Heinz Frei

List of Publications by Year
in descending order

60 papers	5,726 citations	109321 35 h-index	118850 62 g-index
63 all docs	63 docs citations	63 times ranked	7146 citing authors

#	Article	IF	Citations
1	Controlling and Optimizing Photoinduced Charge Transfer across Ultrathin Silica Separation Membrane with Embedded Molecular Wires for Artificial Photosynthesis. ACS Applied Materials & Interfaces, 2021, 13, 23532-23546.	8.0	6
2	Precise Colloidal Plasmonic Photocatalysts Constructed by Multistep Photodepositions. Nano Letters, 2020, 20, 8661-8667.	9.1	20
3	Selective CO2 electrocatalysis at the pseudocapacitive nanoparticle/ordered-ligand interlayer. Nature Energy, 2020, 5, 1032-1042.	39.5	99
4	Observation of Oâ€"O Bond Forming Step of Molecular Co₄O₄ Cubane Catalyst for Water Oxidation by Rapid-Scan FT-IR Spectroscopy. ACS Catalysis, 2020, 10, 2138-2147.	11.2	24
5	Ultrathin Amorphous Silica Membrane Enhances Proton Transfer across Solidâ€toâ€Solid Interfaces of Stacked Metal Oxide Nanolayers while Blocking Oxygen. Advanced Functional Materials, 2020, 30, 1909262.	14.9	19
6	Structure and Orientation of Molecular Wires Embedded in Ultrathin Silica Membrane for Artificial Photosynthesis Elucidated by Polarized FT-IRRAS. Journal of Physical Chemistry C, 2019, 123, 18905-18913.	3.1	10
7	Factors and Dynamics of Cu Nanocrystal Reconstruction under CO₂ Reduction. ACS Applied Energy Materials, 2019, 2, 7744-7749.	5.1	56
8	Spectroscopic Characterization of Î¼-Î·¹:Î·¹-Peroxo Ligands Formed by Reaction of Dioxygen with Electron-Rich Iridium Clusters. Inorganic Chemistry, 2019, 58, 14338-14348.	4.0	4
9	Interfacial charge transfer in Pt-loaded TiO2 P25 photocatalysts studied by in-situ diffuse reflectance FTIR spectroscopy of adsorbed CO. Journal of Photochemistry and Photobiology A: Chemistry, 2019, 370, 84-88.	3.9	19
10	Ultrathin oxide layers for nanoscale integration of molecular light absorbers, catalysts, and complete artificial photosystems. Journal of Chemical Physics, 2019, 150, 041501.	3.0	8
11	Carbon Dioxide Dimer Radical Anion as Surface Intermediate of Photoinduced CO₂ Reduction at Aqueous Cu and CdSe Nanoparticle Catalysts by Rapid-Scan FT-IR Spectroscopy. Journal of the American Chemical Society, 2018, 140, 4363-4371.	13.7	84
12	Fabrication of Coreâ€"Shell Nanotube Array for Artificial Photosynthesis Featuring an Ultrathin Composite Separation Membrane. ACS Nano, 2018, 12, 533-541.	14.6	27
13	Heterobinuclear Light Absorber Coupled to Molecular Wire for Charge Transport across Ultrathin Silica Membrane for Artificial Photosynthesis. ACS Applied Materials & Interfaces, 2018, 10, 31422-31432.	8.0	11
14	Photoinduced Electron Transfer from ZrOCo Binuclear Light Absorber to Pyridine Elucidated by Transient Optical and Infrared Spectroscopy. Journal of Physical Chemistry C, 2018, 122, 20176-20185.	3.1	7
15	Nanoscale membranes that chemically isolate and electronically wire up the abiotic/biotic interface. Nature Communications, 2018, 9, 2263.	12.8	25
16	Coupling metal oxide nanoparticle catalysts for water oxidation to molecular light absorbers. Journal of Energy Chemistry, 2017, 26, 241-249.	12.9	5
17	Water Oxidation Mechanisms of Metal Oxide Catalysts by Vibrational Spectroscopy of Transient Intermediates. Annual Review of Physical Chemistry, 2017, 68, 209-231.	10.8	29
18	Photocatalytic fuel production. Current Opinion in Electrochemistry, 2017, 2, 128-135.	4.8	11

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19	Ultrafast Charge Transfer between Light Absorber and Co₃O₄ Water Oxidation Catalyst across Molecular Wires Embedded in Silica Membrane. Journal of the American Chemical Society, 2017, 139, 5458-5466.	13.7	39
20	Water oxidation investigated by rapid-scan FT-IR spectroscopy. Current Opinion in Chemical Engineering, 2016, 12, 91-97.	7.8	7
21	Coupling carbon dioxide reduction with water oxidation in nanoscale photocatalytic assemblies. Chemical Society Reviews, 2016, 45, 3221-3243.	38.1	124
22	Hierarchical Inorganic Assemblies for Artificial Photosynthesis. Accounts of Chemical Research, 2016, 49, 1634-1645.	15.6	94
23	Surface Proton Hopping and Fast-Kinetics Pathway of Water Oxidation on Co₃O₄ (001) Surface. ACS Catalysis, 2016, 6, 5610-5617.	11.2	83
24	Direct Observation by Rapid-Scan FT-IR Spectroscopy of Two-Electron-Reduced Intermediate of Tetraaza Catalyst [Co^{II}N₄H(MeCN)]²⁺ Converting CO₂ to CO. Journal of the American Chemical Society, 2016, 138, 9959-9967.	13.7	52
25	Charge Transport through Organic Molecular Wires Embedded in Ultrathin Insulating Inorganic Layer. Journal of Physical Chemistry C, 2015, 119, 28326-28334.	3.1	19
26	Directed Assembly of Cuprous Oxide Nanocatalyst for CO₂ Reduction Coupled to Heterobinuclear ZrOCo^{II} Light Absorber in Mesoporous Silica. ACS Catalysis, 2015, 5, 5627-5635.	11.2	32
27	Towards a Molecular Level Understanding of the Multi-Electron Catalysis of Water Oxidation on Metal Oxide Surfaces. Catalysis Letters, 2015, 145, 420-435.	2.6	40
28	Inorganic coreâ€“shell assemblies for closing the artificial photosynthetic cycle. Faraday Discussions, 2014, 176, 233-249.	3.2	29
29	Time-resolved observations of water oxidation intermediates on a cobalt oxide nanoparticle catalyst. Nature Chemistry, 2014, 6, 362-367.	13.6	682
30	Excited State Electron Transfer of All-Inorganic Heterobinuclear TiOMn²⁺ Chromophore Anchored on Silica Nanoparticle Surface. Journal of Physical Chemistry C, 2014, 118, 11601-11611.	3.1	23
31	Binuclear ZrOCo Metal-to-Metal Charge-Transfer Unit in Mesoporous Silica for Light-Driven CO₂ Reduction to CO and Formate. Journal of Physical Chemistry C, 2014, 118, 7874-7885.	3.1	46
32	Light Induced Carbon Dioxide Reduction by Water at Binuclear ZrOCo^{II} Unit Coupled to Ir Oxide Nanocluster Catalyst. Journal of the American Chemical Society, 2014, 136, 11034-11042.	13.7	85
33	Effects of Support, Particle Size, and Process Parameters on Co3O4Catalyzed H2O Oxidation Mediated by the [Ru(bpy)3]2+Persulfate System. ChemCatChem, 2013, 5, 550-556.	3.7	17
34	Visible Light Induced Hole Transport from Sensitizer to Co₃O₄ Water Oxidation Catalyst across Nanoscale Silica Barrier with Embedded Molecular Wires. Chemistry of Materials, 2013, 25, 2264-2273.	6.7	60
35	Determination of the Redox Potential of Immobilized Oxo-Bridged Metals in Porous Supports. The Tiâ€“Oâ€“Mnâ€“SBA System. Journal of Physical Chemistry C, 2012, 116, 23477-23484.	3.1	8
36	Visible Light-Induced Hole Injection into Rectifying Molecular Wires Anchored on Co₃O₄ and SiO₂ Nanoparticles. Journal of the American Chemical Society, 2012, 134, 17104-17116.	13.7	49

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37	Direct Observation of a Hydroperoxide Surface Intermediate upon Visible Light-Driven Water Oxidation at an Ir Oxide Nanocluster Catalyst by Rapid-Scan FT-IR Spectroscopy. Journal of the American Chemical Society, 2011, 133, 12976-12979.	13.7	118
38	Nanostructured cobalt and manganese oxide clusters as efficient water oxidation catalysts. Energy and Environmental Science, 2010, 3, 1018.	30.8	488
39	Unusually Long Lifetime of Excited Charge-Transfer State of All-Inorganic Binuclear TiOMn^{II} Unit Anchored on Silica Nanopore Surface. Journal of Physical Chemistry C, 2010, 114, 9167-9172.	3.1	34
40	Nanostructured manganese oxide clusters supported on mesoporous silica as efficient oxygen-evolving catalysts. Chemical Communications, 2010, 46, 2920.	4.1	304
41	Nanostructured Cobalt Oxide Clusters in Mesoporous Silica as Efficient Oxygenâ€Evolving Catalysts. Angewandte Chemie - International Edition, 2009, 48, 1841-1844.	13.8	720
42	Advancing the Frontiers in Nanocatalysis, Biointerfaces, and Renewable Energy Conversion by Innovations of Surface Techniques. Journal of the American Chemical Society, 2009, 131, 16589-16605.	13.7	494
43	Binuclear TiOMn charge-transfer chromophore in mesoporous silica. Dalton Transactions, 2009, , 10114.	3.3	35
44	Polynuclear Photocatalysts in Nanoporous Silica for Artificial Photosynthesis. Chimia, 2009, 63, 721.	0.6	33
45	In Situ Spectroscopy of Water Oxidation at Ir Oxide Nanocluster Driven by Visible TiOCr Charge-transfer Chromophore in Mesoporous Silica. Journal of Physical Chemistry C, 2008, 112, 16156-16159.	3.1	63
46	Controlled Assembly of Hetero-binuclear Sites on Mesoporous Silica: Visible Light Charge-Transfer Units with Selectable Redox Properties. Journal of Physical Chemistry C, 2008, 112, 8391-8399.	3.1	58
47	Visible light absorption of binuclear TiOCoII charge-transfer unit assembled in mesoporous silica. Microporous and Mesoporous Materials, 2007, 103, 265-272.	4.4	39
48	CHEMISTRY: Selective Hydrocarbon Oxidation in Zeolites. Science, 2006, 313, 309-310.	12.6	68
49	Visible Light-Driven Water Oxidation by Ir Oxide Clusters Coupled to Single Cr Centers in Mesoporous Silica. Journal of the American Chemical Society, 2006, 128, 10668-10669.	13.7	94
50	Dynamics of CO in Mesoporous Silica Monitored by Time-Resolved Step-Scan and Rapid-Scan FT-IR Spectroscopy. Journal of Physical Chemistry B, 2006, 110, 22601-22607.	2.6	15
51	Anchored Metal-to-Metal Charge-Transfer Chromophores in a Mesoporous Silicate Sieve for Visible-Light Activation of Titanium Centers. Journal of Physical Chemistry B, 2005, 109, 4929-4935.	2.6	98
52	Photochemical CO2Splitting by Metal-to-Metal Charge-Transfer Excitation in Mesoporous ZrCu(I)-MCM-41 Silicate Sieve. Journal of the American Chemical Society, 2005, 127, 1610-1611.	13.7	238
53	Photoactivation of Ti Centers in Mesoporous Silicate Sieve under Visible and UV Light. Studies in Surface Science and Catalysis, 2004, 153, 283-288.	1.5	5
54	CO2Splitting by H2O to CO and O2under UV Light in TiMCM-41 Silicate Sieve. Journal of Physical Chemistry B, 2004, 108, 18269-18273.	2.6	117

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55	Structure of Ni(II) and Ru(III) Ammine Complexes Grafted onto Mesoporous Silicate Sieve. Journal of Physical Chemistry B, 2003, 107, 8547-8556.	2.6	52
56	Photochemical and FT-IR Probing of the Active Site of Hydrogen Peroxide in Ti Silicalite Sieve. Journal of the American Chemical Society, 2002, 124, 9292-9298.	13.7	191
57	Photocatalyzed oxidation in zeolite cages. Catalysis Today, 1998, 41, 297-309.	4.4	111
58	Diffuse Reflectance Spectroscopy of Visible Alkene.O2 Charge-Transfer Absorptions in Zeolite Y and Determination of Photooxygenation Quantum Efficiencies. The Journal of Physical Chemistry, 1994, 98, 13403-13407.	2.9	66
59	Selective Photooxidation of Small Alkenes by O2 with Red Light in Zeolite Y. Journal of the American Chemical Society, 1994, 116, 1812-1820.	13.7	107
60	Very strong stabilization of alkene.cntdot.O2 charge-transfer state in zeolite NaY: red-light-induced photooxidation of 2,3-dimethyl-2-butene. Journal of the American Chemical Society, 1993, 115, 7501-7502.	13.7	84