Robert Carpick

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

179 papers	11,790 citations	55 h-index	106 g-index
182 ext. papers	13,117 ext. citations	8.5 avg, IF	6.45 L-index

#	Paper	IF	Citations
179	Inhibition of Micro-pitting by Tribofilm-Forming ZrO2 Nanocrystal Lubricant Additives: A Micro-pitting Rig and Transmission Electron Microscope Study. *Tribology Letters*, **2022**, 70, 1	2.8	1
178	Stress-dependent adhesion and sliding-induced nanoscale wear of diamond-like carbon studied using in situ TEM nanoindentation. *Carbon*, **2022**, 193, 230-241	10.4	0
177	Ultrahigh strength and shear-assisted separation of sliding nanocontacts studied in situ.. *Nature Communications*, **2022**, 13, 2551	17.4	0
176	Hollow Atomic Force Microscopy Cantilevers with Nanoscale Wall Thicknesses. *Small*, **2021**, e2102979	11	0
175	How Hydrogen and Oxygen Vapor Affect the Tribochemistry of Silicon- and Oxygen-Containing Hydrogenated Amorphous Carbon under Low-Friction Conditions: A Study Combining X-ray Absorption Spectromicroscopy and Data Science Methods. *ACS Applied Materials & Interfaces*, **2021**, 13, 12610-12621	9.5	2
174	Molecular Dynamics Examination of Sliding History-Dependent Adhesion in Si–Si Nanocontacts: Connecting Friction, Wear, Bond Formation, and Interfacial Adhesion. *Tribology Letters*, **2021**, 69, 1	2.8	1
173	Linescan Lattice Microscopy: A Technique for the Accurate Measurement and Mapping of Lattice Spacing and Strain with Atomic Force Microscopy. *Langmuir*, **2021**, 37, 8261-8269	4	
172	Unraveling the Friction Evolution Mechanism of Diamond-Like Carbon Film during Nanoscale Running-In Process toward Superlubricity. *Small*, **2021**, 17, e2005607	11	6
171	Bifurcation of nanoscale thermolubric friction behavior for sliding on MoS2. *Physical Review Materials*, **2021**, 5,	3.2	3
170	Friction and Adhesion Govern Yielding of Disordered Nanoparticle Packings: A Multiscale Adhesive Discrete Element Method Study. *Nano Letters*, **2021**, 21, 7989-7997	11.5	
169	Quantitative determination of the interaction potential between two surfaces using frequency-modulated atomic force microscopy. *Beilstein Journal of Nanotechnology*, **2020**, 11, 729-739	3	1
168	Linear Aging Behavior at Short Timescales in Nanoscale Contacts. *Physical Review Letters*, **2020**, 124, 026801	7.4	4
167	Nanoscale in situ study of ZDDP tribofilm growth at aluminum-based interfaces using atomic force microscopy. *Tribology International*, **2020**, 143, 106075	4.9	19
166	Friction Anisotropy of MoS: Effect of Tip-Sample Contact Quality. *Journal of Physical Chemistry Letters*, **2020**, 11, 6900-6906	6.4	15
165	Sticky but Slick: Reducing Friction Using Associative and Nonassociative Polymer Lubricant Additives. *ACS Applied Polymer Materials*, **2020**, 2, 4062-4070	4.3	10
164	Nanoscale Run-In of Silicon Oxide-Doped Hydrogenated Amorphous Carbon: Dependence of Interfacial Shear Strength on Sliding Length and Humidity. *Tribology Letters*, **2020**, 68, 1	2.8	2
163	Cooperativity Between Zirconium Dioxide Nanoparticles and Extreme Pressure Additives in Forming Protective Tribofilms: Toward Enabling Low Viscosity Lubricants. *Tribology Letters*, **2020**, 68, 1	2.8	4

162	Nanoscale Friction Behavior of Transition-Metal Dichalcogenides: Role of the Chalcogenide. *ACS Nano*, **2020**, 14, 16013-16021	16.7	11
161	Origin of Friction in Superlubric Graphite Contacts. *Physical Review Letters*, **2020**, 125, 126102	7.4	14
160	Covalent Bonding and Atomic-Level Plasticity Increase Adhesion in Silicon-Diamond Nanocontacts. *ACS Applied Materials & Interfaces*, **2019**, 11, 40734-40748	9.5	9
159	Mechanochemical Effects of Adsorbates at Nanoelectromechanical Switch Contacts. *ACS Applied Materials & Interfaces*, **2019**, 11, 39238-39247	9.5	2
158	Memory Distance for Interfacial Chemical Bond-Induced Friction at the Nanoscale. *ACS Nano*, **2019**, 13, 7425-7434	16.7	4
157	The strong effect on MEMS switch reliability of film deposition conditions and electrode geometry. *Microelectronics Reliability*, **2019**, 98, 131-143	1.2	7
156	Insights into tribology from in situ nanoscale experiments. *MRS Bulletin*, **2019**, 44, 478-486	3.2	24
155	Investigation of the Mechanics, Composition, and Functional Behavior of Thick Tribofilms Formed from Silicon- and Oxygen-Containing Hydrogenated Amorphous Carbon. *Tribology Letters*, **2019**, 67, 1	2.8	7
154	Sliding History-Dependent Adhesion of Nanoscale Silicon Contacts Revealed by in Situ Transmission Electron Microscopy. *Langmuir*, **2019**, 35, 15628-15638	4	7
153	Visualization of nanoscale wear mechanisms in ultrananocrystalline diamond by in-situ TEM tribometry. *Carbon*, **2019**, 154, 132-139	10.4	19
152	Origin of Nanoscale Friction Contrast between Supported Graphene, MoS, and a Graphene/MoS Heterostructure. *Nano Letters*, **2019**, 19, 5496-5505	11.5	55
151	Tribology on the Small Scale **2019**,		12
150	AFM at the Macroscale: Methods to Fabricate and Calibrate Probes for Millinewton Force Measurements. *Tribology Letters*, **2019**, 67, 1	2.8	9
149	Silicon Oxide-Rich Diamond-Like Carbon: A Conformal, Ultrasmooth Thin Film Material with High Thermo-Oxidative Stability. *Advanced Materials Interfaces*, **2019**, 6, 1801416	4.6	10
148	Thermally Induced Structural Evolution of Silicon- and Oxygen-Containing Hydrogenated Amorphous Carbon: A Combined Spectroscopic and Molecular Dynamics Simulation Investigation. *Langmuir*, **2018**, 34, 2989-2995	4	14
147	Effect of silicon and oxygen dopants on the stability of hydrogenated amorphous carbon under harsh environmental conditions. *Carbon*, **2018**, 130, 127-136	10.4	33
146	The contact sport of rough surfaces. *Science*, **2018**, 359, 38	33.3	30
145	Rate and State Friction Relation for Nanoscale Contacts: Thermally Activated Prandtl-Tomlinson Model with Chemical Aging. *Physical Review Letters*, **2018**, 120, 186101	7.4	20

144	Disordered Nanoparticle Packings under Local Stress Exhibit Avalanche-Like, Environmentally Dependent Plastic Deformation. *Nano Letters*, **2018**, 18, 5418-5425	11.5	3
143	Influence of Chemical Bonding on the Variability of Diamond-Like Carbon Nanoscale Adhesion: An In-Situ TEM/Nanoindentation and Molecular Dynamics Study. *Microscopy and Microanalysis*, **2018**, 24, 1822-1823	0.5	1
142	Experiments and simulations of the humidity dependence of friction between nanoasperities and graphite: The role of interfacial contact quality. *Physical Review Materials*, **2018**, 2,	3.2	17
141	Stick-Slip Instabilities for Interfacial Chemical Bond-Induced Friction at the Nanoscale. *Journal of Physical Chemistry B*, **2018**, 122, 991-999	3.4	7
140	Influence of chemical bonding on the variability of diamond-like carbon nanoscale adhesion. *Carbon* , **2018**, 128, 267-276	10.4	26
139	An In Situ Method for Simultaneous Friction Measurements and Imaging of Interfacial Tribochemical Film Growth in Lubricated Contacts. *Tribology Letters*, **2018**, 66, 1	2.8	18
138	Constraints on the Physical Mechanism of Frictional Aging From Nanoindentation. *Geophysical Research Letters*, **2018**, 45, 13,306	4.9	8
137	Nanotribological Printing: A Nanoscale Additive Manufacturing Method. *Nano Letters*, **2018**, 18, 6756-6763	11.5	10
136	Nanoscale Generation of Robust Solid Films from Liquid-Dispersed Nanoparticles via in Situ Atomic Force Microscopy: Growth Kinetics and Nanomechanical Properties. *ACS Applied Materials & Interfaces*, **2018**, 10, 40335-40347	9.5	17
135	Nanomechanics of pH-Responsive, Drug-Loaded, Bilayered Polymer Grafts. *ACS Applied Materials & Interfaces*, **2017**, 9, 12936-12948	9.5	21
134	Load and Time Dependence of Interfacial Chemical Bond-Induced Friction at the Nanoscale. *Physical Review Letters*, **2017**, 118, 076103	7.4	36
133	Large-area synthesis of high-quality monolayer 1T'-WTe flakes. *2D Materials*, **2017**, 4,	5.9	56
132	On the integration of ultrananocrystalline diamond (UNCD) with CMOS chip. *AIP Advances*, **2017**, 7, 035121	1.5	4
131	Correcting for Tip Geometry Effects in Molecular Simulations of Single-Asperity Contact. *Tribology Letters*, **2017**, 65, 1	2.8	11
130	Adhesion Mechanics between Nanoscale Silicon Oxide Tips and Few-Layer Graphene. *Tribology Letters*, **2017**, 65, 1	2.8	9
129	Mechanisms of Contact, Adhesion, and Failure of Metallic Nanoasperities in the Presence of Adsorbates: Toward Conductive Contact Design. *ACS Nano*, **2017**, 11, 490-500	16.7	15
128	Tribochemical Wear of Diamond-Like Carbon-Coated Atomic Force Microscope Tips. *ACS Applied Materials & Interfaces*, **2017**, 9, 35341-35348	9.5	27
127	Multibond Model of Single-Asperity Tribochemical Wear at the Nanoscale. *ACS Applied Materials & Interfaces*, **2017**, 9, 35333-35340	9.5	22

126	Nanoscale Roughness of Natural Fault Surfaces Controlled by Scale-Dependent Yield Strength. *Geophysical Research Letters*, **2017**, 44, 9299-9307	4.9	22
125	Synthesis and Physical Properties of Phase-Engineered Transition Metal Dichalcogenide Monolayer Heterostructures. *ACS Nano*, **2017**, 11, 8619-8627	16.7	34
124	Structure-property relationships from universal signatures of plasticity in disordered solids. *Science*, **2017**, 358, 1033-1037	33.3	144
123	The evolving quality of frictional contact with graphene. *Nature*, **2016**, 539, 541-545	50.4	278
122	Characterizing nanoscale scanning probes using electron microscopy: A novel fixture and a practical guide. *Review of Scientific Instruments*, **2016**, 87, 013703	1.7	22
121	Valence Band Control of Metal Silicide Films via Stoichiometry. *Journal of Physical Chemistry Letters*, **2016**, 7, 2573-8	6.4	6
120	Heterogeneity in the Small-Scale Deformation Behavior of Disordered Nanoparticle Packings. *Nano Letters*, **2016**, 16, 2455-62	11.5	8
119	Quantitative Evaluation of the Carbon Hybridization State by Near Edge X-ray Absorption Fine Structure Spectroscopy. *Analytical Chemistry*, **2016**, 88, 2817-24	7.8	17
118	Dynamic shear force microscopy of viscosity in nanometer-confined hexadecane layers. *Journal of Physics Condensed Matter*, **2016**, 28, 134004	1.8	9
117	In situoxygen plasma cleaning of microswitch surfaces□omparison of Ti and graphite electrodes. *Journal of Micromechanics and Microengineering*, **2016**, 26, 115020	2	8
116	Monolayer Single-Crystal 1T′-MoTe2 Grown by Chemical Vapor Deposition Exhibits Weak Antilocalization Effect. *Nano Letters*, **2016**, 16, 4297-304	11.5	167
115	Solid state magnetic resonance investigation of the thermally-induced structural evolution of silicon oxide-doped hydrogenated amorphous carbon. *Carbon*, **2016**, 105, 163-175	10.4	18
114	Load-Dependent Friction Hysteresis on Graphene. *ACS Nano*, **2016**, 10, 5161-8	16.7	46
113	Scalable Production of Sensor Arrays Based on High-Mobility Hybrid Graphene Field Effect Transistors. *ACS Applied Materials & Interfaces*, **2016**, 8, 27546-27552	9.5	31
112	Next-Generation Nanoelectromechanical Switch Contact Materials: A Low-Power Mechanical Alternative to Fully Electronic Field-Effect Transistors.. *IEEE Nanotechnology Magazine*, **2015**, 9, 18-24	1.7	12
111	Dynamics of atomic stick-slip friction examined with atomic force microscopy and atomistic simulations at overlapping speeds. *Physical Review Letters*, **2015**, 114, 146102	7.4	53
110	Tribology. Mechanisms of antiwear tribofilm growth revealed in situ by single-asperity sliding contacts. *Science*, **2015**, 348, 102-6	33.3	306
109	Nano-rheology of hydrogels using direct drive force modulation atomic force microscopy. *Soft Matter*, **2015**, 11, 8165-78	3.6	61

108	Boron-doped ultrananocrystalline diamond synthesized with an H-rich/Ar-lean gas system. *Carbon*, **2015**, 84, 103-117	10.4	41
107	Measurement of the Length and Strength of Adhesive Interactions in a Nanoscale Silicon□Diamond Interface. *Advanced Materials Interfaces*, **2015**, 2, 1400547	4.6	15
106	Friction. Slippery when dry. *Science*, **2015**, 348, 1087-8	33.3	13
105	Novel Metal Silicide Thin Films by Design via Controlled Solid-State Diffusion. *Chemistry of Materials* , **2015**, 27, 4247-4253	9.6	16
104	A Technique for the Experimental Determination of the Length and Strength of Adhesive Interactions Between Effectively Rigid Materials. *Tribology Letters*, **2015**, 59, 1	2.8	19
103	Effectiveness of oxygen plasma versus UHV bakeout in cleaning MEMS switch surfaces **2015**,		3
102	Novel materials solutions and simulations for nanoelectromechanical switches **2015**,		5
101	Tunable, Source-Controlled Formation of Platinum Silicides and Nanogaps from Thin Precursor Films. *Advanced Materials Interfaces*, **2014**, 1, 1300120	4.6	20
100	Frictional behavior of atomically thin sheets: hexagonal-shaped graphene islands grown on copper by chemical vapor deposition. *ACS Nano*, **2014**, 8, 5010-21	16.7	112
99	Complete characterization by Raman spectroscopy of the structural properties of thin hydrogenated diamond-like carbon films exposed to rapid thermal annealing. *Journal of Applied Physics*, **2014**, 116, 123516	2.5	61
98	Atomic-scale wear of amorphous hydrogenated carbon during intermittent contact: a combined study using experiment, simulation, and theory. *ACS Nano*, **2014**, 8, 7027-40	16.7	42
97	Fluorination of graphene enhances friction due to increased corrugation. *Nano Letters*, **2014**, 14, 5212-7	11.5	118
96	Simulated adhesion between realistic hydrocarbon materials: effects of composition, roughness, and contact point. *Langmuir*, **2014**, 30, 2028-37	4	32
95	Nanoscale Wear as a Stress-Assisted Chemical Reaction: An in-situ TEM Study. *Microscopy and Microanalysis*, **2014**, 20, 1542-1543	0.5	4
94	Development and assessment of next-generation nanoelectromechanical switch contact materials **2014**,		6
93	Direct torsional actuation of microcantilevers using magnetic excitation. *Applied Physics Letters*, **2014**, 105, 093101	3.4	9
92	Accounting for nanometer-thick adventitious carbon contamination in X-ray absorption spectra of carbon-based materials. *Analytical Chemistry*, **2014**, 86, 12258-65	7.8	50
91	Nanoscale Adhesive Properties of Graphene: The Effect of Sliding History. *Advanced Materials Interfaces*, **2014**, 1, 1300053	4.6	45

90	Wear, Plasticity, and Rehybridization in Tetrahedral Amorphous Carbon. *Tribology Letters*, **2014**, 53, 119-126	1.8	75
89	A Numerical Contact Model Based on Real Surface Topography. *Tribology Letters*, **2013**, 50, 331-347	2.8	7
88	Correlation Between Probe Shape and Atomic Friction Peaks at Graphite Step Edges. *Tribology Letters*, **2013**, 50, 49-57	2.8	42
87	The Effect of Atomic-Scale Roughness on the Adhesion of Nanoscale Asperities: A Combined Simulation and Experimental Investigation. *Tribology Letters*, **2013**, 50, 81-93	2.8	84
86	Practical method to limit tip-sample contact stress and prevent wear in amplitude modulation atomic force microscopy. *ACS Nano*, **2013**, 7, 9836-50	16.7	23
85	Adhesion of nanoscale asperities with power-law profiles. *Journal of the Mechanics and Physics of Solids*, **2013**, 61, 597-610	5	45
84	Nanoscale wear as a stress-assisted chemical reaction. *Nature Nanotechnology*, **2013**, 8, 108-12	28.7	226
83	Mechanics of interaction and atomic-scale wear of amplitude modulation atomic force microscopy probes. *ACS Nano*, **2013**, 7, 3221-35	16.7	35
82	Environmental dependence of atomic-scale friction at graphite surface steps. *Physical Review B*, **2013**, 88,	3.3	58
81	Thermally induced evolution of hydrogenated amorphous carbon. *Applied Physics Letters*, **2013**, 103, 161605	3.4	48
80	Understanding the Tip□ample Contact **2013**, 15-48		8
79	. *Journal of Microelectromechanical Systems*, **2012**, 21, 431-442	2.5	9
78	Nanocrystalline diamond AFM tips for chemical force spectroscopy: fabrication and photochemical functionalization. *Journal of Materials Chemistry*, **2012**, 22, 12682		16
77	Ultrananocrystalline diamond tip integrated onto a heated atomic force microscope cantilever. *Nanotechnology*, **2012**, 23, 495302	3.4	11
76	Controlling nanoscale friction through the competition between capillary adsorption and thermally activated sliding. *ACS Nano*, **2012**, 6, 4305-13	16.7	41
75	Influence of surface passivation on the friction and wear behavior of ultrananocrystalline diamond and tetrahedral amorphous carbon thin films. *Physical Review B*, **2012**, 85,	3.3	153
74	Angle-resolved environmental X-ray photoelectron spectroscopy: a new laboratory setup for photoemission studies at pressures up to 0.4 Torr. *Review of Scientific Instruments*, **2012**, 83, 093112	1.7	41
73	Wear-Resistant Nanoscale Silicon Carbide Tips for Scanning Probe Applications. *Advanced Functional Materials*, **2012**, 22, 1639-1645	15.6	36

72	The Vibrational Properties of Ultrananocrystalline Diamond Based on Molecular dynamics Simulations. *Materials Research Society Symposia Proceedings*, **2012**, 1404, 7		1
71	Thermomechanical stability of ultrananocrystalline diamond. *Journal of Applied Physics*, **2012**, 111, 054913	2.5	7
70	Vibrational Properties and Specific Heat of Ultrananocrystalline Diamond: Molecular Dynamics Simulations. *Journal of Physical Chemistry C*, **2011**, 115, 21691-21699	3.8	19
69	Speed dependence of atomic stick-slip friction in optimally matched experiments and molecular dynamics simulations. *Physical Review Letters*, **2011**, 106, 126101	7.4	138
68	Frictional ageing from interfacial bonding and the origins of rate and state friction. *Nature*, **2011**, 480, 233-6	50.4	176
67	Atomic Friction Modulation on the Reconstructed Au(111) Surface. *Tribology Letters*, **2011**, 43, 369-378	2.8	17
66	Near-Edge X-ray Absorption Fine Structure Imaging of Spherical and Flat Counterfaces of Ultrananocrystalline Diamond Tribological Contacts: A Correlation of Surface Chemistry and Friction. *Tribology Letters*, **2011**, 44, 99-106	2.8	25
65	Ultralow nanoscale wear through atom-by-atom attrition in silicon-containing diamond-like carbon. *Nature Nanotechnology*, **2010**, 5, 181-5	28.7	188
64	Atomistic Factors Governing Adhesion between Diamond, Amorphous Carbon and Model Diamond Nanocomposite Surfaces. *Journal of Adhesion Science and Technology*, **2010**, 24, 2471-2498	2	22
63	Thermal stability and rehybridization of carbon bonding in tetrahedral amorphous carbon. *Journal of Applied Physics*, **2010**, 107, 033523	2.5	77
62	Local nanoscale heating modulates single-asperity friction. *Nano Letters*, **2010**, 10, 4640-5	11.5	46
61	Wear-resistant diamond nanoprobe tips with integrated silicon heater for tip-based nanomanufacturing. *ACS Nano*, **2010**, 4, 3338-44	16.7	65
60	Method for characterizing nanoscale wear of atomic force microscope tips. *ACS Nano*, **2010**, 4, 3763-72	16.7	107
59	Frictional characteristics of atomically thin sheets. *Science*, **2010**, 328, 76-80	33.3	1242
58	Ultrananocrystalline and Nanocrystalline Diamond Thin Films for MEMS/NEMS Applications. *MRS Bulletin*, **2010**, 35, 281-288	3.2	107
57	Assessment of the mechanical integrity of silicon and diamond-like-carbon coated silicon atomic force microscope probes **2010**,		3
56	On the Application of Transition State Theory to Atomic-Scale Wear. *Tribology Letters*, **2010**, 39, 257-271	2.8	90
55	Substrate effect on thickness-dependent friction on graphene. *Physica Status Solidi (B): Basic Research*, **2010**, 247, 2909-2914	1.3	161

54	Preventing nanoscale wear of atomic force microscopy tips through the use of monolithic ultrananocrystalline diamond probes. *Small*, **2010**, 6, 1140-9	11	76
53	Mechanical stiffness and dissipation in ultrananocrystalline diamond microresonators. *Physical Review B*, **2009**, 79,	3.3	66
52	Piezoelectric aluminum nitride nanoelectromechanical actuators. *Applied Physics Letters*, **2009**, 95, 053106	3.4	103
51	Temperature dependence of nanoscale friction investigated with thermal AFM probes. *Materials Research Society Symposia Proceedings*, **2009**, 1226, 50201		2
50	Characterization of Microscale Wear in a Polysilicon-Based MEMS Device Using AFM and PEEM□NEXAFS Spectromicroscopy. *Tribology Letters*, **2009**, 36, 233-238	2.8	8
49	Recent advances in single-asperity nanotribology. *Journal Physics D: Applied Physics*, **2008**, 41, 123001	3	333
48	Diamond coatings for micro end mills: Enabling the dry machining of aluminum at the micro-scale. *Diamond and Related Materials*, **2008**, 17, 223-233	3.5	90
47	Negative stiffness and enhanced damping of individual multiwalled carbon nanotubes. *Physical Review B*, **2008**, 77,	3.3	30
46	Synthesis and characterization of smooth ultrananocrystalline diamond films via low pressure bias-enhanced nucleation and growth. *Applied Physics Letters*, **2008**, 92, 133113	3.4	37
45	Origin of ultralow friction and wear in ultrananocrystalline diamond. *Physical Review Letters*, **2008**, 100, 235502	7.4	184
44	Are Diamonds a MEMS' Best Friend?. *IEEE Microwave Magazine*, **2007**, 8, 61-75	1.2	64
43	Nanotribology of octadecyltrichlorosilane monolayers and silicon: self-mated versus unmated interfaces and local packing density effects. *Langmuir*, **2007**, 23, 9242-52	4	73
42	Mechanical instabilities of individual multiwalled carbon nanotubes under cyclic axial compression. *Nano Letters*, **2007**, 7, 1149-54	11.5	67
41	Nanotribology of carbon-based materials. *Nano Today*, **2007**, 2, 12-21	17.9	76
40	Small amplitude reciprocating wear performance of diamond-like carbon films: dependence of film composition and counterface material. *Tribology Letters*, **2007**, 27, 79-88	2.8	15
39	Tribochemistry and material transfer for the ultrananocrystalline diamond-silicon nitride interface revealed by x-ray photoelectron emission spectromicroscopy. *Journal of Vacuum Science & Technology B*, **2007**, 25, 1700		14
38	Nanoscale friction varied by isotopic shifting of surface vibrational frequencies. *Science*, **2007**, 318, 780-3	33.3	100
37	Surface chemistry and bonding configuration of ultrananocrystalline diamond surfaces and their effects on nanotribological properties. *Physical Review B*, **2007**, 76,	3.3	98

36	Surface composition, bonding, and morphology in the nucleation and growth of ultra-thin, high quality nanocrystalline diamond films. *Diamond and Related Materials*, **2007**, 16, 718-724	3.5	101
35	Atomic-scale friction on diamond: a comparison of different sliding directions on (001) and (111) surfaces using MD and AFM. *Langmuir*, **2007**, 23, 5394-405	4	109
34	Scanning Probe Studies of Nanoscale Adhesion Between Solids in the Presence of Liquids and Monolayer Films **2007**, 951-980		11
33	Lateral force calibration in atomic force microscopy: A new lateral force calibration method and general guidelines for optimization. *Review of Scientific Instruments*, **2006**, 77, 053701	1.7	157
32	Vibrations of the "Beetle" scanning probe microscope: Identification of a new mode, generalized analysis, and characterization methodology. *Review of Scientific Instruments*, **2006**, 77, 033706	1.7	10
31	Predictions and observations of multiple slip modes in atomic-scale friction. *Physical Review Letters*, **2006**, 97, 136106	7.4	88
30	Physics. Controlling friction. *Science*, **2006**, 313, 184-5	33.3	72
29	Nanotribological properties of alkanephosphonic acid self-assembled monolayers on aluminum oxide: effects of fluorination and substrate crystallinity. *Langmuir*, **2006**, 22, 3988-98	4	78
28	Enhanced nucleation, smoothness and conformality of ultrananocrystalline diamond (UNCD) ultrathin films via tungsten interlayers. *Chemical Physics Letters*, **2006**, 430, 345-350	2.5	78
27	In situ wear studies of surface micromachined interfaces subject to controlled loading. *Wear*, **2006**, 260, 580-593	3.5	37
26	Toward the Ultimate Tribological Interface: Surface Chemistry and Nanotribology of Ultrananocrystalline Diamond. *Advanced Materials*, **2005**, 17, 1039-1045	24	120
25	Cantilever tilt compensation for variable-load atomic force microscopy. *Review of Scientific Instruments*, **2005**, 76, 053706	1.7	55
24	Accounting for the JKR-DMT transition in adhesion and friction measurements with atomic force microscopy. *Journal of Adhesion Science and Technology*, **2005**, 19, 291-311	2	166
23	Multiscale Roughness of MEMS Surfaces **2004**, 133		1
22	Measurements of In-Plane Material Properties with Scanning Probe Microscopy. *MRS Bulletin*, **2004**, 29, 472-477	3.2	7
21	Confinement Effects in Nanoscale Anodic Alumina Structures on Silicon. *Materials Research Society Symposia Proceedings*, **2004**, 854, U11.5.1		
20	Phase imaging and the lever-sample tilt angle in dynamic atomic force microscopy. *Applied Physics Letters*, **2004**, 85, 4738-4740	3.4	28
19	The role of contaminants in the variation of adhesion, friction, and electrical conduction properties of carbide-coated scanning probe tips and Pt(111) in ultrahigh vacuum. *Journal of Applied Physics*, **2004**, 95, 7694-7700	2.5	36

18	Polydiacetylene films: a review of recent investigations into chromogenic transitions and nanomechanical properties. *Journal of Physics Condensed Matter*, **2004**, 16, R679-R697	1.8	156
17	Chromic Transitions and Nanomechanical Properties of Poly(diacetylene) Molecular Films. *ACS Symposium Series*, **2004**, 82-95	0.4	1
16	Scanning Probe Studies of Nanoscale Adhesion Between Solids in the Presence of Liquids and Monolayer Films **2004**, 605-629		
15	Scanning Probe Studies of Nanoscale Adhesion Between Solids in the Presence of Liquids and Monolayer Films **2004**, 605-629		
14	In-plane contributions to phase contrast in intermittent contact atomic force microscopy. *Ultramicroscopy*, **2003**, 97, 145-50	3.1	9
13	Frictional Properties of Hydrogenated and Deuterated Alkanethiols. *Microscopy and Microanalysis*, **2002**, 8, 768-769	0.5	
12	Nanotribology of CoCr□HMWPE TJR prosthesis using atomic force microscopy. *Wear*, **2002**, 253, 1145-1155	3.5	39
11	Abrasion of Steel by Ceramic Coatings: Comparison of RF-DLC to Sputtered B4C. *Tribology Letters*, **2002**, 12, 43-50	2.8	9
10	Material anisotropy revealed by phase contrast in intermittent contact atomic force microscopy. *Physical Review Letters*, **2002**, 88, 226103	7.4	39
9	High Molecular Orientation in Mono- and Trilayer Polydiacetylene Films Imaged by Atomic Force Microscopy. *Journal of Colloid and Interface Science*, **2000**, 229, 490-496	9.3	73
8	A General Equation for Fitting Contact Area and Friction vs Load Measurements. *Journal of Colloid and Interface Science*, **1999**, 211, 395-400	9.3	396
7	Atomic Force Microscopy Study of an Ideally Hard Contact: The Diamond(111)/Tungsten Carbide Interface. *Physical Review Letters*, **1998**, 81, 1877-1880	7.4	172
6	Lateral stiffness: A new nanomechanical measurement for the determination of shear strengths with friction force microscopy. *Applied Physics Letters*, **1997**, 70, 1548-1550	3.4	348
5	Scratching the Surface: Fundamental Investigations of Tribology with Atomic Force Microscopy. *Chemical Reviews*, **1997**, 97, 1163-1194	68.1	917
4	Measurement of interfacial shear (friction) with an ultrahigh vacuum atomic force microscope. *Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena*, **1996**, 14, 1289		278
3	Variation of the Interfacial Shear Strength and Adhesion of a Nanometer-Sized Contact. *Langmuir*, **1996**, 12, 3334-3340	4	261
2	Calibration of frictional forces in atomic force microscopy. *Review of Scientific Instruments*, **1996**, 67, 3298-3306	1.7	486
1	A variable temperature ultrahigh vacuum atomic force microscope. *Review of Scientific Instruments*, **1995**, 66, 5266-5271	1.7	48