotechnology, 2008, 19, 125502.	1.3	61
21	Analysis of the blurring in stencil lithography. Nanotechnology, 2009, 20, 415303.	1.3	60
22	50 nm thick AlN film-based piezoelectric cantilevers for gravimetric detection. Journal of Micromechanics and Microengineering, 2011, 21, 085023.	1.5	58
23	High-Resolution Resistless Nanopatterning on Polymer and Flexible Substrates for Plasmonic Biosensing Using Stencil Masks. ACS Nano, 2012, 6, 5474-5481.	7.3	57
24	Photothermal Analysis of Individual Nanoparticulate Samples Using Micromechanical Resonators. ACS Nano, 2013, 7, 6188-6193.	7.3	57
25	Crystalline silicon cantilevers for piezoresistive detection of biomolecular forces. Microelectronic Engineering, 2008, 85, 1120-1123.	1.1	55
26	Optimal operating points of oscillators using nonlinear resonators. Physical Review E, 2012, 86, 056207.	0.8	51
27	Demonstration of suppressed phonon tunneling losses in phononic bandgap shielded membrane resonators for high-Q optomechanics. Optics Express, 2014, 22, 6810.	1.7	49
28	Manufacture and characterization of graphene membranes with suspended silicon proof masses for MEMS and NEMS applications. Microsystems and Nanoengineering, 2020, 6, 17.	3.4	46
29	The transition in hydrogen sensing behavior in noncontinuous palladium films. Applied Physics Letters, 2010, 97, .	1.5	43
30	Advances in the production, immobilization, and electrical characterization of olfactory receptors for olfactory nanobiosensor development. Sensors and Actuators B: Chemical, 2006, 116, 66-71.	4.0	42
31	Ultra-low power hydrogen sensing based on a palladium-coated nanomechanical beam resonator. Nanoscale, 2012, 4, 5059.	2.8	40
32	Passive Phase Noise Cancellation Scheme. Physical Review Letters, 2012, 108, 264102.	2.9	39
33	Asymmetrically coupled resonators for mass sensing. Applied Physics Letters, 2017, 111, .	1.5	39
34	Al_{0.83}Sc_{0.17}N Contour-Mode Resonators With Electromechanical Coupling in Excess of 4.5%. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2019, 66, 146-153.	1.7	38
35	Highly ordered palladium nanodot patterns for full concentration range hydrogen sensing. Nanoscale, 2012, 4, 1964.	2.8	35
36	Study of Thin Film LiNbO₃ Laterally Excited Bulk Acoustic Resonators. Journal of Microelectromechanical Systems, 2022, 31, 217-225.	1.7	35

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37	Single-layer graphene on silicon nitride micromembrane resonators. Journal of Applied Physics, 2014, 115, 054513.	1.1	33
38	Fast and robust hydrogen sensors based on discontinuous palladium films on polyimide, fabricated on a wafer scale. Nanotechnology, 2010, 21, 505501.	1.3	32
39	Shape memory polymer resonators as highly sensitive uncooled infrared detectors. Nature Communications, 2019, 10, 4518.	5.8	31
40	Resistivity measurements of gold wires fabricated by stencil lithography on flexible polymer substrates. Microelectronic Engineering, 2008, 85, 1108-1111.	1.1	29
41	Reusability of nanostencils for the patterning of Aluminum nanostructures by selective wet etching. Microelectronic Engineering, 2008, 85, 1237-1240.	1.1	29
42	Hydrodynamic cavitation in microfluidic devices with roughened surfaces. Journal of Micromechanics and Microengineering, 2018, 28, 075016.	1.5	28
43	Large Suspended Monolayer and Bilayer Graphene Membranes with Diameter up to 750â€‰Âµm. Scientific Reports, 2020, 10, 6426.	1.6	28
44	Suspended micro/nano channel resonators: a review. Journal of Micromechanics and Microengineering, 2020, 30, 043001.	1.5	28
45	Fabrication of suspended microchannel resonators with integrated piezoelectric transduction. Microelectronic Engineering, 2018, 192, 83-87.	1.1	27
46	Reliable and Improved Nanoscale Stencil Lithography by Membrane Stabilization, Blurring, and Clogging Corrections. IEEE Nanotechnology Magazine, 2011, 10, 352-357.	1.1	26
47	Piezoresistive cantilevers in a commercial CMOS technology for intermolecular force detection. Microelectronic Engineering, 2006, 83, 1302-1305.	1.1	25
48	Etching of sub-micrometer structures through Stencil. Microelectronic Engineering, 2008, 85, 1010-1014.	1.1	25
49	Intensifying cavitating flows in microfluidic devices with poly(vinyl alcohol) (PVA) microbubbles. Physics of Fluids, 2018, 30, .	1.6	25
50	Large arrays of chemo-mechanical nanoswitches for ultralow-power hydrogen sensing. Journal of Micromechanics and Microengineering, 2010, 20, 105019.	1.5	23
51	Energy Harvesting in Microscale with Cavitating Flows. ACS Omega, 2017, 2, 6870-6877.	1.6	23
52	Analysis of XBAR resonance and higher order spurious modes. , 2019, , .		23
53	Frequency fluctuations in nanomechanical silicon nitride string resonators. Physical Review B, 2020, 102, .	1.1	22
54	Directed Self-Assembly of Block Copolymers for the Fabrication of Functional Devices. Polymers, 2020, 12, 2432.	2.0	21

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55	Nanobiosensors based on individual olfactory receptors. Analog Integrated Circuits and Signal Processing, 2008, 57, 197-203.	0.9	18
56	Stress and aging minimization in photoplastic AFM probes. Microelectronic Engineering, 2009, 86, 1226-1229.	1.1	18
57	Silicon microcantilevers with MOSFET detection. Microelectronic Engineering, 2010, 87, 1245-1247.	1.1	18
58	Grand Challenge in N/MEMS. Frontiers in Mechanical Engineering, 2016, 1, .	0.8	18
59	Frequency-scalable fabrication process flow for lithium niobate based Lamb wave resonators. Journal of Micromechanics and Microengineering, 2020, 30, 015008.	1.5	18
60	Focused ion beam production of nanoelectrode arrays. Materials Science and Engineering C, 2008, 28, 777-780.	3.8	17
61	On â€œCavitation on Chipâ€•in Microfluidic Devices With Surface and Sidewall Roughness Elements. Journal of Microelectromechanical Systems, 2019, 28, 890-899.	1.7	17
62	Localized Ion Implantation Through Micro/Nanostencil Masks. IEEE Nanotechnology Magazine, 2011, 10, 940-946.	1.1	16
63	Conductivity of SUâ€8 Thin Films through Atomic Force Microscopy Nanoâ€Patterning. Advanced Functional Materials, 2012, 22, 1482-1488.	7.8	16
64	Conduction in rectangular quasi-one-dimensional and two-dimensional random resistor networks away from the percolation threshold. Physical Review E, 2009, 80, 021104.	0.8	15
65	Compliant membranes improve resolution in full-wafer micro/nanostencil lithography. Nanoscale, 2012, 4, 773-778.	2.8	15
66	Polymeric MOEMS Variable Optical Attenuator. IEEE Photonics Technology Letters, 2006, 18, 2425-2427.	1.3	14
67	3-D modulable PDMS-based microlens system. Optics Express, 2008, 16, 4918.	1.7	14
68	Deep reactive ion etching and focused ion beam combination for nanotip fabrication. Materials Science and Engineering C, 2006, 26, 164-168.	3.8	13
69	DRIE based novel technique for AFM probes fabrication. Microelectronic Engineering, 2007, 84, 1132-1135.	1.1	13
70	Engineered Lateral Roughness Element Implementation and Working Fluid Alteration to Intensify Hydrodynamic Cavitating Flows on a Chip for Energy Harvesting. Micromachines, 2020, 11, 49.	1.4	12
71	Design and fabrication of a vigorous â€œcavitation-on-a-chipâ€•device with a multiple microchannel configuration. Microsystems and Nanoengineering, 2021, 7, 44.	3.4	12
72	Optimization of Inactive Regions of Lithium Niobate Shear Mode Resonator for Quality Factor Enhancement. Journal of Microelectromechanical Systems, 2021, 30, 369-374.	1.7	12

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73	Fast on-wafer electrical, mechanical, and electromechanical characterization of piezoresistive cantilever force sensors. Review of Scientific Instruments, 2012, 83, 015002.	0.6	11
74	On cavitation inception and cavitating flow patterns in a multi-orifice microfluidic device with a functional surface. Physics of Fluids, 2021, 33, 032005.	1.6	11
75	Avoiding transduction-induced heating in suspended microchannel resonators using piezoelectricity. Microsystems and Nanoengineering, 2021, 7, 34.	3.4	11
76	Fluid-mediated parallel self-assembly of polymeric micro-capsules for liquid encapsulation and release. Soft Matter, 2013, 9, 9931.	1.2	10
77	Engineered acoustic mismatch for anchor loss control in contour mode resonators. Applied Physics Letters, 2019, 114, .	1.5	10
78	Thin Film Devices for 5G Communications. , 2021, , .		10
79	Sharp High-Aspect-Ratio AFM Tips Fabricated by a Combination of Deep Reactive Ion Etching and Focused Ion Beam Techniques. Journal of Nanoscience and Nanotechnology, 2010, 10, 497-501.	0.9	9
80	Evidence of Smaller 1/F Noise in AlScN-Based Oscillators Compared to AlN-Based Oscillators. Journal of Microelectromechanical Systems, 2020, 29, 306-312.	1.7	9
81	A formula for the admittance of laterally excited bulk wave resonators (XBARs). Electronics Letters, 2021, 57, 773-775.	0.5	9
82	Resistless Fabrication of Nanoimprint Lithography (NIL) Stamps Using Nano-Stencil Lithography. Micromachines, 2013, 4, 370-377.	1.4	8
83	Fabrication Of Lithium Niobate Bulk Acoustic Resonator For 5G Filters. , 2019, , .		8
84	Mechanically tuneable microoptical structure based on PDMS. Sensors and Actuators A: Physical, 2010, 162, 260-266.	2.0	7
85	All-stencil transistor fabrication on 3D silicon substrates. Journal of Micromechanics and Microengineering, 2012, 22, 095022.	1.5	7
86	Pyrolytic carbon resonators for micromechanical thermal analysis. Microsystems and Nanoengineering, 2019, 5, 58.	3.4	7
87	On the effect of linear feedback and parametric pumping on a resonatorâ€™s frequency stability. New Journal of Physics, 2020, 22, 093049.	1.2	6
88	Modular interface and experimental setup for in-vacuum operation of microfluidic devices. Review of Scientific Instruments, 2019, 90, 045006.	0.6	5
89	A Resonant Graphene NEMS Vibrometer. Small, 2022, 18, .	5.2	5
90	Novel cantilever design with high control of the mechanical performance. Microelectronic Engineering, 2007, 84, 1292-1295.	1.1	4

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91	Anchor loss dependence on electrode materials in contour mode resonators. , 2016, , .		4
92	Resonance Frequency. , 2016, , 1-56.		4
93	Quality Factor. , 2016, , 57-90.		3
94	Position and mode dependent optical detection back-action in cantilever beam resonators. Journal of Micromechanics and Microengineering, 2017, 27, 035006.	1.5	3
95	Proof of Concept of a Graphene-Based Resonant Accelerometer. , 2021, , .		3
96	Optical Detection of Radio Waves Through a Nanomechanical Transducer. , 2014, , .		3
97	Towards a N77 Electroacoustic Filter Using Thin Films of Crystalline Y-cut Lithium Niobate. , 2021, , .		2
98	Release area confinement in Contour mode resonators. , 2017, , .		1
99	Electron-beam lithography on M108Y and M35G chemically amplified DUV photoresists. Micro and Nano Engineering, 2021, 13, 100095.	1.4	1
100	Transduction. , 2016, , 115-147.		0
101	Measurement and Noise. , 2016, , 149-172.		0
102	Mechanics for Fluidics and Bio-Devices. Microtechnology and MEMS, 2020, , 139-196.	0.2	0
103	Balancing of Coupled Piezoelectric NEMS Resonators. Frontiers in Mechanical Engineering, 2021, 7, .	0.8	0