Ayman M Karim

List of Publications by Year
in descending order

65 papers	5,428 citations	94433 37 h-index	110387 64 g-index
67 all docs	67 docs citations	67 times ranked	6762 citing authors

#	Article	IF	Citations
1	Catalytic fast pyrolysis of lignocellulosic biomass. Chemical Society Reviews, 2014, 43, 7594-7623.	38.1	864
2	Carbon-supported bimetallic Pdâ€“Fe catalysts for vapor-phase hydrodeoxygenation of guaiacol. Journal of Catalysis, 2013, 306, 47-57.	6.2	384
3	Correlating Particle Size and Shape of Supported Ru/Î³-Al₂O₃ Catalysts with NH₃ Decomposition Activity. Journal of the American Chemical Society, 2009, 131, 12230-12239.	13.7	279
4	Identification of the active complex for CO oxidation over single-atom Ir-on-MgAl2O4 catalysts. Nature Catalysis, 2019, 2, 149-156.	34.4	222
5	Molecular structure and stability of dissolved lithium polysulfide species. Physical Chemistry Chemical Physics, 2014, 16, 10923-10932.	2.8	210
6	Aqueous phase reforming of glycerol for hydrogen production over Ptâ€“Re supported on carbon. Applied Catalysis B: Environmental, 2010, 99, 206-213.	20.2	193
7	Stability of bimetallic Pdâ€“Zn catalysts for the steam reforming of methanol. Journal of Catalysis, 2008, 257, 64-70.	6.2	174
8	Synergistic Catalysis between Pd and Fe in Gas Phase Hydrodeoxygenation of <i>m</i>-Cresol. ACS Catalysis, 2014, 4, 3335-3345.	11.2	173
9	Comparison of wall-coated and packed-bed reactors for steam reforming of methanol. Catalysis Today, 2005, 110, 86-91.	4.4	162
10	The role of PdZn alloy formation and particle size on the selectivity for steam reforming of methanol. Journal of Catalysis, 2006, 243, 420-427.	6.2	146
11	Colloidal nanoparticle size control: experimental and kinetic modeling investigation of the ligandâ€“metal binding role in controlling the nucleation and growth kinetics. Nanoscale, 2017, 9, 13772-13785.	5.6	137
12	The Role of Ru and RuO₂ in the Catalytic Transfer Hydrogenation of 5â€Hydroxymethylfurfural for the Production of 2,5â€Dimethylfuran. ChemCatChem, 2014, 6, 848-856.	3.7	136
13	Wall coating of a CuO/ZnO/Al2O3 methanol steam reforming catalyst for micro-channel reformers. Chemical Engineering Journal, 2004, 101, 113-121.	12.7	123
14	Correlation of Ptâ€“Re surface properties with reaction pathways for the aqueous-phase reforming of glycerol. Journal of Catalysis, 2012, 287, 37-43.	6.2	118
15	Structure Sensitivity of Acetylene Semi-Hydrogenation on Pt Single Atoms and Subnanometer Clusters. ACS Catalysis, 2019, 9, 11030-11041.	11.2	111
16	Nonisothermality in packed bed reactors for steam reforming of methanol. Applied Catalysis A: General, 2005, 282, 101-109.	4.3	110
17	Effect of Pd Coordination and Isolation on the Catalytic Reduction of O₂ to H₂O₂ over PdAu Bimetallic Nanoparticles. Journal of the American Chemical Society, 2021, 143, 5445-5464.	13.7	101
18	Catalytic Roles of Co⁰ and Co²⁺ during Steam Reforming of Ethanol on Co/MgO Catalysts. ACS Catalysis, 2011, 1, 279-286.	11.2	98

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19	Portable power production from methanol in an integrated thermoeletric/microreactor system. Journal of Power Sources, 2008, 179, 113-120.	7.8	91
20	Solvent molecules form surface redox mediators in situ and cocatalyze O ₂ reduction on Pd. Science, 2021, 371, 626-632.	12.6	84
21	Correlating Ethylene Glycol Reforming Activity with In Situ EXAFS Detection of Ni Segregation in Supported NiPt Bimetallic Catalysts. ACS Catalysis, 2012, 2, 2290-2296.	11.2	80
22	A comparative study between Co and Rh for steam reforming of ethanol. Applied Catalysis B: Environmental, 2010, 96, 441-448.	20.2	77
23	Improved selectivity of carbon-supported palladium catalysts for the hydrogenation of acetylene in excess ethylene. Applied Catalysis A: General, 2014, 482, 108-115.	4.3	72
24	Assessment of Overall Rate Expressions and Multiscale, Microkinetic Model Uniqueness via Experimental Data Injection: Ammonia Decomposition on Ru/Î3-Al₂O₃ for Hydrogen Production. Industrial & Engineering Chemistry Research, 2009, 48, 5255-5265.	3.7	69
25	Environmental Transmission Electron Microscopy Study of the Origins of Anomalous Particle Size Distributions in Supported Metal Catalysts. ACS Catalysis, 2012, 2, 2349-2356.	11.2	68
26	New insights into reaction mechanisms of ethanol steam reforming on Coâ€"ZrO2. Applied Catalysis B: Environmental, 2015, 162, 141-148.	20.2	67
27	Density Functional Theory Study of Acetaldehyde Hydrodeoxygenation on MoO₃. Journal of Physical Chemistry C, 2011, 115, 8155-8164.	3.1	64
28	Controlling ZnO morphology for improved methanol steam reforming reactivity. Physical Chemistry Chemical Physics, 2008, 10, 5584.	2.8	63
29	Synthesis of 1 nm Pd Nanoparticles in a Microfluidic Reactor: Insights from in Situ X-ray Absorption Fine Structure Spectroscopy and Small-Angle X-ray Scattering. Journal of Physical Chemistry C, 2015, 119, 13257-13267.	3.1	61
30	The role of nanoparticle size and ligand coverage in size focusing of colloidal metal nanoparticles. Nanoscale Advances, 2019, 1, 4052-4066.	4.6	61
31	Rh promoted In₂O₃ as a highly active catalyst for CO₂ hydrogenation to methanol. Catalysis Science and Technology, 2020, 10, 8196-8202.	4.1	60
32	Unraveling the Intermediate Reaction Complexes and Critical Role of Support-Derived Oxygen Atoms in CO Oxidation on Single-Atom Pt/CeO₂. ACS Catalysis, 2021, 11, 8701-8715.	11.2	51
33	A versatile approach for quantification of surface site fractions using reaction kinetics: The case of CO oxidation on supported Ir single atoms and nanoparticles. Journal of Catalysis, 2019, 378, 121-130.	6.2	49
34	In Situ X-ray Absorption Fine Structure Studies on the Effect of pH on Pt Electronic Density during Aqueous Phase Reforming of Glycerol. ACS Catalysis, 2012, 2, 2387-2394.	11.2	47
35	Gaining Control over Radiolytic Synthesis of Uniform Sub-3-nanometer Palladium Nanoparticles: Use of Aromatic Liquids in the Electron Microscope. Langmuir, 2016, 32, 1468-1477.	3.5	47
36	Elucidation of the roles of Re in steam reforming of glycerol over Ptâ€"Re/C catalysts. Journal of Catalysis, 2015, 322, 49-59.	6.2	45

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37	Origin of the High CO Oxidation Activity on CeO₂ Supported Pt Nanoparticles: Weaker Binding of CO or Facile Oxygen Transfer from the Support?. ChemCatChem, 2020, 12, 1726-1733.	3.7	44
38	The Effect of Zinc Addition on the Oxidation State of Cobalt in Co/ZrO₂ Catalysts. ChemSusChem, 2011, 4, 1679-1684.	6.8	36
39	Minimizing the Formation of Coke and Methane on Co Nanoparticles in Steam Reforming of Biomassâ€Derived Oxygenates. ChemCatChem, 2013, 5, 1299-1303.	3.7	34
40	Vapor Phase Ketonization of Acetic Acid on Ceria Based Metal Oxides. Topics in Catalysis, 2013, 56, 1782-1789.	2.8	33
41	High throughput multiscale modeling for design of experiments, catalysts, and reactors: Application to hydrogen production from ammonia. Chemical Engineering Science, 2010, 65, 240-246.	3.8	31
42	Elucidation of the Roles of Re in Aqueous-Phase Reforming of Glycerol over Ptâ€“Re/C Catalysts. ACS Catalysis, 2015, 5, 7312-7320.	11.2	30
43	Coating of steam reforming catalysts in non-porous multi-channeled microreactors. Catalysis Today, 2007, 125, 11-15.	4.4	25
44	Synthesis and Activity of Heterogeneous Pd/Al2O3 and Pd/ZnO Catalysts Prepared from Colloidal Palladium Nanoparticles. Topics in Catalysis, 2008, 49, 227-232.	2.8	25
45	The effect of ZnO addition on Co/C catalyst for vapor and aqueous phase reforming of ethanol. Catalysis Today, 2014, 233, 38-45.	4.4	25
46	Wall coating behavior of catalyst slurries in non-porous ceramic microstructures. Chemical Engineering Science, 2006, 61, 5678-5685.	3.8	21
47	Aqueous phase hydrodeoxygenation of polyols over Pd/WO3-ZrO2: Role of Pd-WO3 interaction and hydrodeoxygenation pathway. Catalysis Today, 2016, 269, 103-109.	4.4	20
48	Palladium Acetate Trimer: Understanding Its Ligand-Induced Dissociation Thermochemistry Using Isothermal Titration Calorimetry, X-ray Absorption Fine Structure, and 31P Nuclear Magnetic Resonance. Organometallics, 2019, 38, 451-460.	2.3	20
49	18.1% single palladium atom catalysts on mesoporous covalent organic framework for gas phase hydrogenation of ethylene. Cell Reports Physical Science, 2021, 2, 100495.	5.6	19
50	Solvent manipulation of the pre-reduction metalâ€“ligand complex and particle-ligand binding for controlled synthesis of Pd nanoparticles. Nanoscale, 2021, 13, 206-217.	5.6	18
51	On the Reaction Mechanism of Acetaldehyde Decomposition on Mo(110). ACS Catalysis, 2012, 2, 468-478.	11.2	16
52	General Method for Determination of the Surface Composition in Bimetallic Nanoparticle Catalysts from the L Edge X-ray Absorption Near-Edge Spectra. ACS Catalysis, 2012, 2, 2433-2443.	11.2	16
53	Advantages of MgAlO_{<i>x</i>} over Î³-Al₂O₃ as a Support Material for Potassium-Based High-Temperature Lean NO_{<i>x</i>} Traps. ACS Catalysis, 2015, 5, 4680-4689.	11.2	15
54	Ligand-Mediated Nucleation and Growth of Palladium Metal Nanoparticles. Journal of Visualized Experiments, 2018, , .	0.3	14

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55	Reduction and Agglomeration of Supported Metal Clusters Induced by High-Flux X-ray Absorption Spectroscopy Measurements. Journal of Physical Chemistry C, 2021, 125, 11048-11057.	3.1	13
56	Catalytic CO Oxidation on MgAl₂O₄-Supported Iridium Single Atoms: Ligand Configuration and Site Geometry. Journal of Physical Chemistry C, 2021, 125, 11380-11390.	3.1	13
57	Role of tungsten in the aqueous phase hydrodeoxygenation of ethylene glycol on tungstated zirconia supported palladium. Catalysis Today, 2014, 237, 118-124.	4.4	11
58	Structure sensitivity of n-butane hydrogenolysis on supported Ir catalysts. Journal of Catalysis, 2021, 394, 376-386.	6.2	11
59	H2O-assisted O2 reduction by H2 on Pt and PtAu bimetallic nanoparticles: Influences of composition and reactant coverages on kinetic regimes, rates, and selectivities. Journal of Catalysis, 2021, 404, 661-678.	6.2	11
60	Coreâ€“Shell Nanocatalyst Design by Combining Highâ€Throughput Experiments and Firstâ€Principles Simulations. ChemCatChem, 2013, 5, 3712-3718.	3.7	8
61	Hierarchically structured catalysts for cascade and selective steam reforming/hydrodeoxygenation reactions. Chemical Communications, 2015, 51, 16617-16620.	4.1	8
62	Aqueous-Phase Destruction of Nerve-Agent Simulants at Copper Single Atoms in UiO-66. Inorganic Chemistry, 2022, 61, 8585-8591.	4.0	5
63	CO oxidation on MgAl₂O₄ supported Ir_{<i>n</i>}: activation of lattice oxygen in the subnanometer regime and emergence of nuclearity-activity volcano. Journal of Materials Chemistry A, 2022, 10, 4266-4278.	10.3	4
64	Kinetic Synergy between Supported Ir Single Atoms and Nanoparticles during CO Oxidation Light-Off. Industrial & Engineering Chemistry Research, 2021, 60, 15960-15971.	3.7	3
65	Syngas Conditioning. , 2011, , 361-408.		2