

Inez Hua
Professor, Civil Engineering
Purdue University

PUBLICATIONS

Current graduate students among the authors are underlined.
Past graduate students among the authors are double underlined.
Joint students are *italicized* and either single or double underlined.
If multiple authors are listed, the primary author is designed by an asterisk*.

E.1 Full articles in refereed publications

1. Hua*, I., Höchemer, R.H., Hoffmann, M. R., **Sonolytic Hydrolysis of *p*-Nitrophenylacetate: The Role of Supercritical Water**, *Journal of Physical Chemistry*, 99(8), pp. 2335-2342, 1995. (*Tier 1*)
2. Hua*, I., Höchemer, R.H., Hoffmann, M. R., **The Sonochemical Degradation of *p*-Nitrophenol in a Parallel-Plate Near-Field Acoustical Processor**, *Environmental Science and Technology*, 29(11), pp. 2790-2796, 1995. (*Tier 1*)
3. Hua*, I., Hoffmann, M. R., **Kinetics and Mechanism of the Sonolytic Degradation of CCl₄: Intermediates and By-Products**, *Environmental Science and Technology*, 30(3), pp. 864-871, 1996. (*Tier 1*)
4. Hoffmann*, M. R.; Hua, I.; Hoechemer, R., **Application of Ultrasonic Irradiation for the Degradation of Chemical Contaminants in Water**, *Ultrasonics Sonochemistry*, 3(3), pp. S163-S172, 1996. (*Tier 2*)
5. Weavers*, L. K., Hua, I., Hoffmann, M. R., **A New Advanced Oxidation Process: Photoassisted Oxidation of Triethanolamine by Periodate**, *Water Environment Research*, 69(6), pp. 1112-1119, 1997. (*Tier 1*)
6. Hua*, I., Hoffmann, M. R., **Title: Optimization of Ultrasonic Irradiation as an Advanced Oxidation Technology**, *Environmental Science and Technology*, 31(8), pp. 2237-2243, 1997. (*Tier 1*)
7. Zhang*, G. and Hua, I., **Cavitation Chemistry of Polychlorinated Biphenyls: Decomposition Mechanisms and Rates**, *Environmental Science and Technology*, 34(8), pp. 1529-1534, 2000. (*Tier 1*)
8. Zhang*, G., and Hua, I.; **Ultrasonic Degradation of Trichloroacetonitrile, Chloropicrin, Bromobenzene: Design Factors and Matrix Effects**, *Advances in Environmental Research*, 4 (3), pp. 219-224, 2000. (*Tier 1*)
9. Beckett*, M. A., and Hua, I.; **Elucidation of the 1,4-Dioxane Decomposition Pathway at Discrete Ultrasonic Frequencies**, *Environmental Science and Technology*, 34 (19), pp. 3944-3953, 2000. (*Tier 1*)
10. Schramm*, J. and Hua, I.; **Ultrasonic Irradiation of Dichlorvos:**

- Decomposition Mechanism and Mass Balances**, *Water Research*, 35(3), pp. 665-674, 2001. (Tier 1)
11. Hua*, I. and Pfalzer-Thompson, U.; **Ultrasonic Irradiation of Carbofuran: Decomposition Kinetics and Reactor Characterization**, *Water Research*, 35 (6), pp. 1445-1452, 2001. (Tier 1)
 12. Beckett*, M. A. and Hua, I.; **The Impact of Ultrasonic Frequency on Aqueous Sonoluminescence and Sonochemistry**, *Journal of Physical Chemistry A*, 105 (15), pp. 3796-3802, 2001. (Tier 1)
 13. Zhang*, G. and Hua, I.; **The Impact of Particulates on Aqueous Sonochemical Reactions**, *Chemosphere*, 46 (1), pp. 59-66, 2002. (Tier 1)
 14. Hua, I*., Kang, N., Jafvert, C., Fábrega-Duque, J. **Heterogeneous Photochemical Reactions of Decabromodiphenyl Ether**, *Environmental Toxicology and Chemistry*, 22(4), pp. 798-804, 2003. (Tier 1)
 15. Zhang*, G. and Hua, I.; **Supercritical Water Oxidation of Nitrobenzene**, *Industrial and Engineering Chemistry Research*, 42 (2), pp. 285-289, 2003. (Tier 1)
 16. Beckett*, M. and Hua, I.; **Enhanced Sonochemical Decomposition of 1,4-Dioxane by the Fenton Process**, *Water Research*, 37(10), pp. 2372-2376, 2003. (Tier 1)
 17. Kang*, N., Hua, I., Rao, P. S. C., **Production and Characterization of Encapsulated Potassium Permanganate for Sustained Release as an In Situ Oxidant**, *Industrial and Engineering Chemistry Research*, 43 (17), pp. 5187 - 5193, 2004. (Tier 1)
 18. Bezares-Cruz*, J., Jafvert, C., Hua, I., **Solar Photodecomposition of Decabromodiphenyl Ether: Products and Quantum Yield**, *Environmental Science and Technology*, 8(15), pp. 4149 -4156, 2004. (Tier 1)
 19. Kang*, N., and Hua, I., **Fenton oxidation of BTEX Compounds in Soil Slurry Systems**, *Chemosphere*, 61(7), pp. 909-922, 2005. (Tier 1)
 20. Kang*, N., Hua, I., Rao, P. S. C., **Enhanced Fenton's Destruction of Non-aqueous Phase Perchloroethylene in Soil Systems**, *Chemosphere*, 63(10), pp. 1685-1698, 2006. (Tier 1)
 21. Zhai*, X., Hua, I., Rao, P. S. C., Lee, L. S., **Co-solvent Enhanced Chemical Oxidation of Perchloroethylene by Potassium Permanganate**, *Journal of Contaminant Hydrology*, 82(1-2), pp. 61-74, 2006. (Tier 1)
 22. Ahn*, M.-Y.; Filley, T. R.; Jafvert, C. T.; Nies, L.; Hua, I.; Bezares-Cruz, J., **Photodegradation of Decabromodiphenyl Ether Adsorbed onto Clay Minerals, Metal Oxides, and Sediment**, *Environ. Sci. Technol.* 40(1), pp. 215-

220, 2006. (Tier 1)

23. Ahn*, M.-Y.; Filley, T. R.; Jafvert, C. T.; Nies, L.; Hua, I.; **Birnessite Mediated Debromination of Decabromodiphenyl Ether**, *Chemosphere* 64(11), 1801-1807, 2006. (Tier 1)
24. Kang*, N., Hua, I., Xiao, C., **Impacts of Sonochemical Process Variables on Number Average Molecular Weight Reduction of Asphaltene**, *Industrial and Engineering Chemistry Research*, 45(15), pp. 5239-5245, 2006. (Tier 1)

E.2 Shorter communications, letters, notes or briefs in refereed journals

1. Hua*, I. and Thompson, J.; **Inactivation of *Escherichia coli* by Sonication at Discrete Ultrasonic Frequencies**, *Water Research*, 34(15), pp. 3888-3893, 2000. (Tier 1)

E.3 Refereed conference or symposium proceedings

1. Schramm,* J., Hua, I. (2004), "Alachlor Oxidation by Sonication and Ozonation," American Waterworks Association, Water Quality Technology Conference and Exposition, November 14-18, 2004, San Antonio, TX. Paper number: WOTC60784, 19pp.
2. Stuart*, J. A., Hua, I., "Designing and Teaching a Sustainable Design Course at Purdue University", Third International Conference for Design and Manufacture for Sustainable Development, Sept. 1-2, 2004, Loughborough, United Kingdom, pp. 157-166.

E.4 Refereed conference summaries or abstracts

None.

E.5 Other submitted publications

1. Hua, I., Poyer, I., Nienow*, A., Bezares-Cruz, J.C., Jafvert, C.T., (2006) "Enhanced Photocatalytic Degradation of Select Toxic Industrial Chemicals and Materials (TICs and TIMs)," 232nd ACS National Meeting, San Francisco, CA, September 10-14, 2006 (abstract).
2. Bezares-Cruz*, J.C., Poyer, I., Nienow, A., Hua, I., Jafvert, C.T., (2006) "Photocatalytic Degradation Of Lindane In Potable Water System," 232nd ACS National Meeting, San Francisco, CA, September 10-14, 2006 (abstract).
3. Seager, T. P., Raymond, L., Hua, I., Olive, A., (2006) "Investigation of the Life-Cycle and Policy Aspects of Brominated Flame Retardants," SETAC North America 27th Annual Meeting, November 5-9, 2006 at the Palais de Congrès in Montréal, Québec, Canada (abstract).

E.6 Abstracts in non-refereed conference proceedings

1. Hua,* I., Höchemer, R. and Hoffman, M.R. (1995) "Chemical Reactions on Cavitating Bubble Surfaces," Abstracts of Papers of the American Chemical Society, 209: 205-ENVR Part 1 APR 2.

2. Hua,* I. and Hoffman, M. (1995) "The Kinetics of Hydroxyl Radical and Hydrogen Peroxide Formation During Sonolysis: The Effect of Frequency," Abstracts of the papers of the American Chemical Society, 210: 75-ENVR Part 1, August 20.
3. Hua,* I. and Hoffman, M. (1996) "Sonochemical Production of Hydroxyl Radical and Hydrogen Peroxide: The Effect of Frequency and Saturating Gas," Second International Symposium on Environmental Applications of Advanced Oxidation Technologies, San Francisco, CA, February 28-March 3.
4. Hua*, I. (1997) "Applications of Ultrasonic Irradiation in the Field of Environmental Engineering," 52nd Industrial Waste Conference, West Lafayette, IN, May 5-7.
5. Schramm,* J. D. and Hua, I. (1997) "Degradation of Dichlorvos by Sonolysis," Abstracts of Papers, 214th American Chemical Society (ACS) National Meeting, Division of Physical Chemistry, Paper 272, Las Vegas, NV, September 7-11.
6. Pfalzer-Thompson,* U., and Hua,+ I. (1998) "The Use of Acoustic Cavitation for the Destruction of the Carbamate Pesticide Carbofuran," Abstracts of Papers, 215th American Chemical Society (ACS) National Meeting, Division of Colloid Chemistry, Paper 117, Dallas, TX, March 29-April 2.
7. Hua,* I. and Zhang,* G. (1998) "Cavitation Chemistry of Polychlorinated Biphenyls," Abstracts of Papers, 215th American Chemical Society (ACS) National Meeting, Division of Colloid Chemistry, Paper 139, Dallas, TX, March 29-April 2.
8. Zhang,* G. and Hua, I. (1999) "Sonolysis Degradation of PCBs," Abstracts of Papers, 217th American Chemical Society (ACS) National Meeting, Division of Colloid Chemistry, Paper 118, Anaheim, CA, March 21-25.
9. Beckett,* M. and Hua,* I. (2000) "The Role of Frequency During the Ultrasonic Degradation of 1,4-Dioxane," Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds organized by Battelle, Monterey, CA, May 22-25 .
10. Hua*, I. (2000) "Ultrasonic Irradiation Applied to the Decomposition of Aqueous Organic Compounds," Ultrasonic Industry Association 30th Annual Symposium, Columbus, Ohio, June 11-13 (p. 49).
11. Hua*, I. (2000) "Studies of Aqueous Sonoluminescence and Sonochemistry with Aqueous 1,4-Dioxane," American Chemical Society Pacificchem Conference, Honolulu, HI, December.
12. Hua*, I., Jafvert, C.T. (2001) "Environmental photochemistry of decabromodiphenyl ether and related compounds," Abstracts of the Papers of the American Chemical Society, 221: 135-ENVR, Part 1, April 1.

13. Jafvert, C.T., Hua, I., *Bezares-Cruz, J.C.*, Filley, T., (2003) "Heterogeneous Photochemical Reactions of Decabromodiphenylether (DBDPE)," Society of Environmental Toxicology and Chemistry (SETAC), Hamburg, Germany, April 27 - May 1, 2003.

14. Hua* I., Jafvert C. T., Bezares-Cruz J.C., Kang N., Filley T., (2003) "Photochemical reaction rates and products of solar irradiated polybrominated diphenylethers," Abstracts of Papers of the American Chemical Society, 226: U511-U511 266-ENVR, Part 1, Sept..
15. Hua, I., Iraci*, L., Jafvert, C., Bezares-Cruz, J.C. (2004), "Environmental Partitioning and Reactivity of Polybrominated Diphenylethers", Eos Trans. AGU, 85(17), Jt. Assembly Supplement, Abstract A23A-03. Presented at the 2004 Joint Assembly of AGU, CGU, SEG, and EEGS.
16. Hua*, I., Kang, N., (2004) "Fenton's reagent for the *in situ* oxidative treatment of BTEX contaminated groundwater and soil," Abstracts of the Papers of American Chemical Society, 228: U603-U603 079-ENVR Part 1 Aug. 22.
17. Bezares-Cruz*, J.C., Jafvert, C., Hua, I., and Filley, T., (2004) "Solar irradiative decay of decabromodiphenylether in hexane and humic acid solutions," Abstracts of Papers of the American Chemical Society, U605-U605 090-ENVR Part 1 August 22.
18. Ahn*, M-A., Jafvert, C., Nies, L., Hua, I., and Filley, T., (2005) "Photodegradation of decabromodiphenyl ether adsorbed onto clay minerals and sediment," Abstracts of Papers of the American Chemical Society, 229: U841-U841 075-ENVR Part 1 March 13.
19. Ahn*, M-A., Jafvert, C., Nies, L., Hua, I., and Filley, T., (2005) "Debromination of decabromodiphenyl ether by a manganese oxide," Abstracts of Papers of the American Chemical Society, 229: U841-U841 093 ENVR Part 1 March 13.

E.7 **Books**

None.

E.8 **Chapters in books**

1. Hoffmann*, M. R., Hua, I., Höchemer, R. H., Willberg, D., Lang, P., Kratel, A., (1997) "Chemistry under Extreme Conditions in Water Induced by Electrohydraulic Cavitation and Pulsed-Plasma Discharges," in *Chemistry Under Extreme or Non-Classical Conditions*, pp. 429-478, edited by R. Van Eldik and C. D. Hubbards, New York: Wiley; Heidelberg: Spektrum.
2. Beckett, M. A., Schramm, J. D., Zhang, G., and Hua*, I., (1999) chapter section entitled "Electrohydraulic Cavitation and Sonolysis" in *Hazardous and Radioactive Waste Treatment Technologies Handbook*, pp. 5.3-1 – 5.3-12, edited by Chang H. Oh, Boca Raton, CRC Press, 2001.

E.9 **Book reviews**

None.

E.10 **Government, university, or industrial reports (non-refereed)**

1. Hua*, I., (2000) "An Investigation of Homogeneous and Heterogeneous Sonochemistry for Destruction of Hazardous Waste," Report number DOE/ER/14710.
2. Hua*, I., Wukasch, R., Ernst, S., (2001), "Determination of Rate and Degree of Alkaline Solution Neutralization Within a Pipe Using Carbon Dioxide Sparging," Hemispheric Center for Environmental Technology, Florida International University.
3. Hua*, I., Rao, P.S.C., Lee, L., (2004) "Remediation of Soils and Ground Water Contaminated by Aromatic and Chlorinated Hydrocarbons and Metals", Report number FHWA/IN/JTRP-2004/01.
4. Jafvert, C., Filley, T., Hua, I., (2005), "Final Report: Environmental Photochemistry of Polybrominated Diphenylethers," U.S. EPA Grant number R830398.
5. Hua*, I., Hopf, A., (2006), "Remediation of Aromatic Hydrocarbons in Low Permeability Soils: Updating the Remediation Decision Tree," Report number FHWA/IN/JTRP-2005/05.

E.11 **Publications in popular press/magazines**

None.

E.12 **INVITED publications and presentations**

1. Hua*, I. (1997) "Applications of Ultrasound in Materials Processing: The Physics and Chemistry of Acoustic Cavitation," Industrial Chemicals Symposium, Alcoa Technical Center, Pittsburgh, PA, September.
2. Hua*, I. (1999) "The Use of Ultrasonic Irradiation in Environmental Engineering Processes," Borchardt Conference, February, The University of Michigan, Ann Arbor, Michigan.
3. Hua*, I. (2000) "Ultrasonic Irradiation Applied to the Decomposition of Halogenated Organic Compounds and Organic Ethers," United States Environmental Protection Agency, Athens, GA, April.
4. Hua*, I. and Jafvert, C. (2001), "Environmental photochemistry of decabromodiphenyl ether and related compounds," American Chemical Society, April, San Diego, CA.
5. Fabrega, J., Jafvert, C.T. and Hua*, I. (2000) "Environmental Photochemistry of Polybrominated Diphenyl Ethers," Gordon Conference, New Hampshire, June 2000 (Poster).

Publications in progress

1. Hua, I., Poyer, I., Nienow*, A., Bezares-Cruz, J.C., Jafvert, C.T.,
“Photochemical Oxidation of Lindane: Oxidant Dosage and Kinetic
Characterization,” planned submission to *Environ. Sci. Technol.*, December
2006.
2. Hua, I., Poyer, I., Nienow*, A., Bezares-Cruz, J.C., Jafvert, C.T.,
“Photochemical Oxidation of Nicotine: Kinetics and Quantum Efficiency,”
planned submission to *Environ. Sci. Technol.*, December 2006.