Paul G Tratnyek

List of Publications by Citations

122 papers	11,288 citations	52 h-index	106 g-index
126 ext. papers	12,377 ext. citations	7.5 avg, IF	6.45 L-index

#	Paper	IF	Citations
122	Reductive dehalogenation of chlorinated methanes by iron metal. *Environmental Science & Technology*, **1994**, 28, 2045-53	10.3	1134
121	Characterization and properties of metallic iron nanoparticles: spectroscopy, electrochemistry, and kinetics. *Environmental Science & Technology*, **2005**, 39, 1221-30	10.3	797
120	Kinetics of Halogenated Organic Compound Degradation by Iron Metal. *Environmental Science & Technology*, **1996**, 30, 2634-2640	10.3	592
119	Reduction of Nitro Aromatic Compounds by Zero-Valent Iron Metal. *Environmental Science & Technology*, **1996**, 30, 153-160	10.3	588
118	Nanotechnologies for environmental cleanup. *Nano Today*, **2006**, 1, 44-48	17.9	573
117	Oxidation of chlorinated ethenes by heat-activated persulfate: kinetics and products. *Environmental Science & Technology*, **2007**, 41, 1010-5	10.3	525
116	Reduction of azo dyes with zero-valent iron. *Water Research*, **2000**, 34, 1837-1845	12.5	336
115	Persulfate persistence under thermal activation conditions. *Environmental Science & Technology*, **2008**, 42, 9350-6	10.3	323
114	Kinetics of contaminant degradation by permanganate. *Environmental Science & Technology*, **2006**, 40, 1055-61	10.3	244
113	Oxidation of substituted phenols in the environment: a QSAR analysis of rate constants for reaction with singlet oxygen. *Environmental Science & Technology*, **1991**, 25, 1596-1604	10.3	244
112	Natural organic matter enhanced mobility of nano zerovalent iron. *Environmental Science & Technology*, **2009**, 43, 5455-60	10.3	204
111	Sulfidation of Iron-Based Materials: A Review of Processes and Implications for Water Treatment and Remediation. *Environmental Science & Technology*, **2017**, 51, 13070-13085	10.3	198
110	Aging of Iron Nanoparticles in Aqueous Solution: Effects on Structure and Reactivity. *Journal of Physical Chemistry C*, **2008**, 112, 2286-2293	3.8	183
109	Effects of natural organic matter, anthropogenic surfactants, and model quinones on the reduction of contaminants by zero-valent iron. *Water Research*, **2001**, 35, 4435-43	12.5	179
108	Electrochemical properties of natural organic matter (NOM), fractions of NOM, and model biogeochemical electron shuttles. *Environmental Science & Technology*, **2002**, 36, 617-24	10.3	171
107	Activation of Manganese Oxidants with Bisulfite for Enhanced Oxidation of Organic Contaminants: The Involvement of Mn(III). *Environmental Science & Technology*, **2015**, 49, 12414-21	10.3	169
106	Field-scale transport and transformation of carboxymethylcellulose-stabilized nano zero-valent iron. *Environmental Science & Technology*, **2013**, 47, 1573-80	10.3	164

105	Sulfidation of Nano Zerovalent Iron (nZVI) for Improved Selectivity During In-Situ Chemical Reduction (ISCR). *Environmental Science & Technology*, **2016**, 50, 9558-65	10.3	163
104	Diversity of contaminant reduction reactions by zerovalent iron: role of the reductate. *Environmental Science & Technology*, **2004**, 38, 139-47	10.3	160
103	Redox behavior of magnetite: implications for contaminant reduction. *Environmental Science & Technology*, **2010**, 44, 55-60	10.3	155
102	Mechanochemically Sulfidated Microscale Zero Valent Iron: Pathways, Kinetics, Mechanism, and Efficiency of Trichloroethylene Dechlorination. *Environmental Science & Technology*, **2017**, 51, 12653-12662	10.3	154
101	Degradation of carbon tetrachloride by iron metal: Complexation effects on the oxide surface. *Journal of Contaminant Hydrology*, **1998**, 29, 379-398	3.9	152
100	Correlation Analysis of Rate Constants for Dechlorination by Zero-Valent Iron. *Environmental Science & Technology*, **1998**, 32, 3026-3033	10.3	143
99	Effects of carbonate species on the kinetics of dechlorination of 1,1,1-trichloroethane by zero-valent iron. *Environmental Science & Technology*, **2002**, 36, 4326-33	10.3	140
98	Reductive sequestration of pertechnetate (▯cO▯) by nano zerovalent iron (nZVI) transformed by abiotic sulfide. *Environmental Science & Technology*, **2013**, 47, 5302-10	10.3	120
97	Rapid dechlorination of polychlorinated dibenzo-p-dioxins by bimetallic and nanosized zerovalent iron. *Environmental Science & Technology*, **2008**, 42, 4106-12	10.3	119
96	Effects of nano zero-valent iron on oxidation-reduction potential. *Environmental Science & Technology*, **2011**, 45, 1586-92	10.3	117
95	Coupled effects of aging and weak magnetic fields on sequestration of selenite by zero-valent iron. *Environmental Science & Technology*, **2014**, 48, 6326-34	10.3	113
94	Kinetics of Carbon Tetrachloride Reduction at an Oxide-Free Iron Electrode. *Environmental Science & Technology*, **1997**, 31, 2385-2391	10.3	110
93	Remediation of Trichloroethylene by FeS-Coated Iron Nanoparticles in Simulated and Real Groundwater: Effects of Water Chemistry. *Industrial & Engineering Chemistry Research*, **2013**, 52, 9343-9350	3.9	109
92	Abiotic reduction reactions of anthropogenic organic chemicals in anaerobic systems: A critical review. *Journal of Contaminant Hydrology*, **1986**, 1, 1-28	3.9	100
91	Mass transport effects on the kinetics of nitrobenzene reduction by iron metal. *Environmental Science & Technology*, **2001**, 35, 2804-11	10.3	99
90	Photoeffects on the Reduction of Carbon Tetrachloride by Zero-Valent Iron. *Journal of Physical Chemistry B*, **1998**, 102, 1459-1465	3.4	98
89	Abiotic reduction of nitro aromatic pesticides in anaerobic laboratory systems. *Journal of Agricultural and Food Chemistry*, **1989**, 37, 248-254	5.7	93
88	Remediating Ground Water with Zero-Valent Metals: Chemical Considerations in Barrier Design. *Ground Water Monitoring and Remediation*, **1997**, 17, 108-114	1.4	90

87	Quantitative structure-activity relationships for oxidation reactions of organic chemicals in water. *Environmental Toxicology and Chemistry*, **2003**, 22, 1743-54	3.8	89
86	Disinfection of ballast water with iron activated persulfate. *Environmental Science & Technology*, **2013**, 47, 11717-25	10.3	86
85	Substituent effects on azo dye oxidation by the FeIII-EDTA-H2O2 system. *Chemosphere*, **2001**, 45, 59-65	8.4	85
84	Kinetics of reactions of chlorine dioxide (OClO) in water□. Quantitative structure-activity relationships for phenolic compounds. *Water Research*, **1994**, 28, 57-66	12.5	75
83	Effects of Sulfidation, Magnetization, and Oxygenation on Azo Dye Reduction by Zerovalent Iron. *Environmental Science & Technology*, **2016**, 50, 11879-11887	10.3	73
82	Methods for characterizing the fate and effects of nano zerovalent iron during groundwater remediation. *Journal of Contaminant Hydrology*, **2015**, 181, 17-35	3.9	71
81	Dynamic interactions between sulfidated zerovalent iron and dissolved oxygen: Mechanistic insights for enhanced chromate removal. *Water Research*, **2018**, 135, 322-330	12.5	71
80	Method for Determination of Methyl tert-Butyl Ether and Its Degradation Products in Water. *Environmental Science & Technology*, **1997**, 31, 3723-3726	10.3	65
79	The Role of Oxides in Reduction Reactions at the Metal-Water Interface. *ACS Symposium Series*, **1999**, 301-322	0.4	65
78	Sequestration of Antimonite by Zerovalent Iron: Using Weak Magnetic Field Effects to Enhance Performance and Characterize Reaction Mechanisms. *Environmental Science & Technology*, **2016**, 50, 1483-91	10.3	63
77	Effects of metal ions on the reactivity and corrosion electrochemistry of Fe/FeS nanoparticles. *Environmental Science & Technology*, **2014**, 48, 4002-11	10.3	62
76	Degradation of 1,2,3-trichloropropane (TCP): hydrolysis, elimination, and reduction by iron and zinc. *Environmental Science & Technology*, **2010**, 44, 787-93	10.3	61
75	Fate of MTBE Relative to Benzene in a Gasoline-Contaminated Aquifer (1993□8). *Ground Water Monitoring and Remediation*, **1998**, 18, 93-102	1.4	60
74	Oxidative remobilization of technetium sequestered by sulfide-transformed nano zerovalent iron. *Environmental Science & Technology*, **2014**, 48, 7409-17	10.3	58
73	Visualizing Redox Chemistry: Probing Environmental Oxidation□Reduction Reactions with Indicator Dyes. *The Chemical Educator*, **2001**, 6, 172-179		58
72	Reactivity of Fe/FeS nanoparticles: electrolyte composition effects on corrosion electrochemistry. *Environmental Science & Technology*, **2012**, 46, 12484-92	10.3	57
71	Selectivity of Nano Zerovalent Iron in In Situ Chemical Reduction: Challenges and Improvements. *Remediation*, **2016**, 26, 27-40	1.8	52
70	Reduction of 2,4,6-trinitrotoluene by iron metal: kinetic controls on product distributions in batch experiments. *Environmental Science & Technology*, **2005**, 39, 230-8	10.3	51

69	Photo-oxidation of 2,4,6-trimethylphenol in aqueous laboratory solutions and natural waters: kinetics of reaction with singlet oxygen. *Journal of Photochemistry and Photobiology A: Chemistry*, **1994**, 84, 153-160	4.7	51
68	Quantitative structure-activity relationships for chemical reductions of organic contaminants. *Environmental Toxicology and Chemistry*, **2003**, 22, 1733-42	3.8	49
67	Oxidation potentials of phenols and anilines: correlation analysis of electrochemical and theoretical values. *Environmental Sciences: Processes and Impacts*, **2017**, 19, 339-349	4.3	45
66	Structure-Activity Relationships for Rates of Aromatic Amine Oxidation by Manganese Dioxide. *Environmental Science & Technology*, **2016**, 50, 5094-102	10.3	45
65	Modeling the Kinetics of Hydrogen Formation by Zerovalent Iron: Effects of Sulfidation on Micro- and Nano-Scale Particles. *Environmental Science & Technology*, **2018**, 52, 13887-13896	10.3	39
64	Sulfide-modified zerovalent iron for enhanced antimonite sequestration: Characterization, performance, and reaction mechanisms. *Chemical Engineering Journal*, **2018**, 338, 539-547	14.7	38
63	Evidence for Localization of Reaction upon Reduction of Carbon Tetrachloride by Granular Iron. *Langmuir*, **2002**, 18, 7688-7693	4	37
62	Fe(II) Redox Chemistry in the Environment. *Chemical Reviews*, **2021**, 121, 8161-8233	68.1	37
61	Effects of solution chemistry on the dechlorination of 1,2,3-trichloropropane by zero-valent zinc. *Environmental Science & Technology*, **2011**, 45, 4073-9	10.3	36
60	Combined quantum mechanical and molecular mechanics studies of the electron-transfer reactions involving carbon tetrachloride in solution. *Journal of Physical Chemistry A*, **2008**, 112, 2713-20	2.8	36
59	Electrochemical studies of packed iron powder electrodes: Effects of common constituents of natural waters on corrosion potential. *Corrosion Science*, **2008**, 50, 144-154	6.8	35
58	Chemical Reactivity Probes for Assessing Abiotic Natural Attenuation by Reducing Iron Minerals. *Environmental Science & Technology*, **2016**, 50, 1868-76	10.3	34
57	Predicting reduction rates of energetic nitroaromatic compounds using calculated one-electron reduction potentials. *Environmental Science & Technology*, **2015**, 49, 3778-86	10.3	34
56	Quantifying the efficiency and selectivity of organohalide dechlorination by zerovalent iron. *Environmental Sciences: Processes and Impacts*, **2020**, 22, 528-542	4.3	32
55	Recovery of iron/iron oxide nanoparticles from solution: comparison of methods and their effects. *Journal of Nanoparticle Research*, **2011**, 13, 1937-1952	2.3	32
54	Hydrolysis of tert-butyl formate: Kinetics, products, and implications for the environmental impact of methyl tert-butyl ether. *Environmental Toxicology and Chemistry*, **1999**, 18, 2789-2796	3.8	32
53	Field Deployable Chemical Redox Probe for Quantitative Characterization of Carboxymethylcellulose Modified Nano Zerovalent Iron. *Environmental Science & Technology*, **2015**, 49, 10589-97	10.3	31
52	Mechanisms and kinetics of alkaline hydrolysis of the energetic nitroaromatic compounds 2,4,6-trinitrotoluene (TNT) and 2,4-dinitroanisole (DNAN). *Environmental Science & Technology*, **2013**, 47, 6790-8	10.3	31

51	Overlooked Role of Peroxides as Free Radical Precursors in Advanced Oxidation Processes. *Environmental Science & Technology*, **2019**, 53, 2054-2062	10.3	27
50	Technetium Stabilization in Low-Solubility Sulfide Phases: A Review. *ACS Earth and Space Chemistry*, **2018**, 2, 532-547	3.2	27
49	Reactivity of Zerovalent Metals in Aquatic Media: Effects of Organic Surface Coatings. *ACS Symposium Series*, **2011**, 381-406	0.4	25
48	Nanoarchitecture of advanced core-shell zero-valent iron particles with controlled reactivity for contaminant removal. *Chemical Engineering Journal*, **2018**, 354, 335-345	14.7	24
47	Photoeffects of textile dye wastewaters: Sensitization of singlet oxygen formation, oxidation of phenols and toxicity to bacteria. *Environmental Toxicology and Chemistry*, **1994**, 13, 27-33	3.8	23
46	Characterization of the reducing properties of anaerobic sediment slurries using redox indicators. *Environmental Toxicology and Chemistry*, **1990**, 9, 289-295	3.8	23
45	Environmental Applications of Zerovalent Metals: Iron vs. Zinc. *ACS Symposium Series*, **2010**, 165-178	0.4	22
44	Packed Powder Electrodes for Characterizing the Reactivity of Granular Iron in Borate Solutions. *Journal of the Electrochemical Society*, **2004**, 151, B347	3.9	22
43	One-Electron Reduction of Substituted Chlorinated Methanes As Determined from ab Initio Electronic Structure Theory. *Journal of Physical Chemistry A*, **2002**, 106, 11581-11593	2.8	21
42	One-electron-transfer reactions of polychlorinated ethylenes: concerted and stepwise cleavages. *Journal of Physical Chemistry A*, **2008**, 112, 3712-21	2.8	20
41	Effects of Sulfidation and Nitrate on the Reduction of -Nitrosodimethylamine by Zerovalent Iron. *Environmental Science & Technology*, **2019**, 53, 9744-9754	10.3	18
40	Molecular Probe Techniques for the Identification of Reductants in Sediments: Evidence for Reduction of 2-Chloroacetophenone by Hydride Transfer. *Environmental Science & Technology*, **1999**, 33, 440-445	10.3	17
39	Sulfidation of Zero-Valent Iron by Direct Reaction with Elemental Sulfur in Water: Efficiencies, Mechanism, and Dechlorination of Trichloroethylene. *Environmental Science & Technology*, **2021**, 55, 645-654	10.3	17
38	In silico environmental chemical science: properties and processes from statistical and computational modelling. *Environmental Sciences: Processes and Impacts*, **2017**, 19, 188-202	4.3	16
37	Modeling the reductive dechlorination of polychlorinated dibenzo-p-dioxins: kinetics, pathway, and equivalent toxicity. *Environmental Science & Technology*, **2009**, 43, 5327-32	10.3	15
36	Response to Comment on Degradation of 1,2,3-Trichloropropane (TCP): Hydrolysis, Elimination, and Reduction by Iron and Zinc *Environmental Science & Technology*, **2010**, 44, 3198-3199	10.3	14
35	One-Electron Reduction Potentials from Chemical Structure Theory Calculations. *ACS Symposium Series*, **2011**, 37-64	0.4	14
34	Applicability of Single-Site Rate Equations for Reactions on Inhomogeneous Surfaces. *Industrial & Engineering Chemistry Research*, **2004**, 43, 1615-1622	3.9	14

33	The Energetics of the Hydrogenolysis, Dehydrohalogenation, and Hydrolysis of 4,4□Dichloro-diphenyl-trichloroethane from ab Initio Electronic Structure Theory. *Journal of Physical Chemistry A*, **2004**, 108, 5883-5893	2.8	12
32	Oxidation and Acidification of Anaerobic Sediment-Water Systems by Autoclaving. *Journal of Environmental Quality*, **1993**, 22, 375-378	3.4	11
31	Enhanced Photooxidation of Hydroquinone by Acetylacetone, a Novel Photosensitizer and Electron Shuttle. *Environmental Science & Technology*, **2019**, 53, 11232-11239	10.3	10
30	Ab initio electronic structure study of one-electron reduction of polychlorinated ethylenes. *Journal of Physical Chemistry A*, **2005**, 109, 5905-16	2.8	10
29	Keeping Up with All That Literature: The IronRefs Database Turns 500. *Ground Water Monitoring and Remediation*, **2002**, 22, 92-94	1.4	10
28	Central limit theorem for chemical kinetics in complex systems. *Journal of Mathematical Chemistry*, **2005**, 37, 409-422	2.1	10
27	Advances in metal(loid) oxyanion removal by zerovalent iron: Kinetics, pathways, and mechanisms. *Chemosphere*, **2021**, 280, 130766	8.4	10
26	Role of complexation in the photochemical reduction of chromate by acetylacetone. *Journal of Hazardous Materials*, **2020**, 400, 123306	12.8	9
25	Free energies for degradation reactions of 1,2,3-trichloropropane from ab initio electronic structure theory. *Journal of Physical Chemistry A*, **2010**, 114, 12269-82	2.8	9
24	FeN(C)-Coated Microscale Zero-Valent Iron for Fast and Stable Trichloroethylene Dechlorination in both Acidic and Basic pH Conditions. *Environmental Science & Technology*, **2021**, 55, 5393-5402	10.3	9
23	Quantitative structure activity relationships (QSARs) and machine learning models for abiotic reduction of organic compounds by an aqueous Fe(II) complex. *Water Research*, **2021**, 192, 116843	12.5	8
22	Introduction to Aquatic Redox Chemistry. *ACS Symposium Series*, **2011**, 1-14	0.4	7
21	Discussion on □Electrochemical and Raman spectroscopic studies of the influence of chlorinated solvents on the corrosion behaviour of iron in borate buffer and in simulated groundwater□ [Corrosion Science 42 (2000) 1921□1939]. *Corrosion Science*, **2002**, 44, 1151-1157	6.8	7
20	Predicting Abiotic Reduction Rates Using Cryogenically Collected Soil Cores and Mediated Reduction Potential Measurements. *Environmental Science and Technology Letters*, **2020**, 7, 20-26	11	7
19	Novel Contaminant Transformation Pathways by Abiotic Reductants. *Environmental Science and Technology Letters*, **2014**, 1, 432-436	11	6
18	Evaluation of Zerovalent Zinc for Treatment of 1,2,3-Trichloropropane-Contaminated Groundwater: Laboratory and Field Assessment. *Ground Water Monitoring and Remediation*, **2012**, 32, 42-52	1.4	5
17	Electrochemistry of Natural Organic Matter. *ACS Symposium Series*, **2011**, 129-151	0.4	5
16	A Discovery-Based Experiment Illustrating How Iron Metal Is Used to Remediate Contaminated Groundwater. *Journal of Chemical Education*, **2001**, 78, 1661	2.4	5

15	Reduction of 1,2,3-trichloropropane (TCP): pathways and mechanisms from computational chemistry calculations. *Environmental Sciences: Processes and Impacts*, **2020**, 22, 606-616	4.3	4
14	Characterization of Palladium and Gold Nanoparticles on Granular Activated Carbon as an Efficient Catalyst for Hydrodechlorination of Trichloroethylene. *Microscopy and Microanalysis*, **2016**, 22, 332-333	0.5	4
13	Abiotic Transformation of Nitrobenzene by Zero Valent Iron under Aerobic Conditions: Relative Contributions of Reduction and Oxidation in the Presence of Ethylene Diamine Tetraacetic Acid. *Environmental Science & Technology*, **2021**, 55, 6828-6837	10.3	4
12	Comment on "evaluation of the kinetic oxidation of aqueous volatile organic compounds by permanganate" by M. G. Mahmoodlu, S. M. Hassanizadeh, and N. Hartog, in Science of the Total Environment (2014) 485-486: 755-763. *Science of the Total Environment*, **2015**, 502, 722-3	10.2	3
11	Electrochemical Characterization of Magnetite with Agarose-Stabilized Powder Disk Electrodes and Potentiometric Methods. *ACS Earth and Space Chemistry*, **2019**, 3, 688-699	3.2	3
10	Electrochemical characterization of natural organic matter by direct voltammetry in an aprotic solvent. *Environmental Sciences: Processes and Impacts*, **2019**, 21, 1664-1683	4.3	3
9	IN SITU Chemical Reduction For Source Remediation **2014**, 307-351		3
8	Effect of Synthesis Temperature on the Formation of GAC supported Pd and Au NPs. *Microscopy and Microanalysis*, **2017**, 23, 1916-1917	0.5	2
7	Synthesis, Characterization, and Properties of Zero-Valent Iron Nanoparticles **2012**, 49-86		2
6	Building toward the future in chemical and materials simulation with accessible and intelligently designed web applications. *Annual Reports in Computational Chemistry*, **2021**, 163-208	1.8	2
5	Generation of Reactive Oxygen Species and Degradation of Pollutants in the Fe/O/Tripolyphosphate System: Regulated by the Concentration Ratio of Fe and Tripolyphosphate.. *Environmental Science & Technology*, **2022**,	10.3	2
4	Unique Structural Characteristics of Catalytic Palladium/Gold Nanoparticles on Graphene. *Microscopy and Microanalysis*, **2019**, 25, 80-91	0.5	1
3	Electron Microscopy Characterization of the Synergistic Effects between Pd, Au NPs, and Their Graphene Support. *Microscopy and Microanalysis*, **2018**, 24, 1888-1889	0.5	1
2	Effect of Synthesis Time of Carbon Supported Pd/Au NPs on TCE degradation. *Microscopy and Microanalysis*, **2018**, 24, 1802-1803	0.5	
1	A Comparative Study of Carbon Supports for Pd/Au Nanoparticle-Based Catalysts. *Materials Performance and Characterization*, **2019**, 8, 20180147	0.5	