Melissa A Hines

List of Publications by Year
in descending order

		201575	233338
68	2,198	27	45
papers	citations	h-index	g-index

69	69	69	1934
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Mechanism of Gold-Assisted Exfoliation of Centimeter-Sized Transition-Metal Dichalcogenide Monolayers. ACS Nano, 2018, 12, 10463-10472.	7.3	203
2	High-affinity adsorption leads to molecularly ordered interfaces on TiO ₂ in air and solution. Science, 2018, 361, 786-789.	6.0	190
3	Macroscopic etch anisotropies and microscopic reaction mechanisms: a micromachined structure for the rapid assay of etchant anisotropy. Surface Science, 2000, 460, 21-38.	0.8	106
4	INSEARCH OFPERFECTION: Understanding the Highly Defect-Selective Chemistry of Anisotropic Etching. Annual Review of Physical Chemistry, 2003, 54, 29-56.	4.8	105
5	Effect of translational and vibrational energy on adsorption: The dynamics of molecular and dissociative chemisorption. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1987, 5, 501-507.	0.9	90
6	Extracting site-specific reaction rates from steady state surface morphologies: Kinetic Monte Carlo simulations of aqueous Si(111) etching. Journal of Chemical Physics, 1998, 108, 5542-5553.	1.2	81
7	Measuring the structure of etched silicon surfaces with Raman spectroscopy. Journal of Chemical Physics, 1994, 101, 8055-8072.	1.2	77
8	Orientation-Resolved Chemical Kinetics:â€‰ Using Microfabrication to Unravel the Complicated Chemistry of KOH/Si Etching. Journal of Physical Chemistry B, 2002, 106, 1557-1569.	1.2	60
9	2+1 resonantly enhanced multiphoton ionization of CO via the Eâ€‰1Îâ€“Xâ€‰1Î£+ transition: From measured ion signals to quantitative population distributions. Journal of Chemical Physics, 1990, 93, 8557-8564.	1.2	57
10	Etchant Anisotropy Controls the Step Bunching Instability in KOH Etching of Silicon. Physical Review Letters, 2004, 93, 166102.	2.9	57
11	An atomistic mechanism for the production of two- and three-dimensional etch hillocks on Si(111) surfaces. Journal of Chemical Physics, 1999, 111, 6970-6981.	1.2	53
12	Characterization of silicon surfaces and interfaces by optical vibrational spectroscopy. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1995, 13, 1719-1727.	0.9	48
13	Aqueous Etching Produces Si(100) Surfaces of Near-Atomic Flatness: Strain Minimization Does Not Predict Surface Morphology. Journal of Physical Chemistry C, 2010, 114, 423-428.	1.5	48
14	Surface Chemical Control of Mechanical Energy Losses in Micromachined Silicon Structures. Journal of Physical Chemistry B, 2003, 107, 14270-14277.	1.2	47
15	Raman studies of steric hindrance and surface relaxation of stepped H-terminated silicon surfaces. Physical Review Letters, 1993, 71, 2280-2283.	2.9	44
16	The interaction of CO with Ni(111): Rainbows and rotational trapping. Journal of Chemical Physics, 1993, 98, 9134-9147.	1.2	42
17	Understanding the pH dependence of silicon etching: the importance of dissolved oxygen in buffered HF etchants. Surface Science, 2003, 541, 252-261.	0.8	42
18	Fabrication of nanoperiodic surface structures by controlled etching of dislocations in bicrystals. Applied Physics Letters, 2001, 78, 2205-2207.	1.5	41

#	Article	IF	Citations
19	The picture tells the story: Using surface morphology to probe chemical etching reactions. International Reviews in Physical Chemistry, 2001, 20, 645-672.	0.9	40
20	Effect of translational energy on chemisorption: Evidence for a precursor to molecular chemisorption. Journal of Chemical Physics, 1985, 82, 2826-2827.	1.2	36
21	Nanoscale Solvation Leads to Spontaneous Formation of a Bicarbonate Monolayer on Rutile (110) under Ambient Conditions: Implications for CO₂ Photoreduction. Journal of Physical Chemistry C, 2016, 120, 9326-9333.	1.5	36
22	The site-specific reactivity of isopropanol in aqueous silicon etching: Controlling morphology with surface chemistry. Journal of Chemical Physics, 1999, 111, 9125-9128.	1.2	35
23	Measuring the Site-Specific Reactivity of Impurities:Â The Pronounced Effect of Dissolved Oxygen on Silicon Etchingâ€. Journal of Physical Chemistry B, 2002, 106, 8258-8264.	1.2	34
24	Effect of surface morphology on the fracture strength of silicon nanobeams. Applied Physics Letters, 2006, 89, 091901.	1.5	32
25	Effects of Dynamic Step-Step Repulsion and Autocatalysis on the Morphology of Etched Si(111) Surfaces. Physical Review Letters, 1998, 80, 4462-4465.	2.9	31
26	Production of Highly Homogeneous Si(100) Surfaces by H2O Etching:Â Surface Morphology and the Role of Strain. Journal of the American Chemical Society, 2006, 128, 11455-11462.	6.6	30
27	Methyl monolayers improve the fracture strength and durability of silicon nanobeams. Applied Physics Letters, 2006, 89, 231905.	1.5	28
28	Improved algorithm for the suppression of interference fringe in absorption spectroscopy. Review of Scientific Instruments, 2004, 75, 4547-4553.	0.6	27
29	Self-Propagating Reaction Produces Near-Ideal Functionalization of Si(100) and Flat Surfaces. Journal of Physical Chemistry C, 2012, 116, 18920-18929.	1.5	26
30	The formation of etch hillocks during step-flow etching of Si(111). Chemical Physics Letters, 1999, 302, 85-90.	1.2	24
31	Looking up the down staircase: Surface Raman spectroscopy as a probe of adsorbate orientation. Journal of Electron Spectroscopy and Related Phenomena, 1993, 64-65, 183-191.	0.8	23
32	Dynamic repulsion of surface steps during step flow etching: Controlling surface roughness with chemistry. Journal of Chemical Physics, 1998, 109, 5025-5035.	1.2	23
33	Controlling energy dissipation and stability of micromechanical silicon resonators with self-assembled monolayers. Applied Physics Letters, 2004, 84, 1765-1767.	1.5	23
34	Understanding the Effects of Surface Chemistry onQ:Â Mechanical Energy Dissipation in Alkyl-Terminated (C1â^'C18) Micromechanical Silicon Resonators. Journal of Physical Chemistry B, 2007, 111, 88-94.	1.2	22
35	Extracting maximum information from polarized surface vibrational spectra: Application to etched, H-terminated Si(110) surfaces. Journal of Chemical Physics, 2008, 128, 144711.	1.2	20
36	Single-Crystal Alkali Antimonide Photocathodes: High Efficiency in the Ultrathin Limit. Physical Review Letters, 2022, 128, 114801.	2.9	20

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37	The correlation between surface morphology and spectral lineshape: a re-examination of the Hâ€“Si(111) stretch vibration. Surface Science, 1999, 430, 67-79.	0.8	19
38	Methyl monolayers suppress mechanical energy dissipation in micromechanical silicon resonators. Applied Physics Letters, 2004, 85, 5736-5738.	1.5	19
39	Study of the resonant frequencies of silicon microcantilevers coated with vanadium dioxide films during the insulator-to-metal transition. Journal of Applied Physics, 2010, 107, 053528.	1.1	18
40	The same etchant produces both near-atomically flat and microfaceted Si(100) surfaces: The effects of gas evolution on etch morphology. Journal of Applied Physics, 2010, 107, .	1.1	17
41	Kinetic Monte Carlo simulations of anisotropic Si(100) etching: Modeling the chemical origins of characteristic etch morphologies. Journal of Chemical Physics, 2010, 133, 044710.	1.2	17
42	A Blackboard for the 21st Century: An Inexpensive Light Board Projection System for Classroom Use. Journal of Chemical Education, 2015, 92, 1754-1756.	1.1	17
43	Lowering the density of electronic defects on organic-functionalized Si(100) surfaces. Applied Physics Letters, 2014, 104, .	1.5	16
44	Rutile Surface Reactivity Provides Insight into the Structure-Directing Role of Peroxide in TiO₂ Polymorph Control. Journal of Physical Chemistry C, 2014, 118, 27343-27352.	1.5	15
45	The Intricate Love Affairs between MoS₂ and Metallic Substrates. Advanced Materials Interfaces, 2020, 7, 2001324.	1.9	15
46	Effects of Diffusional Processes on Crystal Etching:â€‰ Kinematic Theory Extended to Two Dimensions. Journal of Physical Chemistry B, 2004, 108, 6062-6071.	1.2	14
47	Solution Deposition of Phenylphosphinic Acid Leads to Highly Ordered, Covalently Bound Monolayers on TiO₂ (110) Without Annealing. Journal of Physical Chemistry C, 2017, 121, 14213-14221.	1.5	14
48	Atomic-Scale Understanding of Catalyst Activation: Carboxylic Acid Solutions, but Not the Acid Itself, Increase the Reactivity of Anatase (001) Faceted Nanocatalysts. Journal of Physical Chemistry C, 2018, 122, 4307-4314.	1.5	14
49	Si(100) Etching in Aqueous Fluoride Solutions: Parallel Etching Reactions Lead to pH-Dependent Nanohillock Formation or Atomically Flat Surfaces. Journal of Physical Chemistry C, 2012, 116, 21499-21507.	1.5	12
50	Solution Deposition of Self-Assembled Benzoate Monolayers on Rutile (110): Effect of Ï€â€“Ï€ Interactions on Monolayer Structure. Journal of Physical Chemistry C, 2016, 120, 11581-11589.	1.5	12
51	The effects of oxygen-induced phase segregation on the interfacial electronic structure and quantum efficiency of Cs3Sb photocathodes. Journal of Chemical Physics, 2020, 153, 144705.	1.2	11
52	Reduction of surface roughness emittance of Cs3Sb photocathodes grown via codeposition on single crystal substrates. Applied Physics Letters, 2021, 118, .	1.5	11
53	Following Chemical Charge Trapping in Pentacene Thin Films by Selective Impurity Doping and Wavelengthâ€Resolved Electric Force Microscopy. Advanced Functional Materials, 2012, 22, 5096-5106.	7.8	10
54	Finding Needles in Haystacks: Scanning Tunneling Microscopy Reveals the Complex Reactivity of Si(100) Surfaces. Accounts of Chemical Research, 2015, 48, 2159-2166.	7.6	8

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55	Molecular Mechanism of Etching-Induced Faceting on Si(100): Micromasking Is Not a Prerequisite for Pyramidal Texturing. Journal of Physical Chemistry C, 2015, 119, 14490-14498.	1.5	8
56	Effect of Surface Chemistry on Mechanical Energy Dissipation:â€‰ Silicon Oxidation Does Not Inherently Decrease the Quality Factor. Journal of Physical Chemistry C, 2008, 112, 1473-1478.	1.5	6
57	Frustrated Etching during H/Si(111) Methoxylation Produces Fissured Fluorinated Surfaces, Whereas Direct Fluorination Preserves the Atomically Flat Morphology. Journal of Physical Chemistry C, 2015, 119, 26029-26037.	1.5	6
58	Half-flat vs. atomically flat: Alkyl monolayers on morphologically controlled Si(100) and Si(111) have very similar structure, density, and chemical stability. Journal of Chemical Physics, 2017, 146, 052804.	1.2	5
59	Breaking Ï€â€“Ï€ Interactions in Carboxylic Acid Monolayers on Rutile TiO₂(110) Leads to Unexpected Long-Range Ordering. Journal of Physical Chemistry C, 2019, 123, 8836-8842.	1.5	5
60	Cartesian Decomposition of Infrared Spectra Reveals the Structure of Solution-Deposited, Self-Assembled Benzoate and Alkanoate Monolayers on Rutile (110). Journal of Physical Chemistry C, 2016, 120, 24866-24876.	1.5	4
61	Summary Abstract: Effect of translational energy on molecular chemisorption: Possible selective population of the precursor and molecular chemisorption states. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1985, 3, 1665-1665.	0.9	1
62	Effect of surface chemistry on the quality factors of micromechanical resonators. , 2011, , .		1
63	Morphological Aspects of Silicon Oxidation in Aqueous Solutions. Springer Series in Materials Science, 2001, , 13-34.	0.4	1
64	Photochemical Fluorination of TiO₂(110) Produces an Atomically Thin Passivating Layer. Journal of Physical Chemistry C, 2022, 126, 4899-4906.	1.5	1
65	Nanofabrication at Biologically Important Length Scale: Etching of Dislocation Array in Twist-bonded Bicrystals. Materials Research Society Symposia Proceedings, 2001, 705, 981.	0.1	0
66	Chemical Control of Surfaces: From Fundamental Understanding to Practical Application. Solid State Phenomena, 2012, 195, 65-70.	0.3	0
67	Machining with chemistry: Controlling nanoscale surface structure with anisotropic etching. Nanostructure Science and Technology, 2004, , 249-280.	0.1	0
68	Effect of Organic SAMs on the Evolution of Strength of Silicon Nanostructures. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 59-64.	0.3	0