

Curriculum Vitae
Timothy Edward Mattes

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Department of Civil and Environmental Engineering
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PROFESSIONAL

- *Assistant Professor*, The University of Iowa, Iowa City, IA (8/04-present).
- *Design Engineer*, Gannett Fleming Inc. Baltimore, MD (8/97-8/98).
- *Design Engineer*, Beavin Company. Baltimore, MD (6/95-8/97).

ACADEMIC QUALIFICATIONS

- *Doctor of Philosophy, 2004*. School of Civil and Environmental Engineering, Cornell University, Ithaca, NY.
- *Master of Science in Engineering, 1995*. Department of Geography and Environmental Engineering, Whiting School of Engineering, The Johns Hopkins University, Baltimore, MD.
- *Bachelor of Science in Civil Engineering, 1994*. Department of Civil Engineering, Whiting School of Engineering, The Johns Hopkins University, Baltimore, MD.

PROFESSIONAL REGISTRATION

- Professional Engineer in Maryland since 1999. Registration #200383.

PUBLICATIONS (Journal Article Peer Reviewed)

1. **Mattes, T.E.**, Alexander, A.K., Richardson, P.M., Han, C.S, Munk, A.C., and Coleman, N.V. Genome of *Polaromonas* sp. strain JS666: Insights into the evolution of a dichloroethene-degrading bacterium and applications in biotechnology. *Submitted*.
2. Chuang, A.S, and **Mattes, T.E.** Identification of polypeptides expressed in response to vinyl chloride, ethene, and epoxyethane using peptide mass fingerprinting. *Submitted*.
3. **Mattes, T.E.**, Coleman, N.V, Chuang, A.S, Rogers, A.J, Spain, J.C, and Gossett, J.M. Mechanism controlling the extended lag period associated with vinyl chloride starvation in *Nocardioides* sp. strain JS614. *Archives of Microbiology. In Press* (available on web: DOI 10.1007/s00203-006-0189-2).

4. **Mattes, T.E.**, Coleman, N.V., Spain, J.C., and Gossett, J.M., 2005. Physiological and molecular genetic analyses of vinyl chloride and ethene biodegradation in *Nocardioides* sp. strain JS614. *Archives of Microbiology*, (**183**:95-106).
5. Chartrand, M., Waller, A., **Mattes, T.E.**, Elsner, M., Lacrampe-Couloume, G., Gossett, J.M., Edwards, E.A., and Lollar, B.S., 2005. Carbon isotopic fractionation during aerobic vinyl chloride degradation. *Environmental Science and Technology* (**39**:1064-1070).
6. Coleman, N.V., **Mattes, T.E.**, Gossett, J.M., and Spain, J.C. "Phylogenetic and kinetic diversity of aerobic vinyl chloride-assimilating bacteria from contaminated sites". *Applied and Environmental Microbiology* Vol. 68, 2002, pp. 6162-6171.
7. Coleman, N.V., **Mattes, T.E.**, Gossett, J.M., and Spain, J.C. "Biodegradation of *cis*-dichloroethene as sole carbon source by a β -proteobacterium strain JS666". *Applied and Environmental Microbiology* Vol. 68, 2002, pp. 2726-2730.

CONFERENCE PRESENTATIONS

1. **Mattes, T.**, Coleman, N., Gossett, J., Spain, J. 2004. A linear plasmid carries vinyl chloride biodegradation genes in *Nocardioides* strain JS614. The Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, CA.
2. **Mattes, T.**, Coleman, N., Gossett, J., Spain, J. 2003. Characterization of vinyl chloride and ethene starvation physiology in VC-assimilating *Nocardioides* strain JS614. The Seventh International Symposium, In-Situ and On-Site Bioremediation. Orlando, FL.

SELECTED ABSTRACTS AND POSTERS

1. **Mattes, T.E.**, Jin, Y.O., Chuang, A.S and Coleman, N.V., 2006. Development of nucleic acid and protein biomarkers for vinyl chloride assimilating microbial communities. Partners in Environmental Technology Technical Symposium & Workshop, Washington, D.C.
2. Jin, Y.O. and **Mattes, T.E.**, 2006. Investigating adaptation of ethene-degrading bacteria to vinyl chloride as a growth substrate. The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA.
3. **Mattes, T.E.**, Coleman, N.V., Spain, J.C., Gossett, J.M., 2005. Characterization of the extended lag period associated with vinyl chloride and ethene starvation in *Nocardioides* sp. strain JS614. Abstracts of 105th General Meeting of the American Society for Microbiology. Atlanta, GA.
4. **Mattes, T.E.**, Coleman, N.V., Gossett, J.M., and Spain, J.C., 2003. "Evidence that vinyl chloride monooxygenase genes are encoded by a megaplasmid in *Nocardioides* strain JS614". Abstracts of the 103rd General Meeting American Society for Microbiology, American Society for Microbiology, Abstract Q-061, p. 525.

5. **Mattes, T.E.**, Rubin, J., Coleman, N.V., Gossett, J.M., and Spain, J.C., 2002. “Comparison of response to vinyl chloride starvation by VC-assimilating *Mycobacterium* strain TM1 and *Nocardioides* strain JS614”. The 34th Mid-Atlantic Industrial and Hazardous Waste Conference, Rutgers University, New Brunswick, N.J.
6. **Mattes, T.E.**, and Gossett J.M., 2002. “Isolation of aerobic, growth-coupled vinyl chloride oxidizing bacteria from environmental samples”. The Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Battelle.
7. Quistorff, A., **Mattes, T.E.**, and Gossett J.M., 2000. “Microbially Mediated Reductive Dechlorination of Dichlorobenzene”. The Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Battelle.

INVITED LECTURES

1. “Evolution of chlorinated solvent biodegradation pathways – implications for bioremediation applications”. Environmental Engineering and Science Graduate Seminar, The University of Iowa, Iowa City, IA. November, 11 2005.
2. “A linear plasmid carries vinyl chloride biodegradation genes in *Nocardioides* strain JS614”. The University of Iowa, Iowa City, IA. April 23, 2004.
3. “A linear plasmid carries vinyl chloride biodegradation genes in *Nocardioides* strain JS614”. The University of Connecticut, Storrs, CT. March 2004.
4. “A linear plasmid carries vinyl chloride biodegradation genes in *Nocardioides* strain JS614”. United States Geological Survey, Reston, VA. March 2004.
5. “A linear plasmid carries vinyl chloride biodegradation genes in *Nocardioides* strain JS614”. Yale University, New Haven, CT. January 14, 2004.

GRANTS RECEIVED

1. “Development of alkene monooxygenase systems for biocatalytic applications”. Sponsor: Center for Environmentally Beneficial Catalysis (NSF-sponsored Engineering Research Center). Award period: 11/2004-11/2008. Award Amount: \$120,000.
2. “Development of molecular techniques for the detection of vinyl-chloride degrading bacteria in the environment”. Sponsor: Center for the Health Effects of Environmental Contamination. Award period: 1/1/2005-12/31/2005. Award amount: \$25,000
3. “Characterization of the extended lag periods associated with vinyl chloride starvation in *Nocardioides* sp. strain JS614”. Sponsor: Office of the Vice President for Research, The University of Iowa. Award duration: 1/1/2006 – 6/30/2007. Award amount: \$3,000.
4. “Validation of bacterial genome mining for agricultural and industrial byproduct biocatalyst discovery”. Sponsor: Biotechnology Byproducts Consortium. Award duration: 1/2007-12/2007. Award amount; \$36,000.

GRADUATE STUDENT SUPERVISIONCurrent PhD students

- Yang Oh Jin: *Evolution of vinyl chloride-assimilating bacteria and the mechanism by which ethene-assimilating bacteria adapt to vinyl chloride*. Expected graduation, Fall 2008.
- Adina Chuang: topic as yet undetermined, awarded NSF graduate fellowship in August 2005
- Anne Alexander: topic as yet undetermined, awarded NSF graduate fellowship in August 2006

Current MS students

- Carmen Owens – *Heterologous expression of the alkene monooxygenase from Nocardioides sp. strain JS614*. CEBC fellow. Expected graduation, Summer 2008.

HONORS AND AWARDS

- 2005, Travel Grant to attend NSF-sponsored CAREER Award workshop at the Association of Environmental Engineering and Science Professors Research and Education Conference, Potsdam, NY.
- 2003, Corporate Partner Travel Grant Award for 103rd General Meeting American Society for Microbiology, Washington, DC.
- 2003, Graduate Student Conference Grant for 7th Symposium for In situ and On-site Bioremediation, Orlando, FL

PROFESSIONAL EXPERIENCE

Gannett Fleming, Inc. Baltimore, MD.

August 1997 – August 1998

Design Engineer.

- Performed design calculations and prepared plans and specifications for construction of wastewater treatment and sludge handling facilities. Selected projects: Hanover Township, PA WWTP (entire new facility); Back River WWTP Sludge Drying Facility, Baltimore, MD (upgrade to centrifuges); Rapid Sand Filter Upgrade, Plattekill Service Area WWTP, NY (phosphorus removal upgrade).
- Traveled to hazardous waste sites to observe and report on remedial activities as part of an EPA Remedial Oversight Contract

Beavin Company (now Dewberry & Davis). Baltimore, MD. May 1995 – August 1997

Design Engineer.

- Designed and prepared plans and specifications for construction of water supply and wastewater collection facilities and infrastructure. Selected projects: 23,000 LF of 16”-24” watermain, 2 MG pre-stressed concrete water storage tank and 2 MGD water pumping station, Frederick County, MD (all new facilities)
- Performed construction inspection duties during installation of a wastewater treatment plant blower facility upgrade.

SYNERGISTIC ACTIVITIES

- Faculty Member – Center for Biocatalysis and Bioprocessing, Center for Global and Regional Environmental Research, and the Center for Environmentally Beneficial Catalysis; The University of Iowa.
- Member of American Society for Microbiology, American Society for Civil Engineers, and Association of Environmental Engineering and Science Professors
- Reviewed manuscripts for: Environmental Science and Technology (11/2004, 11/2005, 5/2006), Journal of Environmental Quality (1/2005), Biotechnology Progress (2/2005), Bioremediation Journal(6/2006), Journal of Human Genetics (1/2007) and Journal of Environmental Engineering (7/2005)
- Reviewed research proposals for NSF: Metabolic Biochemistry (4/2005), American Chemical Society (12/2006), CGRER Seed Grant (5/2006)
- Essential Teaching Seminar for Engineering Faculty (ETS), San Francisco State University, September 2005
- Frontiers in Environmental Engineering Education Workshop, Arizona State University, January 2007.