Hu Huang

List of Publications by Year
in descending order

115 papers	2,347 citations	218677 26 h-index	276875 41 g-index
119 all docs	119 docs citations	119 times ranked	1082 citing authors

#	Article	IF	Citations
1	Stepping piezoelectric actuators with large working stroke for nano-positioning systems: A review. Sensors and Actuators A: Physical, 2019, 292, 39-51.	4.1	173
2	A piezoelectric-driven rotary actuator by means of inchworm motion. Sensors and Actuators A: Physical, 2013, 194, 269-276.	4.1	122
3	A Piezoelectric-Driven Linear Actuator by Means of Coupling Motion. IEEE Transactions on Industrial Electronics, 2018, 65, 2458-2466.	7.9	121
4	On the Suppression of the Backward Motion of a Piezo-Driven Precision Positioning Platform Designed by the Parasitic Motion Principle. IEEE Transactions on Industrial Electronics, 2020, 67, 3870-3878.	7.9	66
5	A novel driving principle by means of the parasitic motion of the microgripper and its preliminary application in the design of the linear actuator. Review of Scientific Instruments, 2012, 83, 055002.	1.3	60
6	Research on the effects of machining-induced subsurface damages on mono-crystalline silicon via molecular dynamics simulation. Applied Surface Science, 2012, 259, 66-71.	6.1	59
7	On the surface characteristics of a Zr-based bulk metallic glass processed by microelectrical discharge machining. Applied Surface Science, 2015, 355, 1306-1315.	6.1	57
8	Influence of double-tip scratch and single-tip scratch on nano-scratching process via molecular dynamics simulation. Applied Surface Science, 2013, 280, 751-756.	6.1	53
9	Suppressing the backward motion of a stickâ€“slip piezoelectric actuator by means of the sequential control method (SCM). Mechanical Systems and Signal Processing, 2020, 143, 106855.	8.0	53
10	A stick-slip piezoelectric actuator with measurable contact force. Mechanical Systems and Signal Processing, 2020, 144, 106881.	8.0	51
11	Micro machining of bulk metallic glasses: a review. International Journal of Advanced Manufacturing Technology, 2019, 100, 637-661.	3.0	44
12	Nanosecond pulsed laser irradiation induced hierarchical micro/nanostructures on Zr-based metallic glass substrate. Materials and Design, 2016, 109, 153-161.	7.0	43
13	Surface patterning of Zr-based metallic glass by laser irradiation induced selective thermoplastic extrusion in nitrogen gas. Journal of Micromechanics and Microengineering, 2017, 27, 075007.	2.6	41
14	On the phase transformation of single-crystal 4Hâ€“SiC during nanoindentation. Journal Physics D: Applied Physics, 2017, 50, 265303.	2.8	40
15	A study on phase transformation of monocrystalline silicon due to ultra-precision polishing by molecular dynamics simulation. AIP Advances, 2012, 2, .	1.3	39
16	Evaluation of repeated single-point diamond turning on the deformation behavior of monocrystalline silicon via molecular dynamic simulations. Applied Physics A: Materials Science and Processing, 2014, 116, 141-150.	2.3	36
17	Evolution of one-stepping characteristics of a stick-slip piezoelectric actuator under various initial gaps. Sensors and Actuators A: Physical, 2019, 295, 348-356.	4.1	36
18	Design and stepping characteristics of novel stickâ€“slip piezo-driven linear actuator. Smart Materials and Structures, 2019, 28, 075026.	3.5	36

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19	Microstructural changes of Zr-based metallic glass during micro-electrical discharge machining and grinding by a sintered diamond tool. Journal of Alloys and Compounds, 2016, 688, 14-21.	5.5	35
20	A Dynamic Model of Stick-Slip Piezoelectric Actuators Considering the Deformation of Overall System. IEEE Transactions on Industrial Electronics, 2021, 68, 11266-11275.	7.9	33
21	Actively controlling the contact force of a stick-slip piezoelectric linear actuator by a composite flexible hinge. Sensors and Actuators A: Physical, 2019, 299, 111606.	4.1	32
22	New insights into phase transformations in single crystal silicon by controlled cyclic nanoindentation. Scripta Materialia, 2015, 102, 35-38.	5.2	30
23	Experimental research on a modular miniaturization nanoindentation device. Review of Scientific Instruments, 2011, 82, 095101.	1.3	29
24	Design and experimental research of a novel inchworm type piezo-driven rotary actuator with the changeable clamping radius. Review of Scientific Instruments, 2013, 84, 015006.	1.3	29
25	A low frequency operation high speed stick-slip piezoelectric actuator achieved by using a L-shape flexure hinge. Smart Materials and Structures, 2020, 29, 065007.	3.5	29
26	A bionic inertial piezoelectric actuator with improved frequency bandwidth. Mechanical Systems and Signal Processing, 2021, 156, 107620.	8.0	29
27	Design and experiment performances of an inchworm type rotary actuator. Review of Scientific Instruments, 2014, 85, 085004.	1.3	28
28	Evaluation of crack resistance of CrSiCN coatings as a function of Si concentration via nanoindentation. Surface and Coatings Technology, 2015, 272, 239-245.	4.8	26
29	Effect of residual chips on the material removal process of the bulk metallic glass studied by in situ scratch testing inside the scanning electron microscope. AIP Advances, 2012, 2, .	1.3	25
30	Note: A novel rotary actuator driven by only one piezoelectric actuator. Review of Scientific Instruments, 2013, 84, 096105.	1.3	25
31	Influences of sequential cuts on micro-cutting process studied by smooth particle hydrodynamic (SPH). Applied Surface Science, 2013, 284, 366-371.	6.1	24
32	Effects of pre-compression deformation on nanoindentation response of Zr65Cu15Al10Ni10 bulk metallic glass. Journal of Alloys and Compounds, 2016, 674, 223-228.	5.5	24
33	On the transformation between micro-concave and micro-convex in nanosecond laser ablation of a Zr-based metallic glass. Journal of Manufacturing Processes, 2021, 68, 1114-1122.	5.9	24
34	Multi-field nanoindentation apparatus for measuring local mechanical properties of materials in external magnetic and electric fields. Review of Scientific Instruments, 2013, 84, 063906.	1.3	23
35	Molecular dynamics simulation of self-rotation effects on ultra-precision polishing of single-crystal copper. AIP Advances, 2013, 3, .	1.3	23
36	A novel and compact nanoindentation device for in situ nanoindentation tests inside the scanning electron microscope. AIP Advances, 2012, 2, .	1.3	22

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37	Randomness and Statistical Laws of Indentation-Induced Pop-Out in Single Crystal Silicon. Materials, 2013, 6, 1496-1505.	2.9	22
38	Softening of Zr-based metallic glass induced by nanosecond pulsed laser irradiation. Journal of Alloys and Compounds, 2018, 754, 215-221.	5.5	22
39	Influences of Sample Preparation on Nanoindentation Behavior of a Zr-Based Bulk Metallic Glass. Materials, 2012, 5, 1033-1039.	2.9	21
40	Investigating shear band interaction in metallic glasses by adjacent nanoindentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 704, 375-385.	5.6	21
41	Active suppression of the backward motion in a parasitic motion principle (PMP) piezoelectric actuator. Smart Materials and Structures, 2019, 28, 125006.	3.5	21
42	Development and analysis of a stick-slip rotary piezoelectric positioner achieving high velocity with compact structure. Mechanical Systems and Signal Processing, 2020, 145, 106895.	8.0	21
43	Design and Analysis of a Compact Precision Positioning Platform Integrating Strain Gauges and the Piezoactuator. Sensors, 2012, 12, 9697-9710.	3.8	19
44	Analysis and experiments of a novel and compact 3-DOF precision positioning platform. Journal of Mechanical Science and Technology, 2013, 27, 3347-3356.	1.5	19
45	The coupling effects of laser thermal shock and surface nitridation on mechanical properties of Zr-based metallic glass. Journal of Alloys and Compounds, 2019, 770, 864-874.	5.5	19
46	A compact 2-DOF piezo-driven positioning stage designed by using the parasitic motion of flexure hinge mechanism. Smart Materials and Structures, 2020, 29, 015022.	3.5	19
47	Laser nitriding of Zr-based metallic glass: An investigation by orthogonal experiments. Surface and Coatings Technology, 2021, 424, 127657.	4.8	18
48	Effects of Indenter Tilt on Nanoindentation Results of Fused Silica: an Investigation by Finite Element Analysis. Materials Transactions, 2013, 54, 958-963.	1.2	17
49	A novel piezoelectric rotary actuator with a constant contact status between the driving mechanism and rotor. Smart Materials and Structures, 2019, 28, 085045.	3.5	17
50	The evolution of machining-induced surface of single-crystal FCC copper via nanoindentation. Nanoscale Research Letters, 2013, 8, 211.	5.7	16
51	On the mechanism of secondary pop-out in cyclic nanoindentation of single-crystal silicon. Journal of Materials Research, 2015, 30, 1861-1868.	2.6	16
52	On the correlation between the structure and one stepping characteristic of a piezo-driven rotary actuator. Microsystem Technologies, 2016, 22, 2821-2827.	2.0	16
53	Effects of probe tilt on nanoscratch results: An investigation by finite element analysis. Tribology International, 2013, 60, 64-69.	5.9	15
54	Shield gas induced cracks during nanosecond-pulsed laser irradiation of Zr-based metallic glass. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	15

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55	Development and analysis of a dynamic model for parasitic motion principle piezoelectric actuator. Mechanical Systems and Signal Processing, 2021, 147, 107079.	8.0	15
56	One-step fabrication of regular hierarchical micro/nano-structures on glassy carbon by nanosecond pulsed laser irradiation. Journal of Manufacturing Processes, 2021, 62, 108-118.	5.9	15
57	Nitrogen assisted formation of large-area ripples on Ti6Al4V surface by nanosecond pulse laser irradiation. Precision Engineering, 2022, 73, 244-256.	3.4	15
58	A novel piezoelectric linear actuator designed by imitating skateboarding movement. Smart Materials and Structures, 2020, 29, 115038.	3.5	15
59	Nanosecond pulsed laser-induced formation of nanopattern on Fe-based metallic glass surface. Applied Surface Science, 2022, 577, 151976.	6.1	15
60	Design and analysis of the precision-driven unit for nano-indentation and scratch test. Journal of Manufacturing Systems, 2012, 31, 76-81.	13.9	14
61	A Study on Material Removal Caused by Phase Transformation of Monocrystalline Silicon During Nanocutting Process via Molecular Dynamics Simulation. Journal of Computational and Theoretical Nanoscience, 2014, 11, 291-296.	0.4	14
62	Multi-scale dimple creation on metallic glass by a two-step method involving nanoindentation and polishing. Applied Surface Science, 2018, 462, 565-574.	6.1	14
63	Formation of leaf-shaped microstructure on Zr-based metallic glass via nanosecond pulsed laser irradiation. Journal of Manufacturing Processes, 2021, 72, 61-70.	5.9	13
64	The effects of simultaneous laser nitriding and texturing on surface hardness and tribological properties of Ti6Al4V. Surface and Coatings Technology, 2022, 437, 128358.	4.8	13
65	Forward and Reverse Movements of a Linear Positioning Stage Based on the Parasitic Motion Principle. Advances in Mechanical Engineering, 2014, 6, 452560.	1.6	11
66	A new motion mode of a parasitic motion principle (PMP) piezoelectric actuator by preloading the flexible hinge mechanism. Sensors and Actuators A: Physical, 2019, 295, 396-404.	4.1	11
67	Surface coloration of Zr-based metallic glass by nanosecond pulsed laser irradiation in ambient atmosphere. Materials Letters, 2021, 304, 130721.	2.6	11
68	A novel stick-slip piezoelectric rotary actuator designed by employing a centrosymmetric flexure hinge mechanism. Smart Materials and Structures, 2020, 29, 125006.	3.5	11
69	Microstructures and mechanical properties of Zr-based metallic glass ablated by nanosecond pulsed laser in various gas atmospheres. Journal of Alloys and Compounds, 2022, 901, 163717.	5.5	11
70	Using residual indent morphology to measure the tilt between the triangular pyramid indenter and the sample surface. Measurement Science and Technology, 2013, 24, 105602.	2.6	10
71	A stickâ€“slip piezoelectric actuator with high consistency in forward and reverse motions. Review of Scientific Instruments, 2020, 91, 105005.	1.3	10
72	Analysis and comparison of flexible mechanisms for parasitic motion principle piezoelectric actuator. Smart Materials and Structures, 2021, 30, 075021.	3.5	10

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73	Indenter Geometry Affecting Indentation Behaviors of the Zr-Based Bulk Metallic Glass. Materials Transactions, 2014, 55, 1400-1404.	1.2	9
74	Micro-cutting of silicon implanted with hydrogen and post-implantation thermal treatment. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	9
75	<I>In Situ</I> Nanoindentation and Scratch Testing Inside Scanning Electron Microscopes: Opportunities and Challenges. Science of Advanced Materials, 2014, 6, 875-889.	0.7	9
76	A high-performance stick-slip piezoelectric actuator achieved by using the double-stator cooperative motion mode (DCMM). Mechanical Systems and Signal Processing, 2022, 172, 108999.	8.0	9
77	Non-ideal assembly of the driving unit affecting shape of load-displacement curves. Measurement Science and Technology, 2015, 26, 035601.	2.6	8
78	New evidences for understanding the serrated flow and shear band behavior in nanoindentation of metallic glasses. Journal of Alloys and Compounds, 2021, 857, 157587.	5.5	8
79	Design and performance evaluation of a novel stickâ€“slip piezoelectric linear actuator with a centrosymmetric-type flexure hinge mechanism. Microsystem Technologies, 2019, 25, 3891-3898.	2.0	7
80	Design and Analysis of a Stepping Piezoelectric Actuator Free of Backward Motion. Actuators, 2021, 10, 200.	2.3	7
81	Model-based optimization for structure dimension and driving signal of a stick-slip piezoelectric actuator. Mechanical Systems and Signal Processing, 2022, 164, 108191.	8.0	7
82	Achieving high speed of the stickâ€“slip piezoelectric actuator at low frequency by using a two-stage amplification mechanism (TSAM). Review of Scientific Instruments, 2022, 93, 015010.	1.3	7
83	A Novel Two-Axis Load Sensor Designed for in Situ Scratch Testing inside Scanning Electron Microscopes. Sensors, 2013, 13, 2552-2565.	3.8	6
84	Volumetric and timescale analysis of phase transformation in single-crystal silicon during nanoindentation. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	6
85	A Novel Rotation-Structure Based Stick-Slip Piezoelectric Actuator with High Consistency in Forward and Reverse Motions. Actuators, 2021, 10, 189.	2.3	6
86	A Study on Size Effect of Indenter in Nanoindentation via Molecular Dynamics Simulation. Key Engineering Materials, 2013, 562-565, 802-808.	0.4	5
87	Comparative Study of Phase Transformation in Single-Crystal Germanium during Single and Cyclic Nanoindentation. Crystals, 2017, 7, 333.	2.2	5
88	A novel single butterfly stator piezo driver. Sensors and Actuators A: Physical, 2019, 298, 111517.	4.1	5
89	Structure dependence of the output performances of a self-deformation driving (SDD) piezoelectric actuator. Sensors and Actuators A: Physical, 2020, 302, 111808.	4.1	5
90	Laser induced micro-cracking of Zr-based metallic glass using 1011 W/m2 nano-pulses. Materials Today Communications, 2020, 25, 101554.	1.9	5

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91	Surface functionalization of Zr-based metallic glass by direct nanosecond laser texturing. Vacuum, 2021, 194, 110635.	3.5	5
92	A novel method for fabricating micro-dimple arrays with good surface quality on metallic glass substrate by combining laser irradiation and mechanical polishing under wax sealing. Journal of Manufacturing Processes, 2022, 79, 911-923.	5.9	5
93	A three-point method for evaluating the tilt status between the indenter axis and the sample surface. Measurement Science and Technology, 2014, 25, 017001.	2.6	4
94	Possibility for rapid generation of high-pressure phases in single-crystal silicon by fast nanoindentation. Semiconductor Science and Technology, 2015, 30, 115001.	2.0	4
95	A tension stress loading unit designed for characterizing indentation response of single crystal silicon under tension stress. AIP Advances, 2013, 3, .	1.3	3
96	Influence of friction on the residual morphology, the penetration load and the residual stress distribution of a Zr-based bulk metallic glass. AIP Advances, 2013, 3, 042116.	1.3	3
97	Molecular dynamics simulation of linearly varying cutting depth of single point diamond turning on Cu (111). International Journal of Nanomanufacturing, 2014, 10, 343.	0.3	3
98	Visualization of indentation induced sub-surface shear bands of Zr-based metallic glass by nanosecond pulse laser irradiation. Vacuum, 2022, 202, 111141.	3.5	3
99	Determination of residual indentation depth<i>h</i>_fin incomplete or irregular unloading curves. Measurement Science and Technology, 2014, 25, 087003.	2.6	2
100	Performance dependence of a stick-slip piezoelectric actuator on the angle between the piezoelectric stack and mover. Review of Scientific Instruments, 2021, 92, 045005.	1.3	2
101	An inertial piezoelectric actuator with small structure but large loading capacity. Review of Scientific Instruments, 2021, 92, 085004.	1.3	2
102	Nanosecond laser polishing of laser nitrided Zr-based metallic glass surface. International Journal of Advanced Manufacturing Technology, 2022, 121, 4099-4113.	3.0	2
103	Design and Analysis of a Miniaturization Nanoindentation and Scratch Device. Advanced Materials Research, 0, 314-316, 1792-1795.	0.3	1
104	Design, Analysis and Experiments of a Novel in situ SEM Indentation Device. , 2012, , .		1
105	In situ characterization of formation and growth of high-pressure phases in single-crystal silicon during nanoindentation. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	1
106	Parasitic Motion Principle (PMP) Piezoelectric Actuators: Definition and Recent Developments. , 0, , .		1
107	The compact Platform for <i>In Situ</i> Nanoindentation and Scratch Test. Advanced Materials Research, 2010, 97-101, 4342-4345.	0.3	0
108	Finite Element Simulations of an Inchworm Type Piezo-Driven Rotary Actuator. Advanced Materials Research, 0, 945-949, 1396-1399.	0.3	0

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109	Laser Patterning of Metallic Glass. Toxinology, 2018, , 1-29.	0.2	0
110	Introductory Chapter: Properties and Processing of Metallic Glasses. , 2018, , .		0
111	Laser Patterning of Metallic Glass. Toxinology, 2018, , 1-29.	0.2	0
112	Design and Experimental Investigation of PZT-driving Type Micro/nanoindentation Device. Jixie Gongcheng Xuebao/Chinese Journal of Mechanical Engineering, 2013, 49, 1.	0.5	0
113	Laser Patterning of Metallic Glass. Micro/Nano Technologies, 2018, , 499-527.	0.1	0
114	Fabrication of micro-array structures on material surface by a piezo-driven device. Vacuum, 2022, 203, 111267.	3.5	0
115	On the conversion of point-to-linear hierarchical micro/nano-structures on the glassy carbon surface by nanosecond pulsed laser irradiation. Applied Surface Science, 2022, 599, 153978.	6.1	0