# Javier Tamayo

## List of Publications by Year in descending order



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|---|---|---|---|
| 112 papers | 6,292 citations | 70961 41 h-index | 69108 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. | 1.6 | 451 |
| 2 | Biosensors based on nanomechanical systems. Chemical Society Reviews, 2013, 42, 1287-1311. | 18.7 | 334 |
| 3 | Relationship between phase shift and energy dissipation in tapping-mode scanning force microscopy. Applied Physics Letters, 1998, 73, 2926-2928. | 1.5 | 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. | 1.5 | 267 |
| 5 | Nanomechanical mass sensing and stiffness spectrometry based on two-dimensional vibrations of resonant nanowires. Nature Nanotechnology, 2010, 5, 641-645. | 15.6 | 235 |
| 6 | Detection of cancer biomarkers in serum using a hybrid mechanical and optoplasmonic nanosensor. Nature Nanotechnology, 2014, 9, 1047-1053. | 15.6 | 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. | 7.3 | 197 |
| 8 | Interpretation of Contrast in Tapping Mode AFM and Shear Force Microscopy. A Study of Nafion. Langmuir, 2001, 17, 349-360. | 1.6 | 195 |
| 9 | Label-free detection of DNA hybridization based on hydration-induced tension in nucleic acid films. Nature Nanotechnology, 2008, 3, 301-307. | 15.6 | 194 |
| 10 | Chemical sensors and biosensors in liquid environment based on microcantilevers with amplified quality factor. Ultramicroscopy, 2001, 86, 167-173. | 0.8 | 175 |
| 11 | Development of nanomechanical biosensors for detection of the pesticide DDT. Biosensors and Bioelectronics, 2003, 18, 649-653. | 5.3 | 155 |
| 12 | Highly sensitive polymer-based cantilever-sensors for DNA detection. Ultramicroscopy, 2005, 105, 215-222. | 0.8 | 153 |
| 13 | Effect of the adsorbate stiffness on the resonance response of microcantilever sensors. Applied Physics Letters, 2006, 89, 224104. | 1.5 | 151 |
| 14 | High-Q Dynamic Force Microscopy in Liquid and Its Application to Living Cells. Biophysical Journal, 2001, 81, 526-537. | 0.2 | 140 |
| 15 | Piconewton regime dynamic force microscopy in liquid. Applied Physics Letters, 2000, 77, 582-584. | 1.5 | 137 |
| 16 | Phase contrast and surface energy hysteresis in tapping mode scanning force microsopy. Surface and Interface Analysis, 1999, 27, 312-316. | 0.8 | 132 |
| 17 | Active Quality Factor Control in Liquids for Force Spectroscopy. Langmuir, 2000, 16, 7891-7894. | 1.6 | 121 |
| 18 | Origin of the response of nanomechanical resonators to bacteria adsorption. Journal of Applied Physics, 2006, 100, 106105. | 1.1 | 106 |

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|---|---|---|---|
| 19 | Photothermal excitation of microcantilevers in liquids. Journal of Applied Physics, 2006, 99, 124904. | 1.1 | 105 |
| 20 | Mass Sensing Based on Deterministic and Stochastic Responses of Elastically Coupled Nanocantilevers. Nano Letters, 2009, 9, 4122-4127. | 4.5 | 104 |
| 21 | Nanomechanics of the Formation of DNA Self-Assembled Monolayers and Hybridization on Microcantilevers. Langmuir, 2004, 20, 9663-9668. | 1.6 | 97 |
| 22 | Challenges for nanomechanical sensors in biological detection. Nanoscale, 2012, 4, 4925. | 2.8 | 92 |
| 23 | Mass and stiffness spectrometry of nanoparticles and whole intact bacteria by multimode nanomechanical resonators. Nature Communications, 2016, 7, 13452. | 5.8 | 91 |
| 24 | Optomechanical detection of vibration modes of a single bacterium. Nature Nanotechnology, 2020, 15, 469-474. | 15.6 | 90 |
| 25 | Study of the noise of micromechanical oscillators under quality factor enhancement via driving force control. Journal of Applied Physics, 2005, 97, 044903. | 1.1 | 71 |
| 26 | A highly sensitive microsystem based on nanomechanical biosensors for genomics applications. Sensors and Actuators B: Chemical, 2006, 118, 2-10. | 4.0 | 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. | 1.5 | 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. | 1.3 | 63 |
| 30 | Energy dissipation in tapping-mode scanning force microscopy with low quality factors. Applied Physics Letters, 1999, 75, 3569-3571. | 1.5 | 62 |
| 31 | Phototermal self-excitation of nanomechanical resonators in liquids. Applied Physics Letters, 2008, 92, 173108. | 1.5 | 62 |
| 32 | Arrays of Dual Nanomechanical Resonators for Selective Biological Detection. Analytical Chemistry, 2009, 81, 2274-2279. | 3.2 | 58 |
| 33 | Phase contrast in tapping-mode scanning force microscopy. Applied Physics A: Materials Science and Processing, 1998, 66, S309-S312. | 1.1 | 56 |
| 34 | Optical sequential readout of microcantilever arrays for biological detection. Sensors and Actuators B: Chemical, 2005, 106, 687-690. | 4.0 | 54 |
| 35 | Transition from selfâ€organized InSb quantumâ€dots to quantum dashes. Applied Physics Letters, 1996, 69, 2674-2676. | 1.5 | 53 |
| 36 | Study of the origin of bending induced by bimetallic effect on microcantilever. Sensors, 2007, 7, 1757-1765. | 2.1 | 52 |

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|---|---|---|---|
| 37 | How two-dimensional bending can extraordinarily stiffen thin sheets. Scientific Reports, 2016, 6, 29627. | 1.6 | 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. | 1.1 | 50 |
| 39 | Real-time profile of microcantilevers for sensing applications. Applied Physics Letters, 2005, 87, 234102. | 1.5 | 45 |
| 40 | Role of the gold film nanostructure on the nanomechanical response of microcantilever sensors. Journal of Applied Physics, 2007, 101, 034904. | 1.1 | 45 |
| 41 | High throughput optical readout of dense arrays of nanomechanical systems for sensing applications. Review of Scientific Instruments, 2010, 81, 125109. | 0.6 | 42 |
| 42 | Optomechanics with Silicon Nanowires by Harnessing Confined Electromagnetic Modes. Nano Letters, 2012, 12, 932-937. | 4.5 | 40 |
| 43 | Quantification of the surface stress in microcantilever biosensors: revisiting Stoneyâ€™s equation. Nanotechnology, 2012, 23, 475702. | 1.3 | 40 |
| 44 | Exponential tuning of the coupling constant of coupled microcantilevers by modifying their separation. Applied Physics Letters, 2011, 98, . | 1.5 | 37 |
| 45 | Human chromosome structure studied by scanning force microscopy after an enzymatic digestion of the covering cell material. Ultramicroscopy, 2000, 82, 245-251. | 0.8 | 36 |
| 46 | Imaging the surface stress and vibration modes of a microcantilever by laser beam deflection microscopy. Nanotechnology, 2012, 23, 315501. | 1.3 | 36 |
| 47 | Silicon nanowires: where mechanics and optics meet at the nanoscale. Scientific Reports, 2013, 3, 3445. | 1.6 | 36 |
| 48 | Physics of Nanomechanical Spectrometry of Viruses. Scientific Reports, 2014, 4, 6051. | 1.6 | 36 |
| 49 | Shedding Light on Axial Stress Effect on Resonance Frequencies of Nanocantilevers. ACS Nano, 2011, 5, 4269-4275. | 7.3 | 34 |
| 50 | Effect of water-DNA interactions on elastic properties of DNA self-assembled monolayers. Scientific Reports, 2017, 7, 536. | 1.6 | 33 |
| 51 | Optomechanical devices for deep plasma cancer proteomics. Seminars in Cancer Biology, 2018, 52, 26-38. | 4.3 | 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. | 1.3 | 28 |
| 53 | Measurement of the Mass and Rigidity of Adsorbates on a Microcantilever Sensor. Sensors, 2007, 7, 1834-1845. | 2.1 | 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. | 1.3 | 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. | 1.7 | 25 |
| 56 | Effects of energy metabolism on the mechanical properties of breast cancer cells. Communications Biology, 2020, 3, 590. | 2.0 | 25 |
| 57 | Dimension dependence of the thermomechanical noise of microcantilevers. Journal of Applied Physics, 2006, 99, 024910. | 1.1 | 24 |
| 58 | Digital tuning of the quality factor of micromechanical resonant biological detectors. Sensors and Actuators B: Chemical, 2003, 89, 33-39. | 4.0 | 23 |
| 59 | Underlying mechanisms of the self-sustained oscillation of a nanomechanical stochastic resonator in a liquid. Physical Review B, 2007, 76, . | 1.1 | 23 |
| 60 | Highly Sensitive Measurement of Liquid Density in Air Using Suspended Microcapillary Resonators. Sensors, 2015, 15, 7650-7657. | 2.1 | 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. | 3.2 | 22 |
| 62 | Spatially multiplexed dark-field microspectrophotometry for nanoplasmonics. Scientific Reports, 2016, 6, 22836. | 1.6 | 22 |
| 63 | Structure of human chromosomes studied by atomic force microscopy. Journal of Structural Biology, 2003, 141, 198-207. | 1.3 | 21 |
| 64 | Atomic force microscopy reveals two phases in single stranded DNA self-assembled monolayers. Nanoscale, 2013, 5, 7425. | 2.8 | 21 |
| 65 | Nanomechanical Plasmon Spectroscopy of Single Gold Nanoparticles. Nano Letters, 2018, 18, 7165-7170. | 4.5 | 21 |
| 66 | Optical back-action in silicon nanowire resonators: bolometric versus radiation pressure effects. New Journal of Physics, 2013, 15, 035001. | 1.2 | 20 |
| 67 | Tapered silicon nanowires for enhanced nanomechanical sensing. Applied Physics Letters, 2013, 103, . | 1.5 | 19 |
| 68 | High Dynamic Range Nanowire Resonators. Nano Letters, 2021, 21, 6617-6624. | 4.5 | 19 |
| 69 | Structure of human chromosomes studied by atomic force microscopy. Journal of Structural Biology, 2003, 141, 189-197. | 1.3 | 18 |
| 70 | Hydration Induced Stress on DNA Monolayers Grafted on Microcantilevers. Langmuir, 2014, 30, 10962-10969. | 1.6 | 18 |
| 71 | Mechano-Optical Analysis of Single Cells with Transparent Microcapillary Resonators. ACS Sensors, 2019, 4, 3325-3332. | 4.0 | 18 |
| 72 | A Review on Theory and Modelling of Nanomechanical Sensors for Biological Applications. Processes, 2021, 9, 164. | 1.3 | 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. | 1.6 | 17 |
| 74 | Compositional mapping of semiconductor structures by friction force microscopy. Applied Physics Letters, 1996, 68, 2297-2299. | 1.5 | 16 |
| 75 | T-shaped microcantilever sensor with reduced deflection offset. Applied Physics Letters, 2006, 89, 094109. | 1.5 | 16 |
| 76 | Stress and DNA Assembly Differences on Cantilevers Gold Coated by Resistive and E-Beam Evaporation Techniques. Langmuir, 2009, 25, 10633-10638. | 1.6 | 16 |
| 77 | Horizontally patterned Si nanowire growth for nanomechanical devices. Nanotechnology, 2013, 24, 095303. | 1.3 | 16 |
| 78 | Effect of surface stress induced curvature on the eigenfrequencies of microcantilever plates. AIP Advances, 2018, 8, . | 0.6 | 14 |
| 79 | A very low current scanning tunneling microscope. Review of Scientific Instruments, 1995, 66, 4876-4879. | 0.6 | 13 |
| 80 | Submonolayer sensitivity of InSb on InP determined by friction-force microscopy. Physical Review B, 1997, 55, R13436-R13439. | 1.1 | 13 |
| 81 | Optical Transduction for Vertical Nanowire Resonators. Nano Letters, 2020, 20, 2359-2369. | 4.5 | 13 |
| 82 | Decrease of the resonance bandwidth of micromechanical oscillators by phase control of the driving force. Applied Physics Letters, 2003, 82, 2919-2921. | 1.5 | 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, . | 1.5 | 12 |
| 84 | Monitoring swelling and deswelling of thin polymer films by microcantilever sensors. Sensors and Actuators B: Chemical, 2014, 204, 602-610. | 4.0 | 12 |
| 85 | Monitoring the hydration of DNA self-assembled monolayers using an extensional nanomechanical resonator. Lab on A Chip, 2012, 12, 2069. | 3.1 | 10 |
| 86 | Coherent Optical Transduction of Suspended Microcapillary Resonators for Multi-Parameter Sensing Applications. Sensors, 2019, 19, 5069. | 2.1 | 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. | 1.1 | 7 |
| 89 | Optomechanics to the rescue. Nature Nanotechnology, 2015, 10, 738-739. | 15.6 | 7 |
| 90 | Effect of particle adsorption on the eigenfrequencies of nano-mechanical resonators. Journal of Applied Physics, 2020, 128, . | 1.1 | 7 |

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|---|---|---|---|
| 91 | Nanomechanical Molecular Mass Sensing Using Suspended Microchannel Resonators. Sensors, 2021, 21, 3337. | 2.1 | 7 |
| 92 | Scanning tunneling microscopy imaging and selective modification of purple membranes. International Journal of Imaging Systems and Technology, 1997, 8, 168-174. | 2.7 | 6 |
| 93 | Growth and characterization of self-organized InSb quantum dots and quantum dashes. Journal of Crystal Growth, 1997, 175-176, 725-729. | 0.7 | 6 |
| 94 | Ultrasensitive thermometer for atmospheric pressure operation based on a micromechanical resonator. Sensors and Actuators B: Chemical, 2014, 202, 339-345. | 4.0 | 6 |
| 95 | Stepwise motion of a microcantilever driven by the hydrolysis of viral ATPases. Nanotechnology, 2012, 23, 015501. | 1.3 | 5 |
| 96 | Optimization of the readout of microdrum optomechanical resonators. Microelectronic Engineering, 2017, 183-184, 37-41. | 1.1 | 5 |
| 97 | Buffer layer morphology effects on the ordering of epitaxial FePd(001) thin films. Acta Materialia, 1998, 46, 2299-2303. | 3.8 | 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. | 5.3 | 4 |
| 99 | Hydrodynamic assisted multiparametric particle spectrometry. Scientific Reports, 2021, 11, 3535. | 1.6 | 4 |
| 100 | Friction force microscopy characterization of semiconductor heterostructures. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 1996, 42, 122-126. | 1.7 | 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. | 3.2 | 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. | 3.1 | 1 |
| 106 | Inside track weighs in with solution. Nature Nanotechnology, 2007, 2, 342-343. | 15.6 | 1 |
| 107 | Interaction of viral ATPases with nucleotides measured with a microcantilever. Sensors and Actuators B: Chemical, 2012, 171-172, 263-270. | 4.0 | 1 |
| 108 | Spatially Multiplexed Micro-Spectrophotometry in Bright Field Mode for Thin Film Characterization. Sensors, 2016, 16, 926. | 2.1 | 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. | 0.9 | 0 |
| 112 | Detection of cancer biomarkers in serum by merging nanomechanics and optoplasmonics. , 2015, , . | | 0 |