Cynthia M Friend

List of Publications by Year
in descending order

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128 papers	6,979 citations	70961 41 h-index	62479 80 g-index
135 all docs	135 docs citations	135 times ranked	7649 citing authors

#	Article	IF	Citations
1	Heterogeneous Gold-Based Catalysis for Green Chemistry:â€‰ Low-Temperature CO Oxidation and Propene Oxidation. Chemical Reviews, 2007, 107, 2709-2724.	23.0	713
2	Achieving Selective and Efficient Electrocatalytic Activity for CO₂ Reduction Using Immobilized Silver Nanoparticles. Journal of the American Chemical Society, 2015, 137, 13844-13850.	6.6	575
3	O₂ Activation by Metal Surfaces: Implications for Bonding and Reactivity on Heterogeneous Catalysts. Chemical Reviews, 2018, 118, 2816-2862.	23.0	363
4	Heterogeneous Catalysis: A Central Science for a Sustainable Future. Accounts of Chemical Research, 2017, 50, 517-521.	7.6	271
5	Dynamic restructuring drives catalytic activity on nanoporous goldâ€“silver alloy catalysts. Nature Materials, 2017, 16, 558-564.	13.3	243
6	Enhancement of O2Dissociation on Au(111) by Adsorbed Oxygen:Â Implications for Oxidation Catalysis. Journal of the American Chemical Society, 2005, 127, 9267-9270.	6.6	211
7	Selectivity Control in Goldâ€Mediated Esterification of Methanol. Angewandte Chemie - International Edition, 2009, 48, 4206-4209.	7.2	167
8	Sequential Photo-oxidation of Methanol to Methyl Formate on TiO₂(110). Journal of the American Chemical Society, 2013, 135, 574-577.	6.6	166
9	Vapour-phase gold-surface-mediated coupling of aldehydes with methanol. Nature Chemistry, 2010, 2, 61-65.	6.6	158
10	Nanoporous Gold: Understanding the Origin of the Reactivity of a 21st Century Catalyst Made by Pre-Columbian Technology. ACS Catalysis, 2015, 5, 6263-6270.	5.5	140
11	Toward digitally controlled catalyst architectures: Hierarchical nanoporous gold via 3D printing. Science Advances, 2018, 4, eaas9459.	4.7	140
12	Guidelines to Achieving High Selectivity for the Hydrogenation of Î±,Î²-Unsaturated Aldehydes with Bimetallic and Dilute Alloy Catalysts: A Review. Chemical Reviews, 2020, 120, 12834-12872.	23.0	136
13	Selective Oxidation of Styrene on an Oxygen-Covered Au(111). Journal of the American Chemical Society, 2005, 127, 17178-17179.	6.6	132
14	Selective non-oxidative dehydrogenation of ethanol to acetaldehyde and hydrogen on highly dilute NiCu alloys. Applied Catalysis B: Environmental, 2017, 205, 541-550.	10.8	124
15	Unraveling molecular transformations on surfaces: a critical comparison of oxidation reactions on coinage metals. Chemical Society Reviews, 2008, 37, 2243.	18.7	120
16	Surface-Mediated Self-Coupling of Ethanol on Gold. Journal of the American Chemical Society, 2009, 131, 5757-5759.	6.6	119
17	The mystery of gold's chemical activity: local bonding, morphology and reactivity of atomic oxygen. Physical Chemistry Chemical Physics, 2011, 13, 34-46.	1.3	106
18	Oxygenâ€Mediated Coupling of Alcohols over Nanoporous Gold Catalysts at Ambient Pressures. Angewandte Chemie - International Edition, 2012, 51, 1698-1701.	7.2	106

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19	Achieving Optimum Selectivity in Oxygen Assisted Alcohol Cross-Coupling on Gold. Journal of the American Chemical Society, 2010, 132, 16571-16580.	6.6	102
20	Theoretical Study of O-Assisted Selective Coupling of Methanol on Au(111). Journal of Physical Chemistry C, 2011, 115, 3703-3708.	1.5	95
21	Chlorine Adsorption on Au(111):â€‰ Chlorine Overlayer or Surface Chloride?. Journal of the American Chemical Society, 2008, 130, 3560-3565.	6.6	83
22	Atomic Oxygen Adsorption on Au(111) Surfaces with Defects. Journal of Physical Chemistry C, 2009, 113, 3232-3238.	1.5	80
23	Probing Atomic Distributions in Mono- and Bimetallic Nanoparticles by Supervised Machine Learning. Nano Letters, 2019, 19, 520-529.	4.5	80
24	Ozone-Activated Nanoporous Gold: A Stable and Storable Material for Catalytic Oxidation. ACS Catalysis, 2015, 5, 4237-4241.	5.5	76
25	Dynamics of Surface Alloys: Rearrangement of Pd/Ag(111) Induced by CO and O₂. Journal of Physical Chemistry C, 2019, 123, 8312-8323.	1.5	75
26	Synthesis of TiO2 nanoparticles on the Au(111) surface. Journal of Chemical Physics, 2005, 123, 094705.	1.2	72
27	The Role of Surface and Subsurface Point Defects for Chemical Model Studies on TiO₂: A Firstâ€Principles Theoretical Study of Formaldehyde Bonding on Rutile TiO₂(110). Chemistry - A European Journal, 2011, 17, 4496-4506.	1.7	72
28	Highly Selective Acylation of Dimethylamine Mediated by Oxygen Atoms on Metallic Gold Surfaces. Angewandte Chemie - International Edition, 2010, 49, 394-398.	7.2	69
29	Partial Oxidation of Propene on Oxygen-Covered Au(111). Journal of Physical Chemistry B, 2006, 110, 15982-15987.	1.2	64
30	van der Waals Interactions Determine Selectivity in Catalysis by Metallic Gold. Journal of the American Chemical Society, 2014, 136, 13333-13340.	6.6	63
31	Achieving High Selectivity for Alkyne Hydrogenation at High Conversions with Compositionally Optimized PdAu Nanoparticle Catalysts in Raspberry Colloid-Templated SiO₂. ACS Catalysis, 2020, 10, 441-450.	5.5	61
32	Oxygen-assisted cross-coupling of methanol with alkyl alcohols on metallic gold. Chemical Science, 2010, 1, 310.	3.7	58
33	Anatomy of the Photochemical Reaction: Excited-State Dynamics Reveals the Câ€“H Acidity Mechanism of Methoxy Photo-oxidation on Titania. Journal of Physical Chemistry Letters, 2015, 6, 1624-1627.	2.1	58
34	Strain effects on the behavior of isolated and paired sulfur vacancy defects in monolayer <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>MoS</mml:mi><mml:mn>2</mml:mn></mml:msub></mm Physical Review B, 2017, 95, .	1.1	56
35	Selective Oxygen-Assisted Reactions of Alcohols and Amines Catalyzed by Metallic Gold: Paradigms for the Design of Catalytic Processes. ACS Catalysis, 2017, 7, 965-985.	5.5	56
36	Dilute Pd/Au Alloy Nanoparticles Embedded in Colloid-Templated Porous SiO₂: Stable Au-Based Oxidation Catalysts. Chemistry of Materials, 2019, 31, 5759-5768.	3.2	50

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37	Dilute Alloys Based on Au, Ag, or Cu for Efficient Catalysis: From Synthesis to Active Sites. Chemical Reviews, 2022, 122, 8758-8808.	23.0	50
38	Predicting Gold-Mediated Catalytic Oxidative-Coupling Reactions from Single Crystal Studies. Accounts of Chemical Research, 2014, 47, 761-772.	7.6	47
39	Evolution of Metastable Structures at Bimetallic Surfaces from Microscopy and Machine-Learning Molecular Dynamics. Journal of the American Chemical Society, 2020, 142, 15907-15916.	6.6	47
40	Chlorine Promotion of Styrene Epoxidation on Au(111). Journal of the American Chemical Society, 2007, 129, 1872-1873.	6.6	46
41	Nature of Oxidation of the Au(111) Surface: Experimental and Theoretical Investigation. Journal of Physical Chemistry C, 2009, 113, 16561-16564.	1.5	45
42	Active sites for methanol partial oxidation on nanoporous gold catalysts. Journal of Catalysis, 2016, 344, 778-783.	3.1	45
43	Noncovalent Bonding Controls Selectivity in Heterogeneous Catalysis: Coupling Reactions on Gold. Journal of the American Chemical Society, 2016, 138, 15243-15250.	6.6	43
44	Crossing the great divide between single-crystal reactivity and actual catalyst selectivity with pressure transients. Nature Catalysis, 2018, 1, 852-859.	16.1	42
45	Enhancing catalytic performance of dilute metal alloy nanomaterials. Communications Chemistry, 2020, 3, .	2.0	41
46	A Novel Growth Mode of Mo on Au (111) from a Mo(CO)6Precursor:Â An STM Study. Journal of Physical Chemistry B, 2003, 107, 1036-1043.	1.2	40
47	Origin of the selectivity in the gold-mediated oxidation of benzyl alcohol. Surface Science, 2012, 606, 1129-1134.	0.8	40
48	Formation of nanostructured TiO2 by femtosecond laser irradiation of titanium in O2. Journal of Applied Physics, 2012, 112, .	1.1	40
49	Exploiting basic principles to control the selectivity of the vapor phase catalytic oxidative cross-coupling of primary alcohols over nanoporous gold catalysts. Journal of Catalysis, 2015, 329, 78-86.	3.1	39
50	Ag/Au Mixed Sites Promote Oxidative Coupling of Methanol on the Alloy Surface. Chemistry - A European Journal, 2014, 20, 4646-4652.	1.7	37
51	Surface Structure Dependence of the Dry Dehydrogenation of Alcohols on Cu(111) and Cu(110). Journal of Physical Chemistry C, 2017, 121, 12800-12806.	1.5	34
52	Oxidative coupling of alcohols on gold: Insights from experiments and theory. Faraday Discussions, 2011, 152, 307.	1.6	33
53	Neural network assisted analysis of bimetallic nanocatalysts using X-ray absorption near edge structure spectroscopy. Physical Chemistry Chemical Physics, 2020, 22, 18902-18910.	1.3	33
54	A Pathway for NH Addition to Styrene Promoted by Gold. Angewandte Chemie - International Edition, 2006, 45, 7075-7078.	7.2	31

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55	Activated Metallic Gold as an Agent for Direct Methoxycarbonylation. Journal of the American Chemical Society, 2011, 133, 20378-20383.	6.6	31
56	Continuous Catalytic Production of Methyl Acrylates from Unsaturated Alcohols by Gold: The Strong Effect of Câ•C Unsaturation on Reaction Selectivity. ACS Catalysis, 2016, 6, 1833-1839.	5.5	30
57	New Architectures for Designed Catalysts: Selective Oxidation using AgAu Nanoparticles on Colloidâ€Templated Silica. Chemistry - A European Journal, 2018, 24, 1833-1837.	1.7	29
58	Hydrogen migration at restructuring palladiumâ€“silver oxide boundaries dramatically enhances reduction rate of silver oxide. Nature Communications, 2020, 11, 1844.	5.8	28
59	Enhanced Photo-Oxidation of Formaldehyde on Highly Reduced o-TiO₂(110). Journal of Physical Chemistry C, 2014, 118, 29242-29251.	1.5	27
60	Methanol Photo-Oxidation on Rutile TiO₂ Nanowires: Probing Reaction Pathways on Complex Materials. Journal of Physical Chemistry C, 2017, 121, 9910-9919.	1.5	26
61	Facilitating hydrogen atom migration via a dense phase on palladium islands to a surrounding silver surface. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 22657-22664.	3.3	26
62	Reactivity of methanol on TiO2 nanoparticles supported on the Au(111) surface. Surface Science, 2005, 591, 1-12.	0.8	25
63	Entropic Control of HD Exchange Rates over Dilute Pd-in-Au Alloy Nanoparticle Catalysts. ACS Catalysis, 2021, 11, 6971-6981.	5.5	25
64	Multiscale Morphology of Nanoporous Copper Made from Intermetallic Phases. ACS Applied Materials & Interfaces, 2017, 9, 25615-25622.	4.0	24
65	Accurate formation energies of charged defects in solids: A systematic approach. Physical Review B, 2017, 95, .	1.1	24
66	Evolution of steady-state material properties during catalysis: Oxidative coupling of methanol over nanoporous Ag0.03Au0.97. Journal of Catalysis, 2019, 380, 366-374.	3.1	24
67	The Dynamic Roles of Interstitial and Surface Defects on Oxidation and Reduction Reactions on Titania. Topics in Catalysis, 2013, 56, 1377-1388.	1.3	23
68	Self-assembly of acetate adsorbates drives atomic rearrangement on the Au(110) surface. Nature Communications, 2016, 7, 13139.	5.8	23
69	Structure of the Clean and Oxygen-Covered Cu(100) Surface at Room Temperature in the Presence of Methanol Vapor in the 10â€“200 mTorr Pressure Range. Journal of Physical Chemistry B, 2018, 122, 548-554.	1.2	23
70	Dualâ€Function of Alcohols in Goldâ€Mediated Selective Coupling of Amines and Alcohols. Chemistry - A European Journal, 2012, 18, 2313-2318.	1.7	20
71	A paradigm for predicting selective oxidation on noble metals: oxidative catalytic coupling of amines and aldehydes on metallic gold. Faraday Discussions, 2011, 152, 241.	1.6	19
72	Switching Selectivity in Oxidation Reactions on Gold: The Mechanism of Câ€“C vs Câ€“H Bond Activation in the Acetate Intermediate on Au(111). ACS Catalysis, 2014, 4, 3281-3288.	5.5	19

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73	Tuning the Stability of Surface Intermediates Using Adsorbed Oxygen: Acetate on Au(111). Journal of Physical Chemistry Letters, 2014, 5, 1126-1130.	2.1	19
74	Methyl ester synthesis catalyzed by nanoporous gold: from 10^{âˆ’9} Torr to 1 atm. Catalysis Science and Technology, 2015, 5, 1299-1306.	2.1	18
75	A Comparative Ab Initio Study of Anhydrous Dehydrogenation of Linear-Chain Alcohols on Cu(110). Journal of Physical Chemistry C, 2018, 122, 7806-7815.	1.5	18
76	General Effect of van der Waals Interactions on the Stability of Alkoxy Intermediates on Metal Surfaces. Journal of Physical Chemistry B, 2018, 122, 555-560.	1.2	17
77	Stabilization of a nanoporous NiCu dilute alloy catalyst for non-oxidative ethanol dehydrogenation. Catalysis Science and Technology, 2020, 10, 5207-5217.	2.1	17
78	Water facilitates oxygen migration on gold surfaces. Physical Chemistry Chemical Physics, 2018, 20, 2196-2204.	1.3	17
79	Role of Surface-Bound Intermediates in the Oxygen-Assisted Synthesis of Amides by Metallic Silver and Gold. Journal of the American Chemical Society, 2012, 134, 12604-12610.	6.6	16
80	Controlling O coverage and stability by alloying Au and Ag. Physical Chemistry Chemical Physics, 2016, 18, 26844-26853.	1.3	16
81	Reduction of Oxidized Pd/Ag(111) Surfaces by H₂: Sensitivity to PdO Island Size and Dispersion. ACS Catalysis, 2020, 10, 10117-10124.	5.5	16
82	Predicting X-ray Photoelectron Peak Shapes: the Effect of Electronic Structure. Journal of Physical Chemistry C, 2021, 125, 10685-10692.	1.5	16
83	Insights from Theory on the Relationship Between Surface Reactivity and Gold Atom Release. Topics in Catalysis, 2010, 53, 365-377.	1.3	15
84	Role of defects in propene adsorption and reaction on a partially O-covered Au(111) surface. Catalysis Science and Technology, 2011, 1, 1166.	2.1	15
85	Catalyst design for enhanced sustainability through fundamental surface chemistry. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150077.	1.6	15
86	Local Bonding Effects in the Oxidation of CO on Oxygen-Covered Au(111) from Ab Initio Molecular Dynamics Simulations. Journal of Chemical Theory and Computation, 2010, 6, 279-287.	2.3	14
87	Facile Ester Synthesis on Ag-Modified Nanoporous Au: Oxidative Coupling of Ethanol and 1-Butanol Under UHV Conditions. Catalysis Letters, 2015, 145, 1217-1223.	1.4	14
88	Dinitrosyl formation as an intermediate stage of the reduction of NO in the presence of MoO3. Journal of Chemical Physics, 2003, 118, 6046-6051.	1.2	13
89	Facile Decomposition of Organophosphonates by Dual Lewis Sites on a Fe₃O₄(111) Film. Journal of Physical Chemistry C, 2020, 124, 12432-12441.	1.5	13
90	Dilute Pd-in-Au alloy RCT-SiO2 catalysts for enhanced oxidative methanol coupling. Journal of Catalysis, 2021, 404, 943-953.	3.1	13

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91	Synthesis and Characterization of Core-Shell Cu-Ru, Cu-Rh, and Cu-Ir Nanoparticles. Journal of the American Chemical Society, 2022, 144, 7919-7928.	6.6	13
92	Perspectives on Heterogeneous Photochemistry. Chemical Record, 2014, 14, 944-951.	2.9	12
93	First-Principles Study of Alkoxides Adsorbed on Au(111) and Au(110) Surfaces: Assessing the Roles of Noncovalent Interactions and Molecular Structures in Catalysis. Journal of Physical Chemistry C, 2017, 121, 27905-27914.	1.5	12
94	New Role of Pd Hydride as a Sensor of Surface Pd Distributions in Pdâ^'Au Catalysts. ChemCatChem, 2020, 12, 717-721.	1.8	12
95	Regulating Photochemical Selectivity with Temperature: Isobutanol on TiO₂(110). Journal of the American Chemical Society, 2020, 142, 13072-13080.	6.6	12
96	The dynamic behavior of dilute metallic alloy Pd_xAu_{1â^'x}/SiO₂ raspberry colloid templated catalysts under CO oxidation. Catalysis Science and Technology, 2021, 11, 4072-4082.	2.1	12
97	Hydroxymethylcyclopropane on Oxygen-Covered Mo(110):Â A Radical Clock on a Surface. Journal of the American Chemical Society, 2000, 122, 12395-12396.	6.6	11
98	Identifying key descriptors in surface binding: interplay of surface anchoring and intermolecular interactions for carboxylates on Au(110). Chemical Science, 2018, 9, 3759-3766.	3.7	11
99	Effect of Frustrated Rotations on the Pre-Exponential Factor for Unimolecular Reactions on Surfaces: A Case Study of Alkoxy Dehydrogenation. Journal of Physical Chemistry C, 2020, 124, 1429-1437.	1.5	10
100	Dual Lewis site creation for activation of methanol on Fe₃O₄(111) thin films. Chemical Science, 2020, 11, 2448-2454.	3.7	10
101	On the Origin of Sinterâ€Resistance and Catalyst Accessibility in Raspberryâ€Colloidâ€Templated Catalyst Design. Advanced Functional Materials, 2021, 31, 2106876.	7.8	10
102	Effect of Coadsorbed Species and Temperature on Competitive Reaction Channels for Nascent Radicals:Âc-C3H7CH2SH on Mo(110)â^'(6 Ã— 1)-O. Journal of Physical Chemistry B, 2002, 106, 663-672.	1.2	9
103	The dissociation-induced displacement of chemisorbed O2 by mobile O atoms and the autocatalytic recombination of O due to chain fragmentation on Ag(110). Surface Science, 2014, 630, 187-194.	0.8	8
104	Catalytic production of methyl acrylates by gold-mediated cross coupling of unsaturated aldehydes with methanol. Surface Science, 2016, 652, 58-66.	0.8	8
105	Structural Differentiation of the Reactivity of Alcohols with Active Oxygen on Au(110). Topics in Catalysis, 2018, 61, 299-307.	1.3	8
106	Growth and auto-oxidation of Pd on single-layer AgO_x/Ag(111). Physical Chemistry Chemical Physics, 2020, 22, 6202-6209.	1.3	8
107	Tuning reactivity layer-by-layer: formic acid activation on Ag/Pd(111). Chemical Science, 2020, 11, 6492-6499.	3.7	7
108	Experimental investigation into tungsten carbide thin films as solid oxide fuel cell anodes. Journal of Materials Research, 2016, 31, 3050-3059.	1.2	6

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109	Chemistry of Methanol and Ethanol on Ozone-Prepared Î±-Fe₂O₃(0001). Journal of Physical Chemistry C, 2018, 122, 25404-25410.	1.5	5
110	Spatially Nonuniform Reaction Rates during Selective Oxidation on Gold. Journal of the American Chemical Society, 2018, 140, 12210-12215.	6.6	5
111	Selective Activation of Methyl Câ€"H Bonds of Toluene by Oxygen on Metallic Gold. Catalysis Letters, 2018, 148, 1985-1989.	1.4	5
112	Oxygen adsorption on spontaneously reconstructed Au(511). Surface Science, 2019, 679, 296-303.	0.8	5
113	Predicting a Sharp Decline in Selectivity for Catalytic Esterification of Alcohols from van der Waals Interactions. Angewandte Chemie, 2020, 132, 10956-10959.	1.6	5
114	Predicting a Sharp Decline in Selectivity for Catalytic Esterification of Alcohols from van der Waals Interactions. Angewandte Chemie - International Edition, 2020, 59, 10864-10867.	7.2	5
115	Regeneration of Active Surface Alloys during Cyclic Oxidation and Reduction: Oxidation of H2 on Pd/Ag(111). Journal of Physical Chemistry Letters, 2021, 12, 6752-6759.	2.1	5
116	Surface Modifications during a Catalytic Reaction: a Combined APT and FIB/SEM Analysis of Surface Segregation. Microscopy and Microanalysis, 2016, 22, 356-357.	0.2	4
117	Thermally Activated Formation of Reactive Lattice Oxygen in Titania on Nanoporous Gold. Journal of Physical Chemistry C, 2017, 121, 21405-21410.	1.5	4
118	Perspectives on the design of nanoparticle systems for catalysis. Faraday Discussions, 2018, 208, 595-607.	1.6	4
119	Bridging model and real catalysts: general discussion. Faraday Discussions, 2016, 188, 565-589.	1.6	3
120	Hydrideâ€Based Solid Oxide Fuel Cellâ€"Battery Hybrid Electrochemical System. Energy Technology, 2017, 5, 616-622.	1.8	3
121	Toward benchmarking theoretical computations of elementary rate constants on catalytic surfaces: formate decomposition on Au and Cu. Chemical Science, 2022, 13, 804-815.	3.7	3
122	Surface Processes in CVD: Laser- and Low Energy Electron-Induced Decomposition of W(CO)₆ on Si(111)-(7Ã—7). Materials Research Society Symposia Proceedings, 1988, 131, 461.	0.1	2
123	What Promotes the Development of Women Scientists in Academia? Introductory Remarks. Annals of the New York Academy of Sciences, 1999, 869, 207-209.	1.8	1
124	Comment on â€œSTM study of the (111) and (100) surfaces of PdAg, Surf. Sci. 417 (1998) 292â€"300â€³ and references therein. Surface Science, 2022, 720, 122048.	0.8	1
125	Exploiting the Liquid Phase to Enhance the Cross-Coupling of Alcohols over Nanoporous Gold Catalysts. ACS Catalysis, 2022, 12, 183-192.	5.5	1
126	Model Systems inâ€‰Catalysis. Single Crystals to Supported Enzyme Mimics. Herausgegeben von Robertâ€…M. Rioux.. Angewandte Chemie, 2010, 122, 9508-9508.	1.6	0

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127	New Architectures for Designed Catalysts: Selective Oxidation using AgAu Nanoparticles on Colloid-Templated Silica. Chemistry - A European Journal, 2018, 24, 1743-1743.	1.7	0
128	Cover Memo: Volume 18, Issue 3, Special Issue on Shaping the Future of Science Policy. Journal of Science Policy & Governance, 2021, 18, .	0.1	0