S O Reza Moheimani

List of Publications by Citations

143 papers	4,565 citations	33 h-index	65 g-index
164 ext. papers	5,321 ext. citations	3 avg, IF	6.05 L-index

#	Paper	IF	Citations
143	A Survey of Control Issues in Nanopositioning. *IEEE Transactions on Control Systems Technology*, **2007**, 15, 802-823	4.8	723
142	Design, Identification, and Control of a Flexure-Based XY Stage for Fast Nanoscale Positioning. *IEEE Nanotechnology Magazine*, **2009**, 8, 46-54	2.6	257
141	Invited review article: accurate and fast nanopositioning with piezoelectric tube scanners: emerging trends and future challenges. *Review of Scientific Instruments*, **2008**, 79, 071101	1.7	167
140	Resonant controllers for smart structures. *Smart Materials and Structures*, **2002**, 11, 1-8	3.4	145
139	Integral resonant control of collocated smart structures. *Smart Materials and Structures*, **2007**, 16, 439-446	3.4	139
138	A New Method for Robust Damping and Tracking Control of Scanning Probe Microscope Positioning Stages. *IEEE Nanotechnology Magazine*, **2010**, 9, 438-448	2.6	130
137	High-Performance Control of Piezoelectric Tube Scanners. *IEEE Transactions on Control Systems Technology*, **2007**, 15, 853-866	4.8	123
136	Integral Resonant Control for Vibration Damping and Precise Tip-Positioning of a Single-Link Flexible Manipulator. *IEEE/ASME Transactions on Mechatronics*, **2011**, 16, 232-240	5.5	117
135	Integral Resonant Control of a Piezoelectric Tube Actuator for Fast Nanoscale Positioning. *IEEE/ASME Transactions on Mechatronics*, **2008**, 13, 530-537	5.5	113
134	A New Scanning Method for Fast Atomic Force Microscopy. *IEEE Nanotechnology Magazine*, **2011**, 10, 203-216	2.6	108
133	High-speed Lissajous-scan atomic force microscopy: scan pattern planning and control design issues. *Review of Scientific Instruments*, **2012**, 83, 063701	1.7	107
132	Making a commercial atomic force microscope more accurate and faster using positive position feedback control. *Review of Scientific Instruments*, **2009**, 80, 063705	1.7	101
131	Fast spiral-scan atomic force microscopy. *Nanotechnology*, **2009**, 20, 365503	3.4	100
130	. *IEEE Transactions on Control Systems Technology*, **2010**, 18, 1172-1179	4.8	99
129	Minimizing Scanning Errors in Piezoelectric Stack-Actuated Nanopositioning Platforms. *IEEE Nanotechnology Magazine*, **2008**, 7, 79-90	2.6	99
128	High-bandwidth control of a piezoelectric nanopositioning stage in the presence of plant uncertainties. *Nanotechnology*, **2008**, 19, 125503	3.4	91
127	A Negative Imaginary Approach to Modeling and Control of a Collocated Structure. *IEEE/ASME Transactions on Mechatronics*, **2012**, 17, 717-727	5.5	84

126	Model Predictive Control Applied to Constraint Handling in Active Noise and Vibration Control. *IEEE Transactions on Control Systems Technology*, **2008**, 16, 3-12	4.8	80
125	Adaptive multi-mode resonant piezoelectric shunt damping. *Smart Materials and Structures*, **2004**, 13, 1025-1035	3.4	76
124	Achieving Subnanometer Precision in a MEMS-Based Storage Device During Self-Servo Write Process. *IEEE Nanotechnology Magazine*, **2008**, 7, 586-595	2.6	65
123	A 2-DOF MEMS Ultrasonic Energy Harvester. *IEEE Sensors Journal*, **2011**, 11, 155-161	4	51
122	Sensor Fusion for Improved Control of Piezoelectric Tube Scanners. *IEEE Transactions on Control Systems Technology*, **2008**, 16, 1265-1276	4.8	49
121	Video-Rate Lissajous-Scan Atomic Force Microscopy. *IEEE Nanotechnology Magazine*, **2014**, 13, 85-93	2.6	47
120	Tracking of Triangular References Using Signal Transformation for Control of a Novel AFM Scanner Stage. *IEEE Transactions on Control Systems Technology*, **2012**, 20, 453-464	4.8	45
119	Q Control of an Atomic Force Microscope Microcantilever: A Sensorless Approach. *Journal of Microelectromechanical Systems*, **2011**, 20, 1372-1381	2.5	44
118	Spatial Control of Vibration. *Series on Stability, Vibration and Control of Systems - Series A*, **2003**,		42
117	. *IEEE/ASME Transactions on Mechatronics*, **2017**, 22, 371-380	5.5	40
116	. *Journal of Microelectromechanical Systems*, **2014**, 23, 610-619	2.5	40
115	Precise Tip Positioning of a Flexible Manipulator Using Resonant Control. *IEEE/ASME Transactions on Mechatronics*, **2008**, 13, 180-186	5.5	39
114	On the feedback structure of wideband piezoelectric shunt damping systems. *Smart Materials and Structures*, **2003**, 12, 49-56	3.4	35
113	Design, Modeling, and Control of a Micromachined Nanopositioner With Integrated Electrothermal Actuation and Sensing. *Journal of Microelectromechanical Systems*, **2011**, 20, 711-719	2.5	34
112	Bidirectional Electrothermal Actuator With Z-Shaped Beams. *IEEE Sensors Journal*, **2012**, 12, 2508-2509	4	33
111	Control of Resonant Acoustic Sound Fields by Electrical Shunting of a Loudspeaker. *IEEE Transactions on Control Systems Technology*, **2007**, 15, 689-703	4.8	33
110	. *Journal of Microelectromechanical Systems*, **2015**, 24, 1164-1172	2.5	32
109	A serial-kinematic nanopositioner for high-speed atomic force microscopy. *Review of Scientific Instruments*, **2014**, 85, 105104	1.7	31

108	Control of a piezoelectrically actuated high-speed serial-kinematic AFM nanopositioner. *Smart Materials and Structures*, **2014**, 23, 025030	3.4	31
107	Subspace-Based System Identification for an Acoustic Enclosure. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2002**, 124, 414-419	1.6	31
106	A novel self-sensing technique for tapping-mode atomic force microscopy. *Review of Scientific Instruments*, **2013**, 84, 125006	1.7	30
105	. *Journal of Microelectromechanical Systems*, **2014**, 23, 1249-1251	2.5	30
104	Simultaneous sensing and actuation with a piezoelectric tube scanner. *Review of Scientific Instruments*, **2008**, 79, 073702	1.7	30
103	High-bandwidth multimode self-sensing in bimodal atomic force microscopy. *Beilstein Journal of Nanotechnology*, **2016**, 7, 284-95	3	30
102	A review of demodulation techniques for amplitude-modulation atomic force microscopy. *Beilstein Journal of Nanotechnology*, **2017**, 8, 1407-1426	3	29
101	Multimode Q Control in Tapping-Mode AFM: Enabling Imaging on Higher Flexural Eigenmodes. *IEEE Transactions on Control Systems Technology*, **2016**, 24, 1149-1159	4.8	29
100	A High-Bandwidth MEMS Nanopositioner for On-Chip AFM: Design, Characterization, and Control. *IEEE Transactions on Control Systems Technology*, **2015**, 23, 504-512	4.8	29
99	Atomic force microscopy with a 12-electrode piezoelectric tube scanner. *Review of Scientific Instruments*, **2010**, 81, 033701	1.7	29
98	MEMS for Nanopositioning: Design and Applications. *Journal of Microelectromechanical Systems*, **2017**, 26, 469-500	2.5	26
97	A Kalman Filter for Amplitude Estimation in High-Speed Dynamic Mode Atomic Force Microscopy. *IEEE Transactions on Control Systems Technology*, **2016**, 24, 276-284	4.8	26
96	. *Journal of Microelectromechanical Systems*, **2017**, 26, 215-225	2.5	25
95	Control Methods in Data-Storage Systems. *IEEE Transactions on Control Systems Technology*, **2012**, 20, 296-322	4.8	24
94	Internal Model Control for Spiral Trajectory Tracking With MEMS AFM Scanners. *IEEE Transactions on Control Systems Technology*, **2016**, 24, 1717-1728	4.8	23
93	. *IEEE Nanotechnology Magazine*, **2015**, 14, 338-345	2.6	23
92	Minimizing the Effect of Out of Bandwidth Modes in Truncated Structure Models. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2000**, 122, 237-239	1.6	23
91	High-Bandwidth Demodulation in MF-AFM: A Kalman Filtering Approach. *IEEE/ASME Transactions on Mechatronics*, **2016**, 21, 2705-2715	5.5	22

90	High-stroke silicon-on-insulator MEMS nanopositioner: control design for non-raster scan atomic force microscopy. *Review of Scientific Instruments*, **2015**, 86, 023705	1.7	21
89	A 2DOF SOI-MEMS Nanopositioner With Tilted Flexure Bulk Piezoresistive Displacement Sensors. *IEEE Sensors Journal*, **2016**, 16, 1908-1917	4	20
88	Control of a Novel 2-DoF MEMS Nanopositioner With Electrothermal Actuation and Sensing. *IEEE Transactions on Control Systems Technology*, **2014**, 22, 1486-1497	4.8	20
87	Signal transformation approach to fast nanopositioning. *Review of Scientific Instruments*, **2009**, 80, 076101	1.7	20
86	Tracking Control of a Nanopositioner Using Complementary Sensors. *IEEE Nanotechnology Magazine*, **2009**, 8, 55-65	2.6	19
85	Displacement Measurement With a Self-Sensing MEMS Electrostatic Drive. *Journal of Microelectromechanical Systems*, **2014**, 23, 511-513	2.5	18
84	Design and Analysis of Nonuniformly Shaped Heaters for Improved MEMS-Based Electrothermal Displacement Sensing. *Journal of Microelectromechanical Systems*, **2013**, 22, 687-694	2.5	18
83	. *Journal of Microelectromechanical Systems*, **2015**, 24, 1594-1605	2.5	16
82	On-Chip Feedthrough Cancellation Methods for Microfabricated AFM Cantilevers With Integrated Piezoelectric Transducers. *Journal of Microelectromechanical Systems*, **2017**, 26, 1287-1297	2.5	16
81	Frequency Modulation Technique for MEMS Resistive Sensing. *IEEE Sensors Journal*, **2012**, 12, 2690-2698	4	16
80	Video-Rate Non-Raster AFM Imaging With Cycloid Trajectory. *IEEE Transactions on Control Systems Technology*, **2020**, 28, 436-447	4.8	15
79	Q Control of an Active AFM Cantilever With Differential Sensing Configuration. *IEEE Transactions on Control Systems Technology*, **2019**, 27, 2271-2278	4.8	13
78	Zero displacement microelectromechanical force sensor using feedback control. *Applied Physics Letters*, **2014**, 104, 153502	3.4	13
77	Minimizing the Truncation Error in Assumed Modes Models of Structures. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2000**, 122, 332-335	1.6	13
76	On the effect of local barrier height in scanning tunneling microscopy: Measurement methods and control implications. *Review of Scientific Instruments*, **2018**, 89, 013701	1.7	11
75	Scanning Tunneling Microscope Control: A Self-Tuning PI Controller Based on Online Local Barrier Height Estimation*. *IEEE Transactions on Control Systems Technology*, **2019**, 27, 2004-2015	4.8	11
74	Rosette-scan video-rate atomic force microscopy: Trajectory patterning and control design. *Review of Scientific Instruments*, **2019**, 90, 073702	1.7	10
73	Stability analysis of a Scanning Tunneling Microscope control system **2017**,		10

72	Vibration Control With MEMS Electrostatic Drives: A Self-Sensing Approach. *IEEE Transactions on Control Systems Technology*, **2015**, 23, 1237-1244	4.8	10
71	A compact XYZ scanner for fast atomic force microscopy in constant force contact mode **2010**,		10
70	High Dynamic Range AFM Cantilever With a Collocated Piezoelectric Actuator-Sensor Pair. *Journal of Microelectromechanical Systems*, **2020**, 29, 260-267	2.5	9
69	Sensorless Implementation of a PPF Controller for Active Q Control of an AFM Microcantilever. *IEEE Transactions on Control Systems Technology*, **2014**, 22, 2118-2126	4.8	9
68	A 3-DoF MEMS ultrasonic energy harvester **2012**,		9
67	A high bandwidth microelectromechanical system-based nanopositioner for scanning tunneling microscopy. *Review of Scientific Instruments*, **2019**, 90, 073706	1.7	8
66	Improvement of Transient Response in Signal Transformation Approach by Proper Compensator Initialization. *IEEE Transactions on Control Systems Technology*, **2014**, 22, 729-736	4.8	8
65	Highly parallel scanning tunneling microscope based hydrogen depassivation lithography. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2018**, 36, 06JL05	1.3	8
64	Kalman Filter Enabled High-Speed Control of a MEMS Nanopositioner. *IFAC-PapersOnLine*, **2017**, 50, 15554-15560	0.7	7
63	MEMS Nanopositioner for On-Chip Atomic Force Microscopy: A Serial Kinematic Design. *Journal of Microelectromechanical Systems*, **2015**, 24, 1730-1740	2.5	7
62	A Switched Gain Resonant Controller to Minimize Image Artifacts in Intermittent Contact Mode Atomic Force Microscopy. *IEEE Nanotechnology Magazine*, **2012**, 11, 1126-1134	2.6	7
61	Spiral-scan Atomic Force Microscopy: A constant linear velocity approach **2010**,		7
60	Iterative Learning Control for Video-Rate Atomic Force Microscopy. *IEEE/ASME Transactions on Mechatronics*, **2021**, 26, 2127-2138	5.5	7
59	A Novel State Transformation Approach to Tracking of Piecewise Linear Trajectories. *IEEE Transactions on Control Systems Technology*, **2018**, 26, 128-138	4.8	6
58	A self-tuning controller for high-performance scanning tunneling microscopy **2017**,		6
57	Note: A silicon-on-insulator microelectromechanical systems probe scanner for on-chip atomic force microscopy. *Review of Scientific Instruments*, **2015**, 86, 046107	1.7	6
56	Signal Transformation Approach to Tracking Control With Arbitrary References. *IEEE Transactions on Automatic Control*, **2012**, 57, 2294-2307	5.9	6
55	Design and Characterization of a 2-DOF MEMS Ultrasonic Energy Harvester With Triangular Electrostatic Electrodes. *IEEE Electron Device Letters*, **2013**, 34, 1421-1423	4.4	6

54	A new piezoelectric tube scanner for simultaneous sensing and actuation **2009**,		6
53	AFM Microcantilever With a Collocated AlN Sensor-Actuator Pair: Enabling Efficient Q-Control for Dynamic Imaging. *Journal of Microelectromechanical Systems*, **2020**, 29, 661-668	2.5	6
52	Novel Reciprocal Self-Sensing Techniques for Tapping-Mode Atomic Force Microscopy. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2014**, 47, 7474-7479		5
51	Multi-mode resonant control of a microcantilever for Atomic Force Microscopy **2013**,		5
50	A novel serial-kinematic AFM scanner: Design and characterization **2011**,		5
49	An SOI-MEMS Piezoelectric Torsional Stage With Bulk Piezoresistive Sensors. *IEEE Sensors Journal*, **2017**, 17, 3030-3040	4	4
48	Q control of a microfabricated piezoelectric cantilever with on-chip feedthrough cancellation **2017**,		4
47	Quality factor enhancement of an Atomic Force Microscope micro-cantilever using piezoelectric shunt control **2012**,		4
46	A hybrid control strategy for vibration damping and precise tip-positioning of a single-link flexible manipulator **2009**,		4
45	Design, analysis and control of a fast nanopositioning stage **2008**,		4
44	State estimation for high-speed multifrequency atomic force microscopy **2016**,		4
43	Controlled removal of hydrogen atoms from H-terminated silicon surfaces. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2020**, 38, 040601	1.3	3
42	A High Dynamic Range Closed-Loop Stiffness-Adjustable MEMS Force Sensor. *Journal of Microelectromechanical Systems*, **2020**, 29, 397-407	2.5	3
41	On the modeling of tilted fixed-guided flexible beams under tension. *Acta Mechanica*, **2016**, 227, 333-352	2.1	3
40	Design and characterisation of a serial-kinematic nanopositioner for high-speed AFM **2014**,		3
39	A Comprehensive Analysis of MEMS Electrothermal Displacement Sensors. *IEEE Sensors Journal*, **2014**, 14, 3183-3192	4	3
38	Design, modeling, and characterization of a MEMS micro-gripper with an integrated electrothermal force sensor **2013**,		3
37	A new robust damping and tracking controller for SPM positioning stages **2009**,		3

36	**2009**,		3
35	SOI-MEMS Bulk Piezoresistive Displacement Sensor: A Comparative Study of Readout Circuits. *Journal of Microelectromechanical Systems*, **2020**, 29, 43-53	2.5	3
34	A MEMS Nanopositioner With Integrated Tip for Scanning Tunneling Microscopy. *Journal of Microelectromechanical Systems*, **2021**, 30, 271-280	2.5	3
33	A switched actuation and sensing method for a MEMS electrostatic drive **2016**,		3
32	Design, Fabrication, and Characterization of a Piezoelectric AFM Cantilever Array **2019**,		3
31	A High Dynamic Range AFM Probe with Collocated Piezoelectric Transducer Pairs **2020**,		3
30	A Novel Non-Raster Scan Method for AFM Imaging **2018**,		3
29	Simultaneous Actuation and Sensing for Electrostatic Drives in MEMS using Frequency Modulated Capacitive Sensing. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2014**, 47, 6545-6549		2
28	Control of a high-speed nanopositioner for Lissajous-scan video-rate AFM **2013**,		2
27	Multi-Mode Q Control in Multifrequency Atomic Force Microscopy **2015**,		2
26	4-DOF SOI-MEMS ultrasonic energy harvester **2015**,		2
25	MEMS Nanopositioner for Lissajous-Scan Atomic Force Microscopy **2014**,		2
24	Characterization of a 2-DoF MEMS nanopositioner with integrated electrothermal actuation and sensing **2012**,		2
23	Analog implementation of a damping and tracking controller for a high-speed X-Y nanopositioner **2012**,		2
22	Improved electrothermal position sensing in MEMS with non-uniformly shaped heaters **2012**,		2
21	Q Control of an AFM Microcantilever with Double-Stack AlN Sensors and Actuators. *IEEE Sensors Journal*, **2022**, 1-1	4	2
20	A new approach to removing H atoms in hydrogen depassivation lithography **2020**,		2
19	FPGA-Based Characterization and Q-Control of an Active AFM Cantilever **2020**,		2

18	Modal Actuation and Sensing With an Active AFM Cantilever. *IEEE Sensors Journal*, **2021**, 21, 8950-8959	4	2
17	A 4-DOF MEMS Energy Harvester Using Ultrasonic Excitation. *IEEE Sensors Journal*, **2016**, 16, 7774-7783	4	2
16	Characterization of a Tilted-beam Piezoresistive MEMS Sensor with Current-drive Readout Circuit **2019**,		2
15	Iterative Learning Control for High-Speed Rosette Trajectory Tracking **2019**,		2
14	Atomic precision imaging with an on-chip scanning tunneling microscope integrated into a commercial ultrahigh vacuum STM system. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2021**, 39, 040603	1.3	2
13	A Comparison of Two Excitation Modes for MEMS Electrothermal Displacement Sensors. *IEEE Electron Device Letters*, **2014**, 35, 584-586	4.4	1
12	Active piezoelectric shunt control of an Atomic Force Microscope micro-cantilever **2013**,		1
11	Tracking of spiral trajectories beyond scanner resonance frequency by a MEMS nanopositioner **2015**,		1
10	Guest Editorial Introduction to the Special Section on Advanced Servo Control for Emerging Data Storage Systems. *IEEE Transactions on Control Systems Technology*, **2012**, 20, 292-295	4.8	1
9	Realization of a class of compensators by modulated-demodulated structures with application in tracking of biased sinusoids **2013**,		1
8	A micromachined 2DOF nanopositioner with integrated capacitive displacement sensor **2010**,		1
7	Correction to "Minimizing Scanning Errors in Piezoelectric Stack-Actuated Nanopositioning Platforms" [Jan 08 79-90]. *IEEE Nanotechnology Magazine*, **2009**, 8, 560-560	2.6	1
6	High signal-to-noise ratio differential conductance spectroscopy. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2021**, 39, 010601	1.3	1
5	Convex Synthesis of SNI Controllers Based on Frequency-Domain Data: MEMS Nanopositioner Example. *IEEE Transactions on Control Systems Technology*, **2021**, 1-12	4.8	1
4	Ultrafast method for scanning tunneling spectroscopy. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2021**, 39, 042802	1.3	0
3	Atomic-resolution lithography with an on-chip scanning tunneling microscope. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2022**, 40, 030603	1.3	0
2	Sensorless Damping Control of a High Speed Flexure Guided Nanopositioner. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2014**, 47, 2058-2063		
1	High-Speed, Ultra-High-Precision Nanopositioning: A Signal Transformation Approach. *Lecture Notes in Control and Information Sciences*, **2011**, 47-65	0.5	