Javier Tamayo

List of Publications by Year
in descending order

112 papers	6,292 citations	71102 41 h-index	69250 77 g-index
115 all docs	115 docs citations	115 times ranked	5693 citing authors

#	Article	IF	Citations
1	Deformation, Contact Time, and Phase Contrast in Tapping Mode Scanning Force Microscopy. Langmuir, 1996, 12, 4430-4435.	3.5	451
2	Biosensors based on nanomechanical systems. Chemical Society Reviews, 2013, 42, 1287-1311.	38.1	334
3	Relationship between phase shift and energy dissipation in tapping-mode scanning force microscopy. Applied Physics Letters, 1998, 73, 2926-2928.	3.3	277
4	Effects of elastic and inelastic interactions on phase contrast images in tapping-mode scanning force microscopy. Applied Physics Letters, 1997, 71, 2394-2396.	3.3	267
5	Nanomechanical mass sensing and stiffness spectrometry based on two-dimensional vibrations of resonant nanowires. Nature Nanotechnology, 2010, 5, 641-645.	31.5	235
6	Detection of cancer biomarkers in serum using a hybrid mechanical and optoplasmonic nanosensor. Nature Nanotechnology, 2014, 9, 1047-1053.	31.5	221
7	Effect of Actin Organization on the Stiffness of Living Breast Cancer Cells Revealed by Peak-Force Modulation Atomic Force Microscopy. ACS Nano, 2016, 10, 3365-3374.	14.6	197
8	Interpretation of Contrast in Tapping Mode AFM and Shear Force Microscopy. A Study of Nafion. Langmuir, 2001, 17, 349-360.	3.5	195
9	Label-free detection of DNA hybridization based on hydration-induced tension in nucleic acid films. Nature Nanotechnology, 2008, 3, 301-307.	31.5	194
10	Chemical sensors and biosensors in liquid environment based on microcantilevers with amplified quality factor. Ultramicroscopy, 2001, 86, 167-173.	1.9	175
11	Development of nanomechanical biosensors for detection of the pesticide DDT. Biosensors and Bioelectronics, 2003, 18, 649-653.	10.1	155
12	Highly sensitive polymer-based cantilever-sensors for DNA detection. Ultramicroscopy, 2005, 105, 215-222.	1.9	153
13	Effect of the adsorbate stiffness on the resonance response of microcantilever sensors. Applied Physics Letters, 2006, 89, 224104.	3.3	151
14	High-Q Dynamic Force Microscopy in Liquid and Its Application to Living Cells. Biophysical Journal, 2001, 81, 526-537.	0.5	140
15	Piconewton regime dynamic force microscopy in liquid. Applied Physics Letters, 2000, 77, 582-584.	3.3	137
16	Phase contrast and surface energy hysteresis in tapping mode scanning force microsopy. Surface and Interface Analysis, 1999, 27, 312-316.	1.8	132
17	Active Quality Factor Control in Liquids for Force Spectroscopy. Langmuir, 2000, 16, 7891-7894.	3.5	121
18	Origin of the response of nanomechanical resonators to bacteria adsorption. Journal of Applied Physics, 2006, 100, 106105.	2.5	106

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19	Photothermal excitation of microcantilevers in liquids. Journal of Applied Physics, 2006, 99, 124904.	2.5	105
20	Mass Sensing Based on Deterministic and Stochastic Responses of Elastically Coupled Nanocantilevers. Nano Letters, 2009, 9, 4122-4127.	9.1	104
21	Nanomechanics of the Formation of DNA Self-Assembled Monolayers and Hybridization on Microcantilevers. Langmuir, 2004, 20, 9663-9668.	3.5	97
22	Challenges for nanomechanical sensors in biological detection. Nanoscale, 2012, 4, 4925.	5.6	92
23	Mass and stiffness spectrometry of nanoparticles and whole intact bacteria by multimode nanomechanical resonators. Nature Communications, 2016, 7, 13452.	12.8	91
24	Optomechanical detection of vibration modes of a single bacterium. Nature Nanotechnology, 2020, 15, 469-474.	31.5	90
25	Study of the noise of micromechanical oscillators under quality factor enhancement via driving force control. Journal of Applied Physics, 2005, 97, 044903.	2.5	71
26	A highly sensitive microsystem based on nanomechanical biosensors for genomics applications. Sensors and Actuators B: Chemical, 2006, 118, 2-10.	7.8	68
27	Polymeric Cantilever Arrays for Biosensing Applications. Sensor Letters, 2003, 1, 20-24.	0.4	68
28	Low-noise polymeric nanomechanical biosensors. Applied Physics Letters, 2006, 88, 113901.	3.3	66
29	Detection of bacteria based on the thermomechanical noise of a nanomechanical resonator: origin of the response and detection limits. Nanotechnology, 2008, 19, 035503.	2.6	63
30	Energy dissipation in tapping-mode scanning force microscopy with low quality factors. Applied Physics Letters, 1999, 75, 3569-3571.	3.3	62
31	Phototermal self-excitation of nanomechanical resonators in liquids. Applied Physics Letters, 2008, 92, 173108.	3.3	62
32	Arrays of Dual Nanomechanical Resonators for Selective Biological Detection. Analytical Chemistry, 2009, 81, 2274-2279.	6.5	58
33	Phase contrast in tapping-mode scanning force microscopy. Applied Physics A: Materials Science and Processing, 1998, 66, S309-S312.	2.3	56
34	Optical sequential readout of microcantilever arrays for biological detection. Sensors and Actuators B: Chemical, 2005, 106, 687-690.	7.8	54
35	Transition from selfâ€organized InSb quantumâ€dots to quantum dashes. Applied Physics Letters, 1996, 69, 2674-2676.	3.3	53
36	Study of the origin of bending induced by bimetallic effect on microcantilever. Sensors, 2007, 7, 1757-1765.	3.8	52

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37	How two-dimensional bending can extraordinarily stiffen thin sheets. Scientific Reports, 2016, 6, 29627.	3.3	50
38	Ultrasensitive detection of HIV-1 p24 antigen by a hybrid nanomechanical-optoplasmonic platform with potential for detecting HIV-1 at first week after infection. PLoS ONE, 2017, 12, e0171899.	2.5	50
39	Real-time profile of microcantilevers for sensing applications. Applied Physics Letters, 2005, 87, 234102.	3.3	45
40	Role of the gold film nanostructure on the nanomechanical response of microcantilever sensors. Journal of Applied Physics, 2007, 101, 034904.	2.5	45
41	High throughput optical readout of dense arrays of nanomechanical systems for sensing applications. Review of Scientific Instruments, 2010, 81, 125109.	1.3	42
42	Optomechanics with Silicon Nanowires by Harnessing Confined Electromagnetic Modes. Nano Letters, 2012, 12, 932-937.	9.1	40
43	Quantification of the surface stress in microcantilever biosensors: revisiting Stoneyâ€™s equation. Nanotechnology, 2012, 23, 475702.	2.6	40
44	Exponential tuning of the coupling constant of coupled microcantilevers by modifying their separation. Applied Physics Letters, 2011, 98, .	3.3	37
45	Human chromosome structure studied by scanning force microscopy after an enzymatic digestion of the covering cell material. Ultramicroscopy, 2000, 82, 245-251.	1.9	36
46	Imaging the surface stress and vibration modes of a microcantilever by laser beam deflection microscopy. Nanotechnology, 2012, 23, 315501.	2.6	36
47	Silicon nanowires: where mechanics and optics meet at the nanoscale. Scientific Reports, 2013, 3, 3445.	3.3	36
48	Physics of Nanomechanical Spectrometry of Viruses. Scientific Reports, 2014, 4, 6051.	3.3	36
49	Shedding Light on Axial Stress Effect on Resonance Frequencies of Nanocantilevers. ACS Nano, 2011, 5, 4269-4275.	14.6	34
50	Effect of water-DNA interactions on elastic properties of DNA self-assembled monolayers. Scientific Reports, 2017, 7, 536.	3.3	33
51	Optomechanical devices for deep plasma cancer proteomics. Seminars in Cancer Biology, 2018, 52, 26-38.	9.6	32
52	Selective Cleaning of the Cell Debris in Human Chromosome Preparations Studied by Scanning Force Microscopy. Journal of Structural Biology, 1999, 128, 200-210.	2.8	28
53	Measurement of the Mass and Rigidity of Adsorbates on a Microcantilever Sensor. Sensors, 2007, 7, 1834-1845.	3.8	27
54	The Interaction of DNA with Bacteriophage Ï†29 Connector: A Study by AFM and TEM. Journal of Structural Biology, 1996, 116, 390-398.	2.8	25

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55	Tackling reproducibility in microcantilever biosensors: a statistical approach for sensitive and specific end-point detection of immunoreactions. Analyst, The, 2013, 138, 863-872.	3.5	25
56	Effects of energy metabolism on the mechanical properties of breast cancer cells. Communications Biology, 2020, 3, 590.	4.4	25
57	Dimension dependence of the thermomechanical noise of microcantilevers. Journal of Applied Physics, 2006, 99, 024910.	2.5	24
58	Digital tuning of the quality factor of micromechanical resonant biological detectors. Sensors and Actuators B: Chemical, 2003, 89, 33-39.	7.8	23
59	Underlying mechanisms of the self-sustained oscillation of a nanomechanical stochastic resonator in a liquid. Physical Review B, 2007, 76, .	3.2	23
60	Highly Sensitive Measurement of Liquid Density in Air Using Suspended Microcapillary Resonators. Sensors, 2015, 15, 7650-7657.	3.8	23
61	Label-Free DNA-Based Detection of Mycobacterium tuberculosis and Rifampicin Resistance through Hydration Induced Stress in Microcantilevers. Analytical Chemistry, 2015, 87, 1494-1498.	6.5	22
62	Spatially multiplexed dark-field microspectrophotometry for nanoplasmonics. Scientific Reports, 2016, 6, 22836.	3.3	22
63	Structure of human chromosomes studied by atomic force microscopy. Journal of Structural Biology, 2003, 141, 198-207.	2.8	21
64	Atomic force microscopy reveals two phases in single stranded DNA self-assembled monolayers. Nanoscale, 2013, 5, 7425.	5.6	21
65	Nanomechanical Plasmon Spectroscopy of Single Gold Nanoparticles. Nano Letters, 2018, 18, 7165-7170.	9.1	21
66	Optical back-action in silicon nanowire resonators: bolometric versus radiation pressure effects. New Journal of Physics, 2013, 15, 035001.	2.9	20
67	Tapered silicon nanowires for enhanced nanomechanical sensing. Applied Physics Letters, 2013, 103, .	3.3	19
68	High Dynamic Range Nanowire Resonators. Nano Letters, 2021, 21, 6617-6624.	9.1	19
69	Structure of human chromosomes studied by atomic force microscopy. Journal of Structural Biology, 2003, 141, 189-197.	2.8	18
70	Hydration Induced Stress on DNA Monolayers Grafted on Microcantilevers. Langmuir, 2014, 30, 10962-10969.	3.5	18
71	Mechano-Optical Analysis of Single Cells with Transparent Microcapillary Resonators. ACS Sensors, 2019, 4, 3325-3332.	7.8	18
72	A Review on Theory and Modelling of Nanomechanical Sensors for Biological Applications. Processes, 2021, 9, 164.	2.8	18

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73	Physical Parameters That Control the Imaging of Purple Membranes with the Scanning Tunneling Microscope. Langmuir, 1995, 11, 2109-2114.	3.5	17
74	Compositional mapping of semiconductor structures by friction force microscopy. Applied Physics Letters, 1996, 68, 2297-2299.	3.3	16
75	T-shaped microcantilever sensor with reduced deflection offset. Applied Physics Letters, 2006, 89, 094109.	3.3	16
76	Stress and DNA Assembly Differences on Cantilevers Gold Coated by Resistive and E-Beam Evaporation Techniques. Langmuir, 2009, 25, 10633-10638.	3.5	16
77	Horizontally patterned Si nanowire growth for nanomechanical devices. Nanotechnology, 2013, 24, 095303.	2.6	16
78	Effect of surface stress induced curvature on the eigenfrequencies of microcantilever plates. AIP Advances, 2018, 8, .	1.3	14
79	A very low current scanning tunneling microscope. Review of Scientific Instruments, 1995, 66, 4876-4879.	1.3	13
80	Submonolayer sensitivity of InSb on InP determined by friction-force microscopy. Physical Review B, 1997, 55, R13436-R13439.	3.2	13
81	Optical Transduction for Vertical Nanowire Resonators. Nano Letters, 2020, 20, 2359-2369.	9.1	13
82	Decrease of the resonance bandwidth of micromechanical oscillators by phase control of the driving force. Applied Physics Letters, 2003, 82, 2919-2921.	3.3	12
83	Observation of spermidine-induced attractive forces in self-assembled monolayers of single stranded DNA using a microcantilever sensor. Applied Physics Letters, 2011, 98, .	3.3	12
84	Monitoring swelling and deswelling of thin polymer films by microcantilever sensors. Sensors and Actuators B: Chemical, 2014, 204, 602-610.	7.8	12
85	Monitoring the hydration of DNA self-assembled monolayers using an extensional nanomechanical resonator. Lab on A Chip, 2012, 12, 2069.	6.0	10
86	Coherent Optical Transduction of Suspended Microcapillary Resonators for Multi-Parameter Sensing Applications. Sensors, 2019, 19, 5069.	3.8	9
87	Scanning Probe Microscopy for Chromosomal Research.. Archives of Histology and Cytology, 2002, 65, 369-376.	0.2	8
88	Simultaneous imaging of the topography and dynamic properties of nanomechanical systems by optical beam deflection microscopy. Journal of Applied Physics, 2011, 109, 064315.	2.5	7
89	Optomechanics to the rescue. Nature Nanotechnology, 2015, 10, 738-739.	31.5	7
90	Effect of particle adsorption on the eigenfrequencies of nano-mechanical resonators. Journal of Applied Physics, 2020, 128, .	2.5	7

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91	Nanomechanical Molecular Mass Sensing Using Suspended Microchannel Resonators. Sensors, 2021, 21, 3337.	3.8	7
92	Scanning tunneling microscopy imaging and selective modification of purple membranes. International Journal of Imaging Systems and Technology, 1997, 8, 168-174.	4.1	6
93	Growth and characterization of self-organized InSb quantum dots and quantum dashes. Journal of Crystal Growth, 1997, 175-176, 725-729.	1.5	6
94	Ultrasensitive thermometer for atmospheric pressure operation based on a micromechanical resonator. Sensors and Actuators B: Chemical, 2014, 202, 339-345.	7.8	6
95	Stepwise motion of a microcantilever driven by the hydrolysis of viral ATPases. Nanotechnology, 2012, 23, 015501.	2.6	5
96	Optimization of the readout of microdrum optomechanical resonators. Microelectronic Engineering, 2017, 183-184, 37-41.	2.4	5
97	Buffer layer morphology effects on the ordering of epitaxial FePd(001) thin films. Acta Materialia, 1998, 46, 2299-2303.	7.9	4
98	Development of a methodology for reversible chemical modification of silicon surfaces with application in nanomechanical biosensors. Biosensors and Bioelectronics, 2019, 137, 287-293.	10.1	4
99	Hydrodynamic assisted multiparametric particle spectrometry. Scientific Reports, 2021, 11, 3535.	3.3	4
100	Friction force microscopy characterization of semiconductor heterostructures. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 1996, 42, 122-126.	3.5	3
101	Nanomechanics for specific biological detection. , 2003, 5118, 197.		3
102	Direct Detection of OXA-48 Carbapenemase Gene in Lysate Samples through Changes in Mechanical Properties of DNA Monolayers upon Hybridization. Analytical Chemistry, 2018, 90, 968-973.	6.5	3
103	Real-Time Particle Spectrometry in Liquid Environment Using Microfluidic-Nanomechanical Resonators. , 2019, , .		2
104	Study of the Adsorption of Sulfur-Derivatized Single Stranded DNA on Gold by Atomic Force Microscopy and the Cantilever Bending Technique. Sensor Letters, 2006, 4, 275-280.	0.4	2
105	Characterization of semiconductor heterostructures and quantum dots by friction force microscopy. Applied Surface Science, 1998, 123-124, 339-342.	6.1	1
106	Inside track weighs in with solution. Nature Nanotechnology, 2007, 2, 342-343.	31.5	1
107	Interaction of viral ATPases with nucleotides measured with a microcantilever. Sensors and Actuators B: Chemical, 2012, 171-172, 263-270.	7.8	1
108	Spatially Multiplexed Micro-Spectrophotometry in Bright Field Mode for Thin Film Characterization. Sensors, 2016, 16, 926.	3.8	1

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109	Technological Platforms Based on Micro/Nanobiosensors as Early Warning Systems for Biological Warfare. , 2005, , 175-197.		1
110	Compositional Characterization of III-V Semiconductor Heterostructures by Friction Force Microscopy. , 1997, , 275-282.		1
111	Scanning tunneling microscopy modification of purple membranes. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1995, 13, 1737-1741.	2.1	0
112	Detection of cancer biomarkers in serum by merging nanomechanics and optoplasmonics. , 2015, , .		0