Roland Bennewitz

List of Publications by Year
in descending order

137 papers	6,178 citations	87723 38 h-index	74018 75 g-index
140 all docs	140 docs citations	140 times ranked	5284 citing authors

#	Article	IF	Citations
1	Transition from Stick-Slip to Continuous Sliding in Atomic Friction: Entering a New Regime of Ultralow Friction. Physical Review Letters, 2004, 92, 134301.	2.9	501
2	Friction and Dissipation in Epitaxial Graphene Films. Physical Review Letters, 2009, 102, 086102.	2.9	482
3	Atomic-Scale Control of Friction by Actuation of Nanometer-Sized Contacts. Science, 2006, 313, 207-210.	6.0	308
4	Scanning Probe Microscopy. Advanced Texts in Physics, 2004, , .	0.5	301
5	Local work function measurements of epitaxial graphene. Applied Physics Letters, 2008, 93, .	1.5	211
6	Atomic Scale Mechanisms of Friction Reduction and Wear Protection by Graphene. Nano Letters, 2014, 14, 7145-7152.	4.5	210
7	Control of Nanoscale Friction on Gold in an Ionic Liquid by a Potential-Dependent Ionic Lubricant Layer. Physical Review Letters, 2012, 109, 155502.	2.9	201
8	Friction experiments on the nanometre scale. Journal of Physics Condensed Matter, 2001, 13, R619-R642.	0.7	175
9	Kelvin Probe Force Microscopy on Surfaces:Â Investigation of the Surface Potential of Self-Assembled Monolayers on Gold. Langmuir, 1999, 15, 8184-8188.	1.6	168
10	Structural and frictional properties of graphene films on SiC(0001) studied by atomic force microscopy. Physical Review B, 2010, 81, .	1.1	143
11	Dynamic force microscopy of copper surfaces: Atomic resolution and distance dependence of tip-sample interaction and tunneling current. Physical Review B, 2000, 62, 16944-16949.	1.1	119
12	Fluctuations and jump dynamics in atomic friction experiments. Physical Review B, 2005, 72, .	1.1	115
13	Experimental aspects of dissipation force microscopy. Physical Review B, 2000, 62, 13674-13679.	1.1	112
14	Atomically accurate Si grating with 5.73 nm period. Applied Physics Letters, 2001, 79, 1608-1610.	1.5	109
15	Ultrathin films of NaCl on Cu(111): a LEED and dynamic force microscopy study. Surface Science, 1999, 438, 289-296.	0.8	108
16	One-dimensional electronic states at surfaces. Journal of Physics Condensed Matter, 2001, 13, 11097-11113.	0.7	106
17	Atomic scale memory at a silicon surface. Nanotechnology, 2002, 13, 499-502.	1.3	100
18	Observation of Individual Molecules Trapped on a Nanostructured Insulator. Nano Letters, 2004, 4, 2185-2189.	4.5	99

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19	Friction and Wear on Single-Layer Epitaxial Graphene in Multi-Asperity Contacts. Tribology Letters, 2012, 48, 77-82.	1.2	98
20	Cu-TBPP and PTCDA molecules on insulating surfaces studied by ultra-high-vacuum non-contact AFM. Nanotechnology, 2004, 15, S91-S96.	1.3	82
21	Tribology of a Braille Display and EEG Correlates. Tribology Letters, 2018, 66, 1.	1.2	73
22	Atomic-resolution images of radiation damage in KBr. Surface Science, 2001, 474, L197-L202.	0.8	70
23	Young's modulus, fracture strength, and Poisson's ratio of nanocrystalline diamond films. Journal of Applied Physics, 2014, 116, .	1.1	62
24	Reconstruction of surface potential from Kelvin probe force microscopy images. Nanotechnology, 2013, 24, 295702.	1.3	61
25	Atomic friction studies on well-defined surfaces. Tribology Letters, 2001, 10, 51-56.	1.2	56
26	Friction on a Microstructured Elastomer Surface. Tribology Letters, 2013, 50, 3-15.	1.2	53
27	Gd disilicide nanowires attached to Si(111) steps. Nanotechnology, 2002, 13, 545-547.	1.3	52
28	Friction and wear on the atomic scale. Wear, 2003, 254, 859-862.	1.5	50
29	Impact of van der Waals Interactions on Single Asperity Friction. Physical Review Letters, 2013, 111, 035502.	2.9	50
30	Microscopic Friction Studies on Metal Surfaces. Tribology Letters, 2010, 39, 19-24.	1.2	49
31	Surface colloid evolution during low-energy electron irradiation of CaF2(111). Surface Science, 1996, 366, 531-544.	0.8	48
32	One-dimensional Gd-induced chain structures on Si() surfaces. Surface Science, 2002, 498, L109-L112.	0.8	48
33	Atomic-scale friction modulated by a buried interface: Combined atomic and friction force microscopy experiments. Physical Review B, 2008, 78, .	1.1	47
34	Atomic structure and friction of ultrathin films of KBr on Cu(100). Physical Review B, 2008, 77, .	1.1	47
35	Switching Atomic Friction by Electrochemical Oxidation. Langmuir, 2011, 27, 2561-2566.	1.6	45
36	Friction and wear of PEEK in continuous sliding and unidirectional scratch tests. Tribology International, 2018, 122, 108-113.	3.0	44

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37	Friction force microscopy. Materials Today, 2005, 8, 42-48.	8.3	42
38	Friction and atomic-layer-scale wear of graphitic lubricants on SiC(0001) in dry sliding. Wear, 2013, 300, 78-81.	1.5	42
39	Mechanisms of Friction and Wear Reduction by Carbon Fiber Reinforcement of PEEK. Tribology Letters, 2015, 58, 1.	1.2	42
40	Using higher flexural modes in non-contact force microscopy. Applied Surface Science, 2000, 157, 337-342.	3.1	38
41	Silicon adatoms on the Si()5Ã—2â€“Au surface. Surface Science, 2003, 532-535, 928-933.	0.8	38
42	Carbon nanotubes as tips in non-contact SFM. Applied Surface Science, 2000, 157, 269-273.	3.1	36
43	High-resolution friction force microscopy under electrochemical control. Review of Scientific Instruments, 2010, 81, 083701.	0.6	36
44	Force microscopy of layering and friction in an ionic liquid. Journal of Physics Condensed Matter, 2014, 26, 284110.	0.7	36
45	Structure vs Chemistry: Friction and Wear of Pt-Based Metallic Surfaces. ACS Applied Materials & Interfaces, 2013, 5, 11341-11347.	4.0	35
46	Atomic-scale yield and dislocation nucleation in KBr. Physical Review B, 2006, 73, .	1.1	34
47	Ageing of a Microscopic Sliding Gold Contact at Low Temperatures. Physical Review Letters, 2011, 107, 144303.	2.9	34
48	In Situ Observation Reveals Local Detachment Mechanisms and Suction Effects in Micropatterned Adhesives. Advanced Functional Materials, 2019, 29, 1807713.	7.8	34
49	Anion adsorption and atomic friction on Au(111). Electrochimica Acta, 2011, 56, 10694-10700.	2.6	33
50	Contrast in nanoscale friction between rotational domains of graphene on Pt(111). Carbon, 2017, 113, 132-138.	5.4	33
51	Atomic corrugation in nc-AFM of alkali halides. Applied Surface Science, 2002, 188, 232-237.	3.1	32
52	Preferential sliding directions on graphite. Physical Review B, 2014, 89, .	1.1	32
53	Structured surfaces of wide band gap insulators as templates for overgrowth of adsorbates. Journal of Physics Condensed Matter, 2006, 18, R417-R435.	0.7	30
54	Friction model for single-asperity elastic-plastic contacts. Physical Review B, 2012, 86, .	1.1	28

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55	Dynamic effects in friction and adhesion through cooperative rupture and formation of supramolecular bonds. Nanoscale, 2015, 7, 7674-7681.	2.8	28
56	Discrete contact mechanics of a fibrillar surface with backing layer interactions. Journal of the Mechanics and Physics of Solids, 2010, 58, 1571-1581.	2.3	27
57	Switching adhesion and friction by light using photosensitive guestâ€“host interactions. Chemical Communications, 2015, 51, 1830-1833.	2.2	27
58	Low-dimensional electron gas at semiconductor surfaces. Solid State Communications, 2007, 142, 617-626.	0.9	26
59	Switchable cantilever for a time-of-flight scanning force microscope. Applied Physics Letters, 2004, 84, 1558-1560.	1.5	25
60	Importance of surface oxide for the tribology of a Zr-based metallic glass. Friction, 2017, 5, 115-122.	3.4	25
61	Atomic Friction Investigations on Ordered Superstructures. Tribology Letters, 2010, 39, 321-327.	1.2	24
62	Si(110)5Ã—2â˜Au: A metallic chain structure. Physical Review B, 2005, 72, .	1.1	22
63	A versatile instrument for in situ combination of scanning probe microscopy and time-of-flight mass spectrometry. Review of Scientific Instruments, 2005, 76, 103701.	0.6	22
64	A kelvin probe force microscopy of charged indentation-induced dislocation structures in KBr. Nanotechnology, 2009, 20, 264005.	1.3	22
65	Surface Softening in Metalâ€“Ceramic Sliding Contacts: An Experimental and Numerical Investigation. ACS Nano, 2015, 9, 1478-1491.	7.3	22
66	Tribological Response of PEEK to Temperature Induced by Frictional and External Heating. Tribology Letters, 2019, 67, 1.	1.2	22
67	Atomic structure of alkali halide surfaces. Applied Physics A: Materials Science and Processing, 2004, 78, 837-841.	1.1	21
68	Nanometre-scale plasticity of Cu(100). Nanotechnology, 2007, 18, 044004.	1.3	20
69	Atomic-scale nanoindentation: detection and identification of single glide events in three dimensions by force microscopy. Nanotechnology, 2011, 22, 425703.	1.3	20
70	Tactile perception of randomly rough surfaces. Scientific Reports, 2020, 10, 15800.	1.6	20
71	Molecular Order and Disorder in the Frictional Response of Alkanethiol Self-Assembled Monolayers. Journal of Physical Chemistry A, 2011, 115, 6942-6947.	1.1	19
72	Discharge During Detachment of Micro-Structured PDMS Sheds Light on the Role of Electrostatics in Adhesion. Journal of Adhesion, 2012, 88, 589-607.	1.8	19

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73	Dynamic shear force microscopy of confined liquids at a gold electrode. Faraday Discussions, 2017, 199, 299-309.	1.6	19
74	Optoregulated force application to cellular receptors using molecular motors. Nature Communications, 2021, 12, 3580.	5.8	19
75	Distance dependence of force and dissipation in non-contact atomic force microscopy on Cu(100) and Al(111). Nanotechnology, 2004, 15, S101-S107.	1.3	18
76	Asymmetry in the reciprocal epitaxy of NaCl and KBr. Physical Review B, 2007, 75, .	1.1	18
77	Quantitative multichannel NC-AFM data analysis of graphene growth on SiC(0001). Beilstein Journal of Nanotechnology, 2012, 3, 179-185.	1.5	18
78	Stochastic noise in atomic force microscopy. Physical Review E, 2012, 86, 031104.	0.8	18
79	Effects of single asperity geometry on friction and wear of PEEK. Wear, 2013, 304, 109-117.	1.5	18
80	Surviving the surf: The tribomechanical properties of the periostracum of Mytilus sp.. Acta Biomaterialia, 2014, 10, 3978-3985.	4.1	18
81	Nanoscale friction and growth of surface oxides on a metallic glass under electrochemical polarization. Tribology International, 2021, 158, 106925.	3.0	18
82	Characterization of Ca aggregates on CaF2 (111)-surfaces by atomic force, XPS, and fluorescence microscopy. Nuclear Instruments & Methods in Physics Research B, 1994, 91, 623-627.	0.6	17
83	Molecular Layering in Nanometer-Confined Lubricants. Tribology Letters, 2018, 66, 1.	1.2	17
84	Switchable cantilever fabrication for a novel time-of-flight scanning force microscope. Microelectronic Engineering, 2003, 67-68, 635-643.	1.1	16
85	Surface structures and frictional properties of Au(100) in an electrochemical environment. Surface Science, 2013, 607, 20-24.	0.8	16
86	Molecular Rheology of a Nanometer-Confined Ionic Liquid. Journal of Physical Chemistry C, 2019, 123, 28284-28290.	1.5	16
87	Dynamic strain measurements in a sliding microstructured contact. Journal of Physics Condensed Matter, 2008, 20, 015004.	0.7	14
88	Nanotribology of clean and modified gold surfaces. Journal of Materials Research, 2013, 28, 1279-1288.	1.2	14
89	Dynamic shear force microscopy of viscosity in nanometer-confined hexadecane layers. Journal of Physics Condensed Matter, 2016, 28, 134004.	0.7	14
90	Interpretation of atomic friction experiments based on atomistic simulations. Journal of Vacuum Science & Technology B, 2007, 25, 1547.	1.3	13

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91	Contact Area and Shear Stress in Repeated Single-Asperity Sliding of Steel on Polymer. Tribology Letters, 2019, 67, 1.	1.2	13
92	Electron stimulated desorption from CaF2: penetration depth of electrons and sample charging. Nuclear Instruments & Methods in Physics Research B, 1995, 101, 118-121.	0.6	12
93	Contrast inversion in nc-AFM on Si(111)7Ã—7 due to short-range electrostatic interactions. Applied Physics A: Materials Science and Processing, 2001, 72, S19-S22.	1.1	12
94	Bulk and surface metallization of CaF₂ under low energy electron irradiation. Radiation Effects and Defects in Solids, 1995, 137, 19-24.	0.4	11
95	Single-molecule force spectroscopy of fast reversible bonds. Physical Chemistry Chemical Physics, 2017, 19, 5239-5245.	1.3	11
96	Friction force microscopy of tribochemistry and interfacial ageing for the SiO_x/Si/Au system. Beilstein Journal of Nanotechnology, 2018, 9, 1647-1658.	1.5	11
97	Correlation of friction and wear across length scales for PEEK sliding against steel. Tribology International, 2019, 136, 462-468.	3.0	11
98	Lower nanometer-scale size limit for the deformation of a metallic glass by shear transformations revealed by quantitative AFM indentation. Beilstein Journal of Nanotechnology, 2015, 6, 1721-1732.	1.5	10
99	Multivalent Adhesion and Friction Dynamics Depend on Attachment Flexibility. Journal of Physical Chemistry C, 2017, 121, 15888-15896.	1.5	9
100	Forces, charges, and light emission during the rupture of adhesive contacts. Journal of Applied Physics, 2007, 102, 103509.	1.1	8
101	Temporal development of indentation plasticity on the atomic scale revealed by force microscopy. Physical Review B, 2012, 86, .	1.1	8
102	Friction Force Microscopy. Nanoscience and Technology, 2015, , 3-16.	1.5	8
103	Friction Mediated by Redox-Active Supramolecular Connector Molecules. Langmuir, 2015, 31, 10708-10716.	1.6	7
104	The mechanics of single cross-links which mediate cell attachment at a hydrogel surface. Nanoscale, 2019, 11, 11596-11604.	2.8	7
105	Nanomechanics of self-assembled DNA building blocks. Nanoscale, 2021, 13, 9371-9380.	2.8	7
106	Novel Experiments Reveal Scratching and Transfer Film Mechanisms in the Sliding of the PEEK/Steel Tribosystem. Tribology Letters, 2016, 63, 1.	1.2	6
107	Tribological Synergy of Filler Components in Multifunctional Polyimide Coatings. Advanced Engineering Materials, 2017, 19, 1600363.	1.6	6
108	Single layer graphene induces load-bearing molecular layering at the hexadecane-steel interface. Nanotechnology, 2019, 30, 46LT01.	1.3	6

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109	Modeling the Contact Mechanics of Hydrogels. Lubricants, 2019, 7, 35.	1.2	6
110	The Cu(1 0 0)-c(2Ã—2) N structure studied by combined nc-AFM/STM. Applied Surface Science, 2003, 210, 43-48.	3.1	4
111	3D and 2D structural characterization of 1D Al/Al₂O₃ biphasic nanostructures. Journal of Microscopy, 2015, 258, 113-118.	0.8	4
112	Interactions between shape-persistent macromolecules as probed by AFM. Beilstein Journal of Organic Chemistry, 2017, 13, 938-951.	1.3	4
113	Molecular kinetics and cooperative effects in friction and adhesion of fast reversible bonds. Physical Chemistry Chemical Physics, 2019, 21, 17170-17175.	1.3	4
114	Friction and Wear on the Atomic Scale. , 2005, , 483-533.		4
115	Nanotribology. Chimia, 2002, 56, 562-565.	0.3	3
116	Nano-meter scale plasticity in KBr studied by nanoindenter and force microscopy. Materials Research Society Symposia Proceedings, 2009, 1185, 90.	0.1	3
117	Nanotribology â€“ Fundamental Studies of Friction and Plasticity. Advanced Engineering Materials, 2010, 12, 362-367.	1.6	3
118	Friction in Passive Tactile Perception Induces Phase Coherency in Late Somatosensory Single Trial Sequences. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2019, 27, 129-138.	2.7	3
119	Role of Hair Coverage and Sweating for Textile Friction on the Forearm. Tribology Letters, 2020, 68, 1.	1.2	3
120	Friction and Wear on the Atomic Scale. , 2008, , 557-605.		3
121	Bending as Key Mechanism in the Tactile Perception of Fibrillar Surfaces. Advanced Materials Interfaces, 2022, 9, 2101380.	1.9	3
122	The Role of Plastic Deformation in Nanometer-Scale Wear. Advances in Science and Technology, 0, , .	0.2	2
123	Electroactuators: from understanding to micro-robotics and energy conversion: general discussion. Faraday Discussions, 2017, 199, 525-545.	1.6	2
124	Electrotunable wetting, and micro- and nanofluidics: general discussion. Faraday Discussions, 2017, 199, 195-237.	1.6	2
125	Adhesion: In Situ Observation Reveals Local Detachment Mechanisms and Suction Effects in Micropatterned Adhesives (Adv. Funct. Mater. 14/2019). Advanced Functional Materials, 2019, 29, 1970091.	7.8	2
126	Friction and Wear on the Atomic Scale. , 2010, , 923-953.		2

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127	Friction and Wear on the Atomic Scale. , 2011, , 243-292.		1
128	Let it slip. Nature Physics, 2014, 10, 410-411.	6.5	1
129	Relating tribological stimuli to somatosensory electroencephalographic responses. , 2015, 2015, 8115-8.		1
130	Electrovariable nanoplasmonics: general discussion. Faraday Discussions, 2017, 199, 603-613.	1.6	1
131	Atomic-scale stick-slip friction on a metallic glass in corrosive solutions. Tribology International, 2022, 171, 107545.	3.0	1
132	Molecular stiffness cues of an interpenetrating network hydrogel for cell adhesion. Materials Today Bio, 2022, 15, 100323.	2.6	1
133	Controlling microscopic friction on gold surfaces by electrochemical potential. Materials Research Society Symposia Proceedings, 2012, 1423, 13.	0.1	0
134	Micro- and Nanotribology of Graphene. Nanoscience and Technology, 2015, , 453-461.	1.5	0
135	Nanotribology and voltage-controlled friction: general discussion. Faraday Discussions, 2017, 199, 349-376.	1.6	0
136	Relationship between corrosion and nanoscale friction on a metallic glass. Beilstein Journal of Nanotechnology, 2022, 13, 236-244.	1.5	0
137	Perception of Friction in Tactile Exploration of Micro-structured Rubber Samples. Lecture Notes in Computer Science, 2022, , 21-29.	1.0	0