Cynthia M Friend

List of Publications by Citations

125 papers	5,447 citations	37 h-index	71 g-index
135 ext. papers	6,235 ext. citations	10.7 avg, IF	6.08 L-index

#	Paper	IF	Citations
125	Heterogeneous gold-based catalysis for green chemistry: low-temperature CO oxidation and propene oxidation. *Chemical Reviews*, **2007**, 107, 2709-24	68.1	646
124	Achieving Selective and Efficient Electrocatalytic Activity for CO2 Reduction Using Immobilized Silver Nanoparticles. *Journal of the American Chemical Society*, **2015**, 137, 13844-50	16.4	437
123	Enhancement of O2 dissociation on Au111 by adsorbed oxygen: implications for oxidation catalysis. *Journal of the American Chemical Society*, **2005**, 127, 9267-70	16.4	198
122	O Activation by Metal Surfaces: Implications for Bonding and Reactivity on Heterogeneous Catalysts. *Chemical Reviews*, **2018**, 118, 2816-2862	68.1	190
121	Dynamic restructuring drives catalytic activity on nanoporous gold-silver alloy catalysts. *Nature Materials*, **2017**, 16, 558-564	27	180
120	Heterogeneous Catalysis: A Central Science for a Sustainable Future. *Accounts of Chemical Research* , **2017**, 50, 517-521	24.3	160
119	Selectivity control in gold-mediated esterification of methanol. *Angewandte Chemie - International Edition*, **2009**, 48, 4206-9	16.4	157
118	Vapour-phase gold-surface-mediated coupling of aldehydes with methanol. *Nature Chemistry*, **2010**, 2, 61-5	17.6	147
117	Sequential photo-oxidation of methanol to methyl formate on TiO2(110). *Journal of the American Chemical Society*, **2013**, 135, 574-7	16.4	146
116	Selective oxidation of styrene on an oxygen-covered Au(111). *Journal of the American Chemical Society*, **2005**, 127, 17178-9	16.4	124
115	Nanoporous Gold: Understanding the Origin of the Reactivity of a 21st Century Catalyst Made by Pre-Columbian Technology. *ACS Catalysis*, **2015**, 5, 6263-6270	13.1	118
114	Surface-mediated self-coupling of ethanol on gold. *Journal of the American Chemical Society*, **2009**, 131, 5757-9	16.4	111
113	Unraveling molecular transformations on surfaces: a critical comparison of oxidation reactions on coinage metals. *Chemical Society Reviews*, **2008**, 37, 2243-61	58.5	108
112	The mystery of gold's chemical activity: local bonding, morphology and reactivity of atomic oxygen. *Physical Chemistry Chemical Physics*, **2011**, 13, 34-46	3.6	96
111	Achieving optimum selectivity in oxygen assisted alcohol cross-coupling on gold. *Journal of the American Chemical Society*, **2010**, 132, 16571-80	16.4	94
110	Oxygen-mediated coupling of alcohols over nanoporous gold catalysts at ambient pressures. *Angewandte Chemie - International Edition*, **2012**, 51, 1698-701	16.4	93
109	Selective non-oxidative dehydrogenation of ethanol to acetaldehyde and hydrogen on highly dilute NiCu alloys. *Applied Catalysis B: Environmental*, **2017**, 205, 541-550	21.8	91

108	Toward digitally controlled catalyst architectures: Hierarchical nanoporous gold via 3D printing. *Science Advances*, **2018**, 4, eaas9459	14.3	83
107	Theoretical Study of O-Assisted Selective Coupling of Methanol on Au(111). *Journal of Physical Chemistry C*, **2011**, 115, 3703-3708	3.8	82
106	Chlorine adsorption on Au(111): chlorine overlayer or surface chloride?. *Journal of the American Chemical Society*, **2008**, 130, 3560-5	16.4	72
105	Atomic Oxygen Adsorption on Au(111) Surfaces with Defects. *Journal of Physical Chemistry C*, **2009**, 113, 3232-3238	3.8	71
104	Synthesis of TiO2 nanoparticles on the Au(111) surface. *Journal of Chemical Physics*, **2005**, 123, 94705	3.9	67
103	The role of surface and subsurface point defects for chemical model studies on TiO2: a first-principles theoretical study of formaldehyde bonding on rutile TiO2(110). *Chemistry - A European Journal*, **2011**, 17, 4496-506	4.8	66
102	Ozone-Activated Nanoporous Gold: A Stable and Storable Material for Catalytic Oxidation. *ACS Catalysis*, **2015**, 5, 4237-4241	13.1	63
101	Partial oxidation of propene on oxygen-covered Au(111). *Journal of Physical Chemistry B*, **2006**, 110, 15982-7	3.4	57
100	Highly selective acylation of dimethylamine mediated by oxygen atoms on metallic gold surfaces. *Angewandte Chemie - International Edition*, **2010**, 49, 394-8	16.4	56
99	Anatomy of the Photochemical Reaction: Excited-State Dynamics Reveals the C-H Acidity Mechanism of Methoxy Photo-oxidation on Titania. *Journal of Physical Chemistry Letters*, **2015**, 6, 1624-7	6.4	55
98	Probing Atomic Distributions in Mono- and Bimetallic Nanoparticles by Supervised Machine Learning. *Nano Letters*, **2019**, 19, 520-529	11.5	54
97	Oxygen-assisted cross-coupling of methanol with alkyl alcohols on metallic gold. *Chemical Science*, **2010**, 1, 310	9.4	53
96	Van der Waals interactions determine selectivity in catalysis by metallic gold. *Journal of the American Chemical Society*, **2014**, 136, 13333-40	16.4	52
95	Dynamics of Surface Alloys: Rearrangement of Pd/Ag(111) Induced by CO and O2. *Journal of Physical Chemistry C*, **2019**, 123, 8312-8323	3.8	49
94	Guidelines to Achieving High Selectivity for the Hydrogenation of α,β-Unsaturated Aldehydes with Bimetallic and Dilute Alloy Catalysts: A Review. *Chemical Reviews*, **2020**, 120, 12834-12872	68.1	47
93	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	13.1	45
92	Strain effects on the behavior of isolated and paired sulfur vacancy defects in monolayer MoS2. *Physical Review B*, **2017**, 95,	3.3	42
91	Predicting gold-mediated catalytic oxidative-coupling reactions from single crystal studies. *Accounts of Chemical Research*, **2014**, 47, 761-72	24.3	41

90	Nature of Oxidation of the Au(111) Surface: Experimental and Theoretical Investigation. *Journal of Physical Chemistry C*, **2009**, 113, 16561-16564	3.8	41
89	Chlorine promotion of styrene epoxidation on Au(111). *Journal of the American Chemical Society*, **2007**, 129, 1872-3	16.4	38
88	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	7.3	37
87	Origin of the selectivity in the gold-mediated oxidation of benzyl alcohol. *Surface Science*, **2012**, 606, 1129-1134	1.8	37
86	A Novel Growth Mode of Mo on Au (111) from a Mo(CO)6 Precursor: An STM Study. *Journal of Physical Chemistry B*, **2003**, 107, 1036-1043	3.4	37
85	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	13.1	36
84	Noncovalent Bonding Controls Selectivity in Heterogeneous Catalysis: Coupling Reactions on Gold. *Journal of the American Chemical Society*, **2016**, 138, 15243-15250	16.4	35
83	Dilute Pd/Au Alloy Nanoparticles Embedded in Colloid-Templated Porous SiO2: Stable Au-Based Oxidation Catalysts. *Chemistry of Materials*, **2019**, 31, 5759-5768	9.6	34
82	Ag/Au mixed sites promote oxidative coupling of methanol on the alloy surface. *Chemistry - A European Journal*, **2014**, 20, 4646-52	4.8	33
81	Oxidative coupling of alcohols on gold: insights from experiments and theory. *Faraday Discussions*, **2011**, 152, 307-20; discussion 393-413	3.6	32
80	Active sites for methanol partial oxidation on nanoporous gold catalysts. *Journal of Catalysis*, **2016**, 344, 778-783	7.3	32
79	Formation of nanostructured TiO2 by femtosecond laser irradiation of titanium in O2. *Journal of Applied Physics*, **2012**, 112, 063108	2.5	29
78	A pathway for NH addition to styrene promoted by gold. *Angewandte Chemie - International Edition*, **2006**, 45, 7075-8	16.4	28
77	Enhanced Photo-Oxidation of Formaldehyde on Highly Reduced o-TiO2(110). *Journal of Physical Chemistry C*, **2014**, 118, 29242-29251	3.8	27
76	Activated metallic gold as an agent for direct methoxycarbonylation. *Journal of the American Chemical Society*, **2011**, 133, 20378-83	16.4	27
75	Surface Structure Dependence of the Dry Dehydrogenation of Alcohols on Cu(111) and Cu(110). *Journal of Physical Chemistry C*, **2017**, 121, 12800-12806	3.8	25
74	Crossing the great divide between single-crystal reactivity and actual catalyst selectivity with pressure transients. *Nature Catalysis*, **2018**, 1, 852-859	36.5	25
73	Reactivity of methanol on TiO2 nanoparticles supported on the Au(1 1 1) surface. *Surface Science*, **2005**, 591, 1-12	1.8	24

72	Methanol Photo-Oxidation on Rutile TiO2 Nanowires: Probing Reaction Pathways on Complex Materials. *Journal of Physical Chemistry C*, **2017**, 121, 9910-9919	3.8	23
71	Continuous Catalytic Production of Methyl Acrylates from Unsaturated Alcohols by Gold: The Strong Effect of C?C Unsaturation on Reaction Selectivity. *ACS Catalysis*, **2016**, 6, 1833-1839	13.1	23
70	Accurate formation energies of charged defects in solids: A systematic approach. *Physical Review B*, **2017**, 95,	3.3	22
69	The Dynamic Roles of Interstitial and Surface Defects on Oxidation and Reduction Reactions on Titania. *Topics in Catalysis*, **2013**, 56, 1377-1388	2.3	21
68	Structure of the Clean and Oxygen-Covered Cu(100) Surface at Room Temperature in the Presence of Methanol Vapor in the 10-200 mTorr Pressure Range. *Journal of Physical Chemistry B*, **2018**, 122, 548-554	3.4	21
67	Enhancing catalytic performance of dilute metal alloy nanomaterials. *Communications Chemistry*, **2020**, 3,	6.3	20
66	Dual-function of alcohols in gold-mediated selective coupling of amines and alcohols. *Chemistry - A European Journal*, **2012**, 18, 2313-8	4.8	19
65	New Architectures for Designed Catalysts: Selective Oxidation using AgAu Nanoparticles on Colloid-Templated Silica. *Chemistry - A European Journal*, **2018**, 24, 1833-1837	4.8	18
64	Self-assembly of acetate adsorbates drives atomic rearrangement on the Au(110) surface. *Nature Communications*, **2016**, 7, 13139	17.4	18
63	Evolution of steady-state material properties during catalysis: Oxidative coupling of methanol over nanoporous Ag0.03Au0.97. *Journal of Catalysis*, **2019**, 380, 366-374	7.3	18
62	Tuning the Stability of Surface Intermediates Using Adsorbed Oxygen: Acetate on Au(111). *Journal of Physical Chemistry Letters*, **2014**, 5, 1126-30	6.4	18
61	A paradigm for predicting selective oxidation on noble metals: oxidative catalytic coupling of amines and aldehydes on metallic gold. *Faraday Discussions*, **2011**, 152, 241-52; discussion 293-306	3.6	18
60	Hydrogen migration at restructuring palladium-silver oxide boundaries dramatically enhances reduction rate of silver oxide. *Nature Communications*, **2020**, 11, 1844	17.4	18
59	Methyl ester synthesis catalyzed by nanoporous gold: from 10^{-9} Torr to 1 atm. *Catalysis Science and Technology*, **2015**, 5, 1299-1306	5.5	17
58	Neural network assisted analysis of bimetallic nanocatalysts using X-ray absorption near edge structure spectroscopy. *Physical Chemistry Chemical Physics*, **2020**, 22, 18902-18910	3.6	16
57	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, 12604-10	16.4	16
56	Evolution of Metastable Structures at Bimetallic Surfaces from Microscopy and Machine-Learning Molecular Dynamics. *Journal of the American Chemical Society*, **2020**, 142, 15907-15916	16.4	16
55	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	11.5	16

54	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	3.4	15
53	Controlling O coverage and stability by alloying Au and Ag. *Physical Chemistry Chemical Physics*, **2016**, 18, 26844-26853	3.6	15
52	Role of defects in propene adsorption and reaction on a partially O-covered Au(111) surface. *Catalysis Science and Technology*, **2011**, 1, 1166	5.5	15
51	Insights from Theory on the Relationship Between Surface Reactivity and Gold Atom Release. *Topics in Catalysis*, **2010**, 53, 365-377	2.3	15
50	Switching Selectivity in Oxidation Reactions on Gold: The Mechanism of C□ vs C□ Bond Activation in the Acetate Intermediate on Au(111). *ACS Catalysis*, **2014**, 4, 3281-3288	13.1	14
49	Multiscale Morphology of Nanoporous Copper Made from Intermetallic Phases. *ACS Applied Materials & Interfaces*, **2017**, 9, 25615-25622	9.5	14
48	Water facilitates oxygen migration on gold surfaces. *Physical Chemistry Chemical Physics*, **2018**, 20, 2196-2204	3.6	14
47	Catalyst design for enhanced sustainability through fundamental surface chemistry. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2016**, 374,	3	13
46	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, 279-87	6.4	13
45	Facile Ester Synthesis on Ag-Modified Nanoporous Au: Oxidative Coupling of Ethanol and 1-Butanol Under UHV Conditions. *Catalysis Letters*, **2015**, 145, 1217-1223	2.8	12
44	A Comparative Ab Initio Study of Anhydrous Dehydrogenation of Linear-Chain Alcohols on Cu(110). *Journal of Physical Chemistry C*, **2018**, 122, 7806-7815	3.8	12
43	Sauerstoffinduzierte Kupplung und Oxidation von Alkoholen □er nanopor□em Gold. *Angewandte Chemie*, **2012**, 124, 1730-1733	3.6	12
42	Dinitrosyl formation as an intermediate stage of the reduction of NO in the presence of MoO3. *Journal of Chemical Physics*, **2003**, 118, 6046-6051	3.9	12
41	Perspectives on heterogeneous photochemistry. *Chemical Record*, **2014**, 14, 944-51	6.6	11
40	Stabilization of a nanoporous NiCu dilute alloy catalyst for non-oxidative ethanol dehydrogenation. *Catalysis Science and Technology*, **2020**, 10, 5207-5217	5.5	10
39	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	3.8	10
38	Entropic Control of HD Exchange Rates over Dilute Pd-in-Au Alloy Nanoparticle Catalysts. *ACS Catalysis*, **2021**, 11, 6971-6981	13.1	10
37	Identifying key descriptors in surface binding: interplay of surface anchoring and intermolecular interactions for carboxylates on Au(110). *Chemical Science*, **2018**, 9, 3759-3766	9.4	9

36	Hydroxymethylcyclopropane on Oxygen-Covered Mo(110): A Radical Clock on a Surface. *Journal of the American Chemical Society*, **2000**, 122, 12395-12396	16.4	9
35	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	3.8	9
34	Facile Decomposition of Organophosphonates by Dual Lewis Sites on a Fe3O4(111) Film. *Journal of Physical Chemistry C*, **2020**, 124, 12432-12441	3.8	8
33	Regulating Photochemical Selectivity with Temperature: Isobutanol on TiO(110). *Journal of the American Chemical Society*, **2020**, 142, 13072-13080	16.4	8
32	Effect of Coadsorbed Species and Temperature on Competitive Reaction Channels for Nascent Radicals: c-C3H7CH2SH on Mo(110)(6 1)-O. *Journal of Physical Chemistry B*, **2002**, 106, 663-672	3.4	8
31	Catalytic production of methyl acrylates by gold-mediated cross coupling of unsaturated aldehydes with methanol. *Surface Science*, **2016**, 652, 58-66	1.8	7
30	Growth and auto-oxidation of Pd on single-layer AgO/Ag(111). *Physical Chemistry Chemical Physics*, **2020**, 22, 6202-6209	3.6	6
29	Structural Differentiation of the Reactivity of Alcohols with Active Oxygen on Au(110). *Topics in Catalysis*, **2018**, 61, 299-307	2.3	6
28	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	1.8	6
27	New Role of Pd Hydride as a Sensor of Surface Pd Distributions in PdAu Catalysts. *ChemCatChem*, **2020**, 12, 717-721	5.2	6
26	The dynamic behavior of dilute metallic alloy PdxAu1x/SiO2 raspberry colloid templated catalysts under CO oxidation. *Catalysis Science and Technology*, **2021**, 11, 4072-4082	5.5	6
25	Reduction of Oxidized Pd/Ag(111) Surfaces by H2: Sensitivity to PdO Island Size and Dispersion. *ACS Catalysis*, **2020**, 10, 10117-10124	13.1	5
24	Dilute Pd-in-Au alloy RCT-SiO2 catalysts for enhanced oxidative methanol coupling. *Journal of Catalysis*, **2021**,	7.3	5
23	Tuning reactivity layer-by-layer: formic acid activation on Ag/Pd(111). *Chemical Science*, **2020**, 11, 6492-6499	9.4	5
22	Chemistry of Methanol and Ethanol on Ozone-Prepared Fe2O3(0001). *Journal of Physical Chemistry C*, **2018**, 122, 25404-25410	3.8	5
21	Dual Lewis site creation for activation of methanol on FeO(111) thin films. *Chemical Science*, **2020**, 11, 2448-2454	9.4	4
20	Experimental investigation into tungsten carbide thin films as solid oxide fuel cell anodes. *Journal of Materials Research*, **2016**, 31, 3050-3059	2.5	4
19	Spatially Nonuniform Reaction Rates during Selective Oxidation on Gold. *Journal of the American Chemical Society*, **2018**, 140, 12210-12215	16.4	4

18	Selective Activation of Methyl C□H Bonds of Toluene by Oxygen on Metallic Gold. *Catalysis Letters*, **2018**, 148, 1985-1989	2.8	4
17	Predicting a Sharp Decline in Selectivity for Catalytic Esterification of Alcohols from van der Waals Interactions. *Angewandte Chemie*, **2020**, 132, 10956-10959	3.6	3
16	Predicting a Sharp Decline in Selectivity for Catalytic Esterification of Alcohols from van der Waals Interactions. *Angewandte Chemie - International Edition*, **2020**, 59, 10864-10867	16.4	3
15	Thermally Activated Formation of Reactive Lattice Oxygen in Titania on Nanoporous Gold. *Journal of Physical Chemistry C*, **2017**, 121, 21405-21410	3.8	3
14	On the Origin of Sinter-Resistance and Catalyst Accessibility in Raspberry-Colloid-Templated Catalyst Design. *Advanced Functional Materials*,2106876	15.6	3
13	Surface Modifications during a Catalytic Reaction: a Combined APT and FIB/SEM Analysis of Surface Segregation. *Microscopy and Microanalysis*, **2016**, 22, 356-357	0.5	2
12	Perspectives on the design of nanoparticle systems for catalysis. *Faraday Discussions*, **2018**, 208, 595-607	3.6	2
11	Predicting X-ray Photoelectron Peak Shapes: the Effect of Electronic Structure. *Journal of Physical Chemistry C*, **2021**, 125, 10685-10692	3.8	2
10	Oxygen adsorption on spontaneously reconstructed Au(511). *Surface Science*, **2019**, 679, 296-303	1.8	2
9	Hydride-Based Solid Oxide Fuel Cell□Battery Hybrid Electrochemical System. *Energy Technology*, **2017**, 5, 616-622	3.5	1
8	What Promotes the Development of Women Scientists in Academia? Introductory Remarks. *Annals of the New York Academy of Sciences*, **1999**, 869, 207-209	6.5	1
7	Surface Processes in CVD: Laser- and Low Energy Electron-Induced Decomposition of W(CO)6 on Si(111)-(7□7). *Materials Research Society Symposia Proceedings*, **1988**, 131, 461		1
6	Comment on □STM study of the (111) and (100) surfaces of PdAg, Surf. Sci. 417 (1998) 292□300□and references therein. *Surface Science*, **2022**, 122048	1.8	1
5	Toward benchmarking theoretical computations of elementary rate constants on catalytic surfaces: formate decomposition on Au and Cu.. *Chemical Science*, **2022**, 13, 804-815	9.4	1
4	Regeneration of Active Surface Alloys during Cyclic Oxidation and Reduction: Oxidation of H on Pd/Ag(111). *Journal of Physical Chemistry Letters*, **2021**, 12, 6752-6759	6.4	1
3	Exploiting the Liquid Phase to Enhance the Cross-Coupling of Alcohols over Nanoporous Gold Catalysts. *ACS Catalysis*, **2022**, 12, 183-192	13.1	1
2	New Architectures for Designed Catalysts: Selective Oxidation using AgAu Nanoparticles on Colloid-Templated Silica. *Chemistry - A European Journal*, **2018**, 24, 1743-1743	4.8	
1	Model Systems in Catalysis. Single Crystals to Supported Enzyme Mimics. Herausgegeben von Robert M. Rioux.. *Angewandte Chemie*, **2010**, 122, 9508-9508	3.6	