Jacqueline Krim

List of Publications by Year
in descending order

143 papers	6,612 citations	76326 40 h-index	66911 78 g-index
148 all docs	148 docs citations	148 times ranked	3470 citing authors

#	Article	IF	Citations
1	Multilayer adsorption on a fractally rough surface. Physical Review Letters, 1989, 62, 1997-2000.	7.8	414
2	Nanotribology of a Kr monolayer: A quartz-crystal microbalance study of atomic-scale friction. Physical Review Letters, 1991, 66, 181-184.	7.8	409
3	Scanning tunneling microscopy observation of self-affine fractal roughness in ion-bombarded film surfaces. Physical Review Letters, 1993, 70, 57-60.	7.8	300
4	EXPERIMENTAL OBSERVATIONS OF SELF-AFFINE SCALING AND KINETIC ROUGHENING AT SUB-MICRON LENGTHSCALES. International Journal of Modern Physics B, 1995, 09, 599-632.	2.0	265
5	Damping of a crystal oscillator by an adsorbed monolayer and its relation to interfacial viscosity. Physical Review B, 1988, 38, 12184-12189.	3.2	220
6	Study of contacts in an electrostatically actuated microswitch. Sensors and Actuators A: Physical, 2001, 93, 19-26.	4.1	204
7	Superconductivity-Dependent Sliding Friction. Physical Review Letters, 1998, 80, 1690-1693.	7.8	199
8	Friction and energy dissipation mechanisms in adsorbed molecules and molecularly thin films. Advances in Physics, 2012, 61, 155-323.	14.4	177
9	Friction at the Atomic Scale. Scientific American, 1996, 275, 74-80.	1.0	167
10	Experimental observation of interfacial slippage at the boundary of molecularly thin films with gold substrates. Physical Review B, 1990, 41, 3466-3472.	3.2	157
11	Triple-Point Wetting of Light Molecular Gases on Au(111) Surfaces. Physical Review Letters, 1984, 52, 640-643.	7.8	154
12	Sliding Friction of Solid Xenon Monolayers and Bilayers on Ag(111). Physical Review Letters, 1996, 76, 803-806.	7.8	153
13	Scanning Tunneling Microscopy Study of the Thick Film Limit of Kinetic Roughening. Physical Review Letters, 1994, 73, 3564-3567.	7.8	145
14	Complete and incomplete wetting of krypton and oxygen on graphite: Reentrant type-2 growth on a scale of substrate strength. Physical Review B, 1984, 29, 983-987.	3.2	131
15	Effect of the form of the height-height correlation function on diffuse x-ray scattering from a self-affine surface. Physical Review B, 1993, 48, 2873-2877.	3.2	127
16	X-ray reflectivity and adsorption isotherm study of fractal scaling in vapor-deposited films. Physical Review Letters, 1991, 67, 3408-3411.	7.8	119
17	X-ray-reflectivity study of the growth kinetics of vapor-deposited silver films. Physical Review B, 1994, 49, 4902-4907.	3.2	119
18	Surface science and the atomic-scale origins of friction: what once was old is new again. Surface Science, 2002, 500, 741-758.	1.9	118

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19	Dominance of Phonon Friction for a Xenon Film on a Silver (111) Surface. Physical Review Letters, 1997, 79, 4798-4801.	7.8	112
20	Scanning tunneling microscope measurements of the amplitude of vibration of a quartz crystal oscillator. Journal of Applied Physics, 2000, 88, 4017.	2.5	109
21	Energy Dissipation in Interfacial Friction. MRS Bulletin, 1998, 23, 23-26.	3.5	103
22	Surface science, MEMS and NEMS: Progress and opportunities for surface science research performed on, or by, microdevices. Progress in Surface Science, 2013, 88, 171-211.	8.3	101
23	Roughness exponents: A paradox resolved. Physical Review E, 1993, 48, 1576-1578.	2.1	95
24	Triple-point wetting and surface melting of oxygen films adsorbed on graphite. Physical Review Letters, 1987, 58, 583-586.	7.8	92
25	Surface roughness, asperity contact and gold RF MEMS switch behavior. Journal of Micromechanics and Microengineering, 2007, 17, 2006-2015.	2.6	83
26	Resource Letter: FMMLS-1: Friction at macroscopic and microscopic length scales. American Journal of Physics, 2002, 70, 890-897.	0.7	82
27	Measuring nanomechanical properties of a dynamic contact using an indenter probe and quartz crystal microbalance. Journal of Applied Physics, 2001, 90, 6391-6396.	2.5	69
28	Atomic-Scale Origins of Frictionâ€. Langmuir, 1996, 12, 4564-4566.	3.5	65
29	Slippage of simple liquid films adsorbed on silver and gold substrates. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1990, 8, 3417-3420.	2.1	64
30	Comparison of Au and Auâ€“Ni Alloys as Contact Materials for MEMS Switches. Journal of Microelectromechanical Systems, 2009, 18, 287-295.	2.5	64
31	Superconductivity Dependent Friction of Water, Nitrogen, and Superheated He Films Adsorbed on Pb(111). Physical Review Letters, 2006, 96, 226107.	7.8	62
32	Quartz-crystal microbalance studies of the velocity dependence of interfacial friction. Physical Review B, 1998, 58, 5157-5159.	3.2	57
33	Adequacy of the Lifshitz Theory for Certain Thin Adsorbed Films. Physical Review Letters, 1996, 76, 3606-3609.	7.8	53
34	Wetting and nonwetting of molecular films at zero temperature. Physical Review B, 1984, 29, 5074-5080.	3.2	50
35	Neutron-scattering study of methane bilayer and trilayer films on graphite. Physical Review B, 1988, 37, 4735-4742.	3.2	49
36	Impact of Substrate Corrugation on the Sliding Friction Levels of Adsorbed Films. Physical Review Letters, 2005, 95, 076101.	7.8	49

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37	A LEED and neutron diffraction study of hexane adsorbed on graphite in the monolayer range: uniaxial commensurate-incommensurate transition. Surface Science, 1985, 162, 446-451.	1.9	46
38	Determination of an atomic-scale frictional force law through quartz-crystal microbalance measurements. Physical Review B, 1993, 48, 9134-9137.	3.2	46
39	Incomplete wetting ofHe4films on Ag and Au(111) surfaces. Physical Review B, 1985, 31, 7643-7650.	3.2	45
40	Impact of in situ oxygen plasma cleaning on the resistance of Ru and Au-Ru based rf microelectromechanical system contacts in vacuum. Journal of Applied Physics, 2010, 107, .	2.5	43
41	Adsorption isotherm study of the fractal scaling behavior of vapor-deposited silver films. Physical Review E, 1994, 49, 4179-4184.	2.1	40
42	Tribological degradation of fluorocarbon coated silicon microdevice surfaces in normal and sliding contact. Journal of Applied Physics, 2008, 104, .	2.5	38
43	Evaluation of Oxygen Plasma and UV Ozone Methods for Cleaning of Occluded Areas in MEMS Devices. Journal of Microelectromechanical Systems, 2010, 19, 1292-1298.	2.5	37
44	Adsorption isotherms and thermal fluctuations. Physical Review B, 1996, 53, 2073-2082.	3.2	36
45	A new test facility for efficient evaluation of MEMS contact materials. Journal of Micromechanics and Microengineering, 2007, 17, 1788-1795.	2.6	35
46	Contact degradation in hot/cold operation of direct contact micro-switches. Journal of Micromechanics and Microengineering, 2010, 20, 105028.	2.6	35
47	Impact of oxygen and argon plasma exposure on the roughness of gold film surfaces. Thin Solid Films, 2012, 520, 6201-6206.	1.8	34
48	Measurement and modelling of surface micromachined, electrostatically actuated microswitches. , 0, , .		32
49	C60Molecular Bearings and the Phenomenon of Nanomapping. Physical Review Letters, 2006, 96, 186104.	7.8	32
50	Temperature dependence of asperity contact and contact resistance in gold RF MEMS switches. Journal of Micromechanics and Microengineering, 2009, 19, 025006.	2.6	32
51	Roughness and porosity characterization of carbon and magnetic films through adsorption isotherm measurements. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1989, 7, 2481-2485.	2.1	31
52	Tuning friction with noise and disorder. Physical Review E, 1999, 59, R4737-R4740.	2.1	30
53	Controlling Friction With External Electric or Magnetic Fields: 25 Examples. Frontiers in Mechanical Engineering, 2019, 5, .	1.8	30
54	QCM tribology studies of thin adsorbed films. Nano Today, 2007, 2, 38-43.	11.9	29

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55	A LEED study of methane films adsorbed on graphite in the monolayer range. Surface Science, 1986, 177, 25-35.	1.9	28
56	Atomic-scale friction measurements on silver and chemisorbed oxygen surfaces. Thin Solid Films, 1994, 253, 190-193.	1.8	28
57	Quartz crystal microbalance studies of disorder-induced lubrication. Faraday Discussions, 1997, 107, 389-397.	3.2	28
58	The role of creep in the time-dependent resistance of Ohmic gold contacts in radio frequency microelectromechanical system devices. Journal of Applied Physics, 2008, 104, .	2.5	28
59	Qfactors of quartz oscillator modes as a probe of submonolayer-film dynamics. Physical Review B, 1986, 34, 1403-1404.	3.2	27
60	Fundamentals of Friction. MRS Bulletin, 1998, 23, 20-22.	3.5	27
61	Stickâ€“Slip and the Transition to Steady Sliding in a 2D Granular Medium and a Fixed Particle Lattice. Pure and Applied Geophysics, 2011, 168, 2259-2275.	1.9	26
62	Quartz crystal microbalance apparatus for study of viscous liquids at high temperatures. Review of Scientific Instruments, 2017, 88, 025112.	1.3	24
63	Sliding friction measurements of molecularly thin films. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1991, 9, 2566-2569.	2.1	22
64	Title is missing!. Tribology Letters, 2001, 10, 59-65.	2.6	22
65	Title is missing!. Tribology Letters, 2002, 13, 179-186.	2.6	22
66	Pfeifer, Cole, and Krim reply. Physical Review Letters, 1990, 65, 663-663.	7.8	21
67	Tribo-Induced Melting Transition at a Sliding Asperity Contact. Physical Review Letters, 2009, 103, 205502.	7.8	21
68	Tribological properties of nanodiamonds in aqueous suspensions: effect of the surface charge. RSC Advances, 2015, 5, 78933-78940.	3.6	21
69	Fiber texture and surface composition of evaporated gold films on quartz. Thin Solid Films, 1986, 137, 297-303.	1.8	20
70	Temperature dependence of nanoscale friction for Fe on YBCO. Journal of Applied Physics, 2012, 111, .	2.5	20
71	Cryogenic Performance of RF MEMS Switch Contacts. Journal of Microelectromechanical Systems, 2008, 17, 1460-1467.	2.5	19
72	Incomplete wetting of methane on graphite at low temperatures. Journal De Physique, 1986, 47, 1757-1762.	1.8	19

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73	Study of contacts in an electrostatically actuated microswitch. , 0, , .		18
74	Contact voltage-induced softening of RF microelectromechanical system gold-on-gold contacts at cryogenic temperatures. Journal of Applied Physics, 2010, 108, .	2.5	18
75	Electrical Contact Resistance and Device Lifetime Measurements of Au-RuO2-Based RF MEMS Exposed to Hydrocarbons in Vacuum and Nitrogen Environments. Tribology Letters, 2011, 44, 305-314.	2.6	18
76	Surface melting of multilayer oxygen films on graphite studied by neutron diffraction. Physical Review B, 1988, 38, 8967-8973.	3.2	17
77	STM, QCM, and the Windshield Wiper Effect:Â A Joint Theoreticalâ^'Experimental Study of Adsorbate Mobility and Lubrication at High Sliding Rates. Langmuir, 2006, 22, 9606-9609.	3.5	17
78	Multiscale Analysis of Liquid Lubrication Trends from Industrial Machines to Micro-Electrical-Mechanical Systems. Langmuir, 2007, 23, 9253-9257.	3.5	17
79	Temperature dependence of single-asperity friction for a diamond on diamondlike carbon interface. Journal of Applied Physics, 2010, 107, .	2.5	17
80	Bridging the Gap between Macro- and Nanotribology: A Quartz Crystal Microbalance Study of Tricresylphosphate Uptake on Metal and Oxide Surfaces. Physical Review Letters, 2004, 92, 176101.	7.8	16
81	Gas adsorption on aC60monolayer. Physical Review E, 2008, 77, 041603.	2.1	16
82	A Nano- to Macroscale Tribological Study of PFTS and TCP Lubricants for Si MEMS Applications. Tribology Letters, 2010, 38, 69-78.	2.6	16
83	OTS adsorption: A dynamic QCM study. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2005, 262, 81-86.	4.7	15
84	Resolution of the transfer direction of field-evaporated gold atoms for nanofabrication and microelectromechanical system applications. Applied Physics Letters, 2011, 98, 044102.	3.3	15
85	A Combined QCM and AFM Study Exploring the Nanoscale Lubrication Mechanism of Silica Nanoparticles in Aqueous Suspension. Tribology Letters, 2017, 65, 1.	2.6	15
86	Atomic-Scale Friction in Xe/Ag and N2/Pb. International Journal of Thermophysics, 1998, 19, 827-834.	2.1	14
87	Scanning tunneling microscopy characterization of the surface morphology of copper films grown on mica and quartz. Thin Solid Films, 2005, 489, 325-329.	1.8	14
88	Synergistic Effect of Nanodiamond and Phosphate Ester Anti-Wear Additive Blends. Lubricants, 2018, 6, 56.	2.9	14
89	Friction at the nano-scale. Physics World, 2005, 18, 31-34.	0.0	14
90	Incomplete wetting of helium films. Surface Science, 1985, 162, 421-425.	1.9	13

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91	Surface morphology and kinetic roughening of Ag on Ag(111) studied with scanning tunneling microscopy. Physical Review E, 1996, 54, 349-353.	2.1	13
92	Quartz-crystal microbalance studies of the slippage of solid and liquid krypton monolayers on metal(111) andC60surfaces. Physical Review B, 2005, 72, .	3.2	13
93	Quartz crystal microbalance and synchrotron X-ray reflectivity study of water and liquid xenon adsorbed on gold and quartz. Surface Science, 1994, 306, 359-366.	1.9	12
94	Krim Replies:. Physical Review Letters, 1999, 83, 1262-1262.	7.8	12
95	Magic-Sized Diamond Nanocrystals. Physical Review Letters, 2009, 102, 136104.	7.8	12
96	In situ, real time studies of thermal reaction film formation temperatures for iron and 304SS surfaces immersed in 5% tricresyl phosphate in base oil. Tribology International, 2018, 126, 106-115.	5.9	12
97	Synergistic effect of nanodiamonds on the adsorption of tricresyl phosphate on iron oxide surfaces. Applied Physics Letters, 2019, 114, .	3.3	12
98	A Tribological Study of Î³-Fe2O3 Nanoparticles in Aqueous Suspension. Tribology Letters, 2018, 66, 1.	2.6	11
99	Tuning Nanoscale Friction by Applying Weak Magnetic Fields to Reorient Adsorbed Oxygen Molecules. Condensed Matter, 2019, 4, 1.	1.8	11
100	Friction and damping of. Surface Science, 1996, 368, 49-54.	1.9	10
101	A comparative study of the nanoscale and macroscale tribological attributes of alumina and stainless steel surfaces immersed in aqueous suspensions of positively or negatively charged nanodiamonds. Beilstein Journal of Nanotechnology, 2017, 8, 2045-2059.	2.8	10
102	Tuning friction and slip at solid-nanoparticle suspension interfaces by electric fields. Scientific Reports, 2019, 9, 18584.	3.3	10
103	Measurement of protein hydration shells using a quartz microbalance. Physical Review Letters, 1989, 63, 1743-1746.	7.8	9
104	Spreading diffusion and its relation to sliding friction in molecularly thin adsorbed films. Physical Review E, 1994, 49, 4154-4156.	2.1	9
105	A scanning probe and quartz crystal microbalance study of the impact of C60on friction at solid-liquid interfaces. Journal of Physics Condensed Matter, 2001, 13, 4991-4999.	1.8	9
106	Impact of adsorbed organic monolayers on vacuum electron tunneling contributions to electrical resistance at an asperity contact. Journal of Applied Physics, 2011, 110, .	2.5	9
107	Frictional temperature rise in a sliding physisorbed monolayer of Kr/graphene. Journal of Physics Condensed Matter, 2012, 24, 424201.	1.8	9
108	Vibration can enhance stick-slip behavior for granular friction. Granular Matter, 2019, 21, 1.	2.2	9

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109	On the limit of compression of a physisorbed monolayer. Journal De Physique, 1985, 46, 425-433.	1.8	9
110	Electronic contributions to sliding friction. Tribology Letters, 1995, 1, 211.	2.6	8
111	Fractal scaling behavior of water flow patterns on inhomogeneous surfaces. Physical Review E, 1996, 54, 6511-6515.	2.1	8
112	Simultaneous stress and mass change measurements arising from laser induced detuning of a quartz crystal microbalance. Journal of Applied Physics, 2018, 124, .	2.5	8
113	QCM Study of Tribotronic Control in Ionic Liquids and Nanoparticle Suspensions. Tribology Letters, 2021, 69, 1.	2.6	8
114	Friction, force chains, and falling fruit. Physics Today, 2009, 62, 66-67.	0.3	7
115	Dielectric and Electrostatic Properties of the Silica Nanoparticleâ€“Water Interface by EPR of pH-Sensitive Spin Probes. Journal of Physical Chemistry C, 2019, 123, 29972-29985.	3.1	7
116	Interdependent Roles of Electrostatics and Surface Functionalization on the Adhesion Strengths of Nanodiamonds to Gold in Aqueous Environments Revealed by Molecular Dynamics Simulations. Journal of Physical Chemistry Letters, 2018, 9, 4396-4400.	4.6	6
117	Nanotribological Performance Factors for Aqueous Suspensions of Oxide Nanoparticles and Their Relation to Macroscale Lubricity. Lubricants, 2019, 7, 49.	2.9	6
118	Correlation of high frequency QCM sphere-plate stiffness measurements with macroscopic frictional contacts in thin film and bulk stainless steel materials. Sensors and Actuators A: Physical, 2020, 306, 111913.	4.1	6
119	Dynamics of Vapor-phase Organophosphates on Silicon and OTS. Tribology Letters, 2007, 27, 269-276.	2.6	5
120	Sliding Friction Measurements of Molecularly Thin Ethanol and Pentanol Films: How Friction andÂSpreading Impact Lubricity. Journal of Low Temperature Physics, 2009, 157, 252-267.	1.4	5
121	Tribotronic control and cyclic voltammetry of platinum interfaces with metal oxide nanofluids. Applied Surface Science, 2021, 566, 150675.	6.1	4
122	Shear activation of ZDDP reaction films in the presence and absence of nanodiamonds. Applied Surface Science Advances, 2022, 7, 100214.	6.8	4
123	Influence of surface melting characteristics on the wetting behavior of solid adsorbed films. Langmuir, 1989, 5, 567-570.	3.5	3
124	Applications of the Piezoelectric Quartz Crystal Microbalance for Microdevice Development. , 2005, , 227-259.		3
125	Scanning tunneling microscope-quartz crystal microbalance study of temperature gradients at an asperity contact. Review of Scientific Instruments, 2013, 84, 014901.	1.3	3
126	Sliding Friction of Compressing Xenon Monolayers. , 1997, , 311-316.		3

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127	Continuum Model Analysis of QCM Nanotribological Data to Obtain Friction Coefficients for 304SS Contacts Lubricated by Water and TiO2 Nanoparticle Suspensions. Frontiers in Mechanical Engineering, 2020, 6, .	1.8	2
128	Dynamics of Neutral and Charged Nanodiamonds in Aqueous Media Confined between Gold Surfaces under Normal and Shear Loading. ACS Omega, 2020, 5, 10349-10358.	3.5	2
129	Probing Film Phase Transitions Through Measurements of Sliding Friction. NATO ASI Series Series B: Physics, 1991, , 169-182.	0.2	2
130	Electronic Contributions to Sliding Friction. , 1996, , 191-201.		2
131	Summary Abstract: Influence of film melting characteristics on the wetting behavior of multilayer oxygen films adsorbed on graphite. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1987, 5, 1096-1097.	2.1	1
132	Scanning Tunneling Microscopy Study of the Dynamic Scaling Properties of Rough Vapor-Deposited Silver Films. Materials Research Society Symposia Proceedings, 1993, 317, 111.	0.1	1
133	Adsorbate surface tension effects for isotherms recorded on fractally rough surfaces. Studies in Surface Science and Catalysis, 1994, , 91-98.	1.5	1
134	Scanning Tunneling Microscope-Quartz Crystal Microbalance Studies of "Real World" and Model Lubricants. ACS Symposium Series, 2004, , 1-18.	0.5	1
135	Quartz Crystal Microbalance (QCM) Applications to Tribology. , 2013, , 2727-2733.		1
136	STM-QCM Studies of Vapor Phase Lubricants. , 2003, , 361-375.		1
137	Applications of a Combined Scanning Tunneling Microscope and Quartz Microbalance. , 1994, , 303-309.		1
138	Characterization of The Surface Fractal Dimension of Evaporated Silver and Gold Films Through Adsorption Isotherm Measurements. Studies in Surface Science and Catalysis, 1991, 62, 217-224.	1.5	0
139	Probing Surface Roughness and Porosity through Adsorption of Wetting Layers. Materials Research Society Symposia Proceedings, 1994, 366, 231.	0.1	0
140	Skewed Height Distributions of Kinetically Roughened Films. Materials Research Society Symposia Proceedings, 1996, 440, 311.	0.1	0
141	RF MEMS Behavior, Surface Roughness and Asperity Contact. Materials Research Society Symposia Proceedings, 2007, 1052, 1.	0.1	0
142	Nanoscale design of adaptive tribological coatings for goldâ€“ytrium based nanocomposites. Tribology - Materials, Surfaces and Interfaces, 2009, 3, 145-150.	1.4	0
143	Nanodiamond-based Nanolubricants: Experiment and Modeling. Materials Research Society Symposia Proceedings, 2014, 1703, 1.	0.1	0