

Office Address

400 Snell Engineering Center
Department of Civil and Environmental Engineering
Northeastern University, 360 Huntington Avenue
Boston, MA 02115
Phone : (617) 373-3994

Residence

287 Prospect Street
Franklin, MA 02038
(508) 541-3989

E-mail: aalsha@coe.neu.edu

Education

Ph.D., 1994 Civil and Environmental Engineering, Louisiana State University, Baton Rouge, LA
M.Sc., 1990 Civil Engineering, Jordan University of Science and Technology, Irbid, Jordan
B.E., 1988 Civil Engineering, Yarmouk University, Irbid, Jordan

Employment

6/97-Date Assistant Professor (6-97 – 6/02), Associate Professor (7/02 – 6/07) and Professor (7/07 – Date); Department of Civil and Environmental Engineering, Northeastern University, Boston, Massachusetts
7/02-Date Graduate Director, Department of Civil and Environmental Engineering, Northeastern University, Boston, Massachusetts
8/05-6/06 Visiting Professor (Fulbright Scholar), Jordan University of Science and Technology, Irbid, Jordan
9/96-5/97 Visiting Assistant Professor, Department of Civil and Environmental Engineering, Polytechnic University, Brooklyn, New York
5/94-8/96 Technical Director, Electrokinetics Inc., Baton Rouge, LA; Activities: writing research proposals, reports, and design of remediation technologies.
8/95-5/96 Adjunct Instructor, Department of Civil and Environmental Engineering, Louisiana State University, Baton Rouge, Louisiana
8/90-6/94 Research Assistant, Department of Civil and Environmental Engineering, Louisiana State University, Baton Rouge, Louisiana
1/89-6/90 Teaching Assistant, Department of Civil and Environmental Engineering, Jordan University of Science and Technology, Irbid, Jordan

Professional Registration

Registered Professional Engineer, Louisiana, Registration No. 28524, 1999

Honors and Awards

- 2005 – 2006 Fulbright Scholar – Jordan
- 2004 College of Engineering (COE) Outstanding Researcher Award, NU
- 2001 NSF CAREER Award
- 1996 Army Research Quality Award for Phase II Small Business Innovative Research (SBIR) (Awarded to Electrokinetics Inc.)
- College of Eng. Outstanding Dissertation (Nominated for University Award), 1994
- Jordan's Royal Award: Ranked top of Civil Engineering MS graduates, 1990, Jordan
- Arab Student Aid International (ASAI) Fellowship (1990-1994)
- Dean's honor list (Yarmouk University, Jordan, 1983)

Professional Affiliation

Geoinstitute; American Society of Civil Engineers (ASCE); American Chemical Society (ACS); American Geophysical Union (AGU); Jordan Engineer Society; The US Universities Council on Geotechnical Engineering Research (USUCGER); International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)

Professional Activities and Service

Editorial Board

ASCE Journal of Geotechnical and Geoenvironmental Engineering (2001-2007)

Journal of Hazardous Materials (2003 – 2008)

Soil and Sediment Contamination (2003 – Date)

Conference Scientific Advisory Board

- Technical Program Co-Chair: ASCE – GI Congress; “*GeoCongress 2008 : The Challenge of Sustainability in the Geoenvironment*” – New Orleans, LA, March 9 – 12, 2008
- Member of the Scientific Advisory Board – Annual International Conference on Contaminated Soils, Sediments and Water, Association for Environmental Health and Sciences (2000 – 2005)

Committees

- Chair of Committee AFP40: “Physicochemical and Biological Processes in Soil”; TRB (Transportation Research Board of the National Academies) (member 1997, chair 2003)
- Core Member, Technical Committee TC5 on “Environmental Geotechnics” (2001-2006), ISSMGE (International Society of Soil Mechanics and Geotechnical Engineering)
- Member, ASCE Geoenvironmental Engineering Committee (1996-date)
- Graduate Director: CEE, NU (2002-2005; 2006-date)
- College of Engineering Faculty Council, NU (2002-2005)
- NU Graduate Council (2002-2005; 2006-date)
- NU New Programs Committee (2002-2005; 2006-date)
- Computer Advisory Committee, College of Engineering, NU (1999-2002)
- University Research Council, NU (2001-2002)
- Faculty Search Committees, CEE, NU
- Annual Review and Promotion Committees, CEE, NU
- College Tenure and Promotion Committee (2007-2008)
- Research and Scholarship Development Fund (2007 Committee), Provost Office, NU

Proposal Reviews - Reviewed research proposals for

- National Science Foundation (proposals and panel (2002, 2004, 2005) reviews)
- Petroleum Research Fund
- Texas Higher Education Coordinating Board (preproposal/proposal/panel reviews, 2001; 2003)
- Water Resources Institute (WRI)
- Kentucky Science & Engineering Foundation
- Council for the Earth and Life Sciences, NOW, The Netherlands
- Fondo Nacional de Investigación Científica y Tecnología (FONDECYT), Santiago, Chile
- Natural Sciences and Engineering Research Council of Canada (NSERC)

Paper Reviews: Reviewed papers for several journals:

ASCE Journal of Environmental Engineering, Environmental Science & Technology, Geotechnical Testing Journal, Environmental Technology, Journal of the Air and Waste Management Association, Transportation Research Board, Journal of Soil Decontamination, Computers and Geotechnics, Journal of Contaminant Hydrology, Journal of Soil and Sediment Contamination, Advances in Environmental Research, UNESCO Encyclopedia of Life Support Systems, ASCE Journal of Infrastructure Systems, Electronic Journal of Geotechnical Engineering, Water Research, The Encyclopedia of Environmental Analysis and Remediation (John Wiley & Sons Inc.), Chemosphere

Conference Sessions, Panels and Workshops

- Invited Lecturer "Bio-Soil Interactions and Engineering Workshop," MIT Endicott House Facility; April 1-4, 2007; Sponsored by NSF
- Chair: Session PDS B1 "Remediation" June 28, 2006; ISSMGE's 5th International Congress on Environmental Geotechnics," Cardiff, UK 26th-30th June 2006.
- Co-Chair: Session on "WC – In Situ Remediation of Contaminated Soils," Geofrontiers 2005; Austin, Texas; January 24-26, 2005, sponsored by the ASCE G-I, Geoenvironmental Engineering Committee
- Invited Participant: Workshop on "Geological and Geotechnical Engineering in the New Millennium," February 3-6, 2004, Sponsored by the NRC Board on Earth Sciences and Resources, Beckman Center, Irvine, CA
- Workshop presentation "Contaminant Fate and Transport" in "Basic Geosciences Concepts and Subsurface Sensing and Imaging Tools" CenSSIS Research and Industrial Collaboration Conference (RICC), November 18-19, 2003, Boston, MA
- Moderator: Session on "Heavy Metals," The 19th Annual International Conference on Soils, Sediments & Water; October 20-23, 2003, University of Massachusetts-Amherst.
- Chair: "Modeling Methods" session – 2003 Subsurface Science Symposium, "Advances in Understanding and Modeling Subsurface Processes" Organized by INRA (Inland Northwest Research Alliance" and INEEL (Idaho National Engineering and Environmental Laboratory, Salt Lake City, Utah, October 5-8, 2003
- Invited Participant: National workshop on "NSF Workshop on Emerging Geoenvironmental Technologies" University of Illinois-Chicago, September 18-19, 2003 (Sponsored by NSF)
- Chair: "Technical Session 2.7: Applications of Electrokinetics," 8th Environmental and Sustainable Engineering Specialty Conference of the Canadian Society for Civil Engineering, Moncton, New Brunswick, Canada, June 4-7, 2003
- Chair: "Session 4: Developments," 4th symposium on Electrokinetic Remediation (EREM03), Belgian Nuclear Res. Center (SCK-CEN), May14-16, 2003, Mol, Belgium
- Invited Participant: National Workshop on Future Sensing Systems "Living, Nonliving, and Energy Systems," Granlibakken Conference Center, Lake Tahoe, CA, August 26-28, 2002 (Sponsored by NSF).
- Panelist: "Contaminant Migration to the Water Table – A Looming Societal Nightmare," Center for Subsurface Sensing and Imaging Systems - Research and Industrial Collaboration Conference, November 13-15, 2000, Boston, MA
- Chair: "Recent Developments in Soil Remediation Technologies," Session Sponsored by Transportation Research Board (TRB) Committee A2L03 "Physicochemical Phenomena in Soils," January 9-13, 2000, Washington, D.C.
- Chair: "In-Situ Characterization and Remediation by Electric Fields," Emerging Technologies in Hazardous Waste Management, American Chemical Soc. (ACS) 1998 Meeting, Sponsored by Industrial & Eng. Chemistry Div., August 23-27, Boston, MA.

Other – International Activities

- Panelist: Workshop 1 “Remediation 1” June 26, 2006; ISSMGE's 5th International Congress on Environmental Geotechnics,” Cardiff, UK 26th-30th June 2006.
- International Review Committee: The Fourth International Electrokinetic Remediation Conference, Mol, Belgium, May 14-16, 2003
- Panelist - Session PS4: "Management of Contaminated Sites," 4th International Congress on Environmental. Geotechnics, 11-15 August, 2002, Rio de Janeiro, Brazil.
- Invited Participant: Workshop on International Research Collaboration at the International Conference on Soil Mechanics and Geotechnical Engineering, Istanbul, Turkey, August 28 - Sept. 1, 2001 (Sponsored by NSF and ASCE).
- Visiting Scholar: Federal University of Rio de Janeiro, Brazil, 10-24 November 2001 Presented a Short Course on “Soil-Contaminant Interactions and Soil Remediation,” (Sponsored by Brazilian National Council of Scientific & Tech. Development – CNPq).
- Visiting scholar: Norwegian University of Science and Technology, Trondheim (November 20-26, 1999) for collaboration on electrokinetic soil remediation (Sponsored by NMG, Norway).

Teaching (see attached List for details)

Environmental Engineering and Water Resources

Hydraulic Engineering; Hazardous Waste Management; Environmental Geotechnology;
Groundwater Hydraulics and Quality Modeling; Geoenvironmental Engineering; Hazardous Site Remediation

Geotechnical Engineering

Soil Mechanics; Foundation Eng.; Advanced Soil Mechanics; Advanced Foundation Eng., Soil Behavior, Geoenvironmental Engineering

Fundamental Civil Engineering

Statics; Structural Analysis I

Course Development

Introduced a new course on principles and applications of Geoenvironmental Engineering at Northeastern University. The course is being offered every year. Graduate and undergraduate students attend the course. Average enrollment is 15 students (offered 3 times).

Graduate Student Advising

Student Name	Degree	Thesis Title	Supporting Agency	Graduation Date
Ehsan Kianirad	PhD Candidate	Rapid Soil Characterization System (RapSocks)	TransTech/ USACE	Spring 09
Mansoureh Norouzirad	PhD Student	Reactive mats for remediation of contaminated sediments	NIEHS	Spring 12
Laura Gabrieli	PhD Student	Nonlinear electrokinetic transport in clays – <i>Visiting Scholar from Italy</i>	Visiting	Spring 09
Mehdi Sharefian	MS Student	Educational Tools for Geoenvironmental Eng.	N/A	Spring 09
David Gent	PhD	In Situ Remediation of Energetic Compounds	EL-ERDC ¹	August 07
Hussam Sarahney	PhD	Electrolytic Reactive Barrier for Insitu Reduction of Contaminants in Groundwater	NSF CAREER	June 07
Hatim Fedllalah	PhD	Stimulation of Aerobic Biodegradation of Phenanthrene in Soil by Electrolytic Generation and Electroosmotic Transport of Oxygen	NSF CAREER	June 07
Guoping Tang	PhD	Time Integration for Groundwater Flow and Solute Transport Modeling	CAREER/ CEE	August 06
Xingzhi Wu	PhD	PCE Bioremediation by Lactate Injection under direct Electric current	EL-ERDC	December 05
Mohammed Farid	PhD	Imaging of DNAPL in Soils by Cross-Well Radar	CenSSIS	August 04
Lori Seigel	PhD	Modeling Cesium Fate in the Rhizosphere	INEEL ²	August 03
Fulya Guney	MS Thesis	Effect of Electrochemical Redox Barriers on pH and Eh Profiles	CEE Dept./ CAREER	August 06
Clay Kurison	MS Thesis	2D Cross Well Electromagnetic Characterization of Soil	CenSSIS	May 06
Hussam Sarahney	MS Thesis	Electrochemical Transformation of Naphthalene	NSF CAREER	December 03
Nima Rahbar	MS Thesis	Numerical Modeling of Coupled Consolidation and Contaminant Transport in a Deformable Porous Medium	CAREER/ CEE	August 03
Chris Reynolds	MS Thesis	Background Study of Arsenic in Rhode Island Soils	N/A	December 01
Henry M. Nodarse	MS Report	Clay Stabilization by Selected Admixtures	N/A	December 98
Yuping Shen	MS Thesis	Impact of Electric Fields on Microbial Activity	CEE	May 99
Abdelrahman Hafiani	MS Report	Geotechnical Instrumentation for the Central Artery Tunnel	N/A	December 00

1 EL-ERDC: Environmental Laboratory of the US Army Engineering Research and Development Center

2 INEEL: Idaho National Engineering and Environmental Laboratory

Other Advising Activities

- Jong Cherng Leu, MS, Polytechnic University, Co-Advisor, Title “The Effect of Electric Fields on Anaerobic Bacteria for In-Situ Bioremediation”

Visiting Scholars

- Dr. Jeong-Hyo Bae; Korea Electrotechnology Research Inst. (KERI); Changwon City; South Korea; Dec 07 - Feb 08; Sponsored by KERI
- Dr. Zhou Dong-Mei, Inst. of Soil Science, Chinese Academy of Science, Nanjing, China, Fall 02; Sponsored by Chinese academy of Science
- Maria Serrano-Guzman, Graduate Students at the University of Puerto Rico at Mayaguez (Advisor: Professor Ingrid Padilla), Visiting Summer 2004, sponsored by CenSSIS
- Samuel Botija Loaisa, PhD Student, Eduardo Torroja Institute, Madrid, Spain, Fall 2005 (Sponsored by High Council of Scientific Research, Spain)

Undergraduate Students

- Eilish Corey, Undergraduate Research Assistant, CEE, 2006-2007
- Lisa M. Pezzino, Undergraduate Research Assistant, CEE, 2004-2006, recipient of 2006 NSF Graduate Fellowship – Joined Graduate Program at UC Berkeley (Fall 2006)
- Adam Levesque, Civil Engineering Senior, Worcester Polytechnic Ins., Summer 2004, Sponsored by CenSSIS REU program and The Louis Stokes Alliance for Minority Participation (LSAMP) Program
- Stanley Cantave, NU ECE undergraduate Student, Sponsored by LSAMP, Spring 2004
- Megan Minger: Research Assistant, CEE, 2003, Pursued MS degree from the UC Berkeley, CA
- Loretta Fernandez: Undergraduate Research Assistant, CEE, Summer 2001-Spring 2002, Recipient of 2003 NSF Graduate Fellowship – Pursued PhD at MIT
- Jamie Thomas: Undergraduate Independent Study / Research 1 (Honors), Fall 2001
- Gitanjali Shinde: Undergraduate Independent Study / Research 1 (Honors), Spring 1998

Visiting Pre-College Teachers

Sponsored by NU Center for the Enhancement of Science and Mathematics Education (CESAME)

- Jessica Quinn, Summer 2007, Revere High School,
- Susan Agger, Coordinator for the Ecology Center, Cambridge Public Schools
- Bradford Cranston, Summer 2006, Trinity Catholic
- Patricia Brandl, Summer 2006, Medford High School
- Janette Noss, Summer 2005, Arlington High School
- Paul Damiani, Summer 2005, Milton High School
- Mark Casto, Summer 2003, Amesbury High School
- Jan Mattimoe, Summer 2003, John W. McCormack Middle School, Dorchester

Visiting High School Scholars

- Patt hongsmatip and Feng Wu, Summer 2007
- Ashley Manolakis, Summer 2006, Braintree High School, Sponsored by CESAME
- Carol Moraff, Summer 2006, Commonwealth School, Sponsored by CESAME
- Elizabeth Jerison, Summer 2005, Belmont High School, Sponsored by CESAME
- Stelios Melachrinoudis, Summer 2005, St Johns High School, Shrewsbury, Sponsored by CESAME

Other Educational Activities

Volunteer: Student Phonathon, College of Engineering, NU, March 2001

Volunteer: Teaching GE 1001, College of Engineering, NU, Fall 2000

Research Grants

Northeastern University (1997-date)

- 2008-2011 “A reactive mat to remediate contaminated sediments and reduce health risks”
Funded by National Institute of Environmental Health Sciences (NIEHS) of the National Institute of Health (NIH); \$916,000
T. Sheahan and A. Alshawabkeh
- 2006-2008 “Rapid Soil Characterization System,”
\$780,000 SBIR Phase II Project funded by US Army Corps of Engineers to TransTech Systems
(PI: Ronald Gamache)
NU’s Subcontract \$170,000 – A. Alshawabkeh (PI)
- 2005- 2008 “Liquefaction Mitigation using Entrapped Air”
Funded by NSF – CMS, \$206,500
Mishac Yegian (PI) and A. Alshawabkeh (Co-PI)
- 2000-2007 SoilBed Facility for Environmental Subsurface Characterization - DNAPL Imaging by Cross Well Radar” A. Alshawabkeh and C. Rappaport (PI’s)
Center for Subsurface Sensing and Imaging Systems (CenSSIS), NU (NSF ERC)
Annual Funding ~ \$130,000 (~\$900,000 total)
- 2001-2006 “CAREER: Innovative Soil Remediation Methodologies”
A. Alshawabkeh (PI)
Funded by NSF – CMS \$380,000
- Summer 2005 “Factory Mutual Graduate Internship: Predicting Thermal Stresses in Paper Dryers”
Funded by FM Global, \$10,000 – A. Alshawabkeh (PI)
- 2003-2005 “In Situ PCE/TCE Biotransformation by Electrokinetic Injection of Lactate”
Funded by EL-ERDC (USACE), \$130,000
A. Alshawabkeh (PI) and J. Wang (Co-PI)
- 2003-2004 “Development of a Processing Technique for Recycling Construction and Demolition Wood” J. Wang (PI) and A. Alshawabkeh (Co-PI)
Funded by Chelsea Center for Recycling and Economic Development, \$30,000
- 2002-2003 “SGER: Air Entrapment for Liquefaction Mitigation”
Funded by NSF – CMS, \$50,000
Mishac Yegian (PI) and A. Alshawabkeh (Co-PI),
- Spring 2002 “Undergraduate Research in GeoEnvironmental Eng.,” A. Alshawabkeh, NU, \$3,000
- 2001 – 2002 “Evaluation of Ionic Injection for Stimulation of In Situ Remediation of Chlorinated Solvents,” A. Alshawabkeh, (PI)
Funded by DOD SERDP; Subcontract via EL-ERDC (USACE), \$85,000

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- 2000-2001 "Developing a Reactive Geocomposite to Remediate Contaminated Subaqueous Sediments," T. Sheahan and A. Alshawabkeh (Co-PI)
Funded by NSF Bioengineering and Environmental Systems (BES) - New Technologies for the Environment (NTE), \$100,000
- 1999-2000 "Improving Soft Soil Mechanical Properties Using an Innovative Grouting Methodology" A. Alshawabkeh (PI) and T. Sheahan
NSF, CMS-SGIR, \$50,000
- 1998-1999 "Microbial Activity and Transport Under Electric Fields – Preliminary Study" A. Alshawabkeh (PI)
NU, Research and Scholarship Development Fund (RSDF), \$6,000

Electrokinetics Inc. 5/1994 ~ 8/1996

- 1996-1997 "Electrode Design & Configuration for Electrokinetic Remediation of Soils" US Army Corps of Engineers, Waterways Experiment Station, \$ 150,000
- 1996-1997 "Evaluation of Electrokinetic Extraction/Containment Options at Sites Containing Arsenic" Southern Company Services (SCS) / Electric Power Research Institute, \$ 130,000
- 1995-1997 "In-situ Bioremediation by Electrokinetic Injection - Pilot-Scale Study"
Env. Protection Agency, Office of Risk Reduction Eng. Lab, \$ 321,000
- 1995-1996 "Enhanced Simultaneous Electrokinetic Extraction of Metals from Military Sites" U.S. Army Corps of Engineers, Waterways Exp. Station, \$ 25,000

Consulting

- 2006 TransTech Systems Inc., Schenectady, NY
- 2000 DoD Army Corps of Engineer, Environmental Laboratory (EL) of the Engineering Research and Development Center, (EL-ERDC), WES; Electrokinetic Extraction of Lead from Contaminated Sites – Field Study.
- 1999 Norsk Miljø og Gjenvinning As (NMG), Trondheim, Norway; Projects "Electrokinetic remediation of soils contaminated with CCA (copper, chromium, and arsenic)"
- 1998 DoD Army Corps of Engineer, Environmental Laboratory of the Engineering Research and Development Center, Waterways Experiment Station; Project: Environmental Security Technology Certification Program (ESTCP) "Demonstration of *in situ* electrokinetic extraction of cadmium and chromium at Naval Air Weapons Station, Point Mugu, California"
- 1997 Electrokinetics Inc., Baton Rouge, Louisiana; Project "Electrode configurations for electrokinetic remediation,"

Publications and Presentations

Peer-Reviewed Journal Publications

1. Tang, G. and Alshawabkeh, A. N. and Mayes, M. (2008) "Automatic time stepping with global error control for groundwater flow models," *Journal of Hydrologic Engineering*, in press.
2. Zhan, H., Farid, M., Alshawabkeh, A. N., Raemer, H. and Rappaport, C. (2007) "Scale Model Experimental Validation and Calibration of the Half-Space Green's Function Born Approximation Model Applied to Cross-Well Radar Sensing" *IEEE Tran. On Geoscience and Remote Sensing*, Volume 45, No. 8, pp.2423 – 2428.
3. Yegian, M. K., Eseller, E., Alshawabkeh, A. N. and Ali, S. (2007) "Induced-Partial Saturation (IPS) For Liquefaction Mitigation: Experimental Investigation," *ASCE J. of Geotechnical and Geoenvironmental Eng.*, Vol. 133, No. 4, pp. 372-380.
4. Wu X, Alshawabkeh, A. N., Gent, D., Larson, S. and Davis, J. (2007) "Rates of Lactate Transformation and Transport in Soil under DC fields," *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 133, No. 12, pp. 1587-1596
5. Sarahney, H. and Alshawabkeh, A. N. (2007) "Effect of Current Density on Electrolytic Transformation of Benzene for Groundwater Remediation," *Journal of Hazardous Materials*, Volume 143, No. 3, pp. 649-654
6. Tang, G., Alshawabkeh, A. N. and Bernal, D. (2007) "A Semi-Analytical Time Integration Method for Transient Groundwater Flow in Confined Aquifers," *ASCE Journal of Hydrological Engineering*, Vol. 12, No. 1, pp. 73-82
7. Cang, L., Zhou, D., Alshawabkeh, A. N. and Chen, H. (2007) "Effects of sodium hypochlorite and high pH buffer solution in electrokinetic soil treatment on soil chromium removal and the functional diversity of soil microbial community," *Journal of Hazardous Materials*, Volume 142, No. 1-2, p. 111-117
8. Tang, G. and Alshawabkeh, A. N. (2006) "A Semi-analytical Time Integration for Numerical Solution of Boussinesq Equation," *Advances in Water Resources*, 29, No. 12, pp. 1953-1968
9. Farid, M., Alshawabkeh, A. N., and Rappaport, C. "FDTD Forward Modeling of CWR for DNAPL Detection in Soil," *Journal of Environmental Engineering Geophysics*, in press.
10. Farid, M., Alshawabkeh, A. N., and Rappaport, C. M. (2006) "Validation and Calibration of a Laboratory Experimental Setup for Cross Well Radar in Sand," *ASTM Journal of Geotechnical Testing*, Vol. 29, No. 2, pp.
11. Alshawabkeh, A. and Rahbar, N. (2006) "Parametric Study of One Dimensional Solute Transport in Deformable Porous Medium," *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 132, No. 8, pp. 1001 – 1010.
12. Zhou, D., Cang, L., Alshawabkeh, A. N., Wang, Y. and Hao, X. (2006) "Pilot-Scale Electrokinetic Treatment of Cu Contaminated Red Soil," *Chemosphere*, 63, pp. 964 – 971.
13. Alshawabkeh, A., Rahbar, N. and Sheahan, T. (2005) "Prediction of Contaminant Mass Flux in Sediment under Consolidation," *Journal of Contaminant Hydrology*, No. 78, pp. 147 – 165.
14. Alshawabkeh, A. N. and Sarahney, H. (2005) "Effect of Current Density on Enhanced Transformation of Naphthalene," *Environmental Science & Technology*, No. 39, 5837 – 5843.
15. Alshawabkeh, A. N., Bricka, M. and Gent, D. (2005) "Pilot-Scale Electrochemical Cleanup of Lead Contaminated Soils" *ASCE, Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 103, No. 3, pp. 283 – 291.
16. Sarahney, H., Wang, J., and Alshawabkeh, A. N. (2005) "An Electrokinetic Process for Removing Cu, Cr, and As from CCA-treated Wood," *Environmental Engineering Science*, Vol. 22, No. 5, pp. 642-650

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17. Zhou D.M., Deng C.F., Cang L., Alshawabkeh A.N. (2005) "Electrokinetic remediation of a Cu-Zn contaminated red soil by controlling the voltage and conditioning catholyte pH," *Chemosphere*, Vol. 61, No. 4, pp. 519 – 527.
 18. Zhou Dong-Mei, Deng Chang-Fen, Alshawabkeh A. N., Cang Long (2005) "Effect of Catholyte conditioning on electrokinetic extraction of copper from mine tailings" *Environmental International*, No. 31, pp. 885 – 890.
 19. Zhou Dong-Mei, Alshawabkeh Akram N., Deng Chang-Fen (2004) "Chromium and copper remediation from contaminated soils by adding lactic acid in cathode chamber as an enhancing reagents," *Journal of Environmental Sciences*, V. 16, No. 4, pp. 529-532.
 20. Gent, D., Larson, S., Alshawabkeh, A. N. Bricka, M. and Granade, S. (2004) "Bench and Field-Scale Demonstration of Chromium and Copper Remediation by Electrokinetics," *Journal of Hazardous Materials*, Vol.110, pp. 53-62.
 21. Alshawabkeh, A. N., Shen, Y. and Maillacheruvu. K. (2004) "Effect of dc electric fields on COD in aerobic mixed cultures," *Environmental Engineering Science*, 21 (3), pp. 321-329.
 22. Alshawabkeh, A. N., Sheahan, T. C. and Wu, X. (2004) "The Effects of DC Field Application on Soft Soil Properties" *Journal of Mechanics of Materials*, Special issue on Chemo-Mechanical Coupling, No. 36, pp. 453-465.
 23. Alshawabkeh, A.N. and Sheahan, T.C., (2003) "Soft Soil Stabilization by Ionic Injection under Electric Fields," *Ground Improvement*, Vol. 7, No. 4, pp.177-185.
 24. Siegel, L. S., Alshawabkeh, A. N., Palmer, C D. Hamilton, M. A. (2003) "Modeling the Fate of Root Exudates and their Effects on Cesium Partitioning in the Rhizosphere" *Journal of Soil and Sediment Contamination*, AEHS, 12(1): pp. 47-68.
 25. Sheahan, T. C., Alshawabkeh, A. N., Fernandez, L. A., and Henry, K. S. (2003) "A Reactive Geocomposite to Remediate Contaminated, Subaqueous Sediments," *ASTM STP No. 1442*, pp. 236-250.
 26. Alshawabkeh, A. N. and Sheahan, T. (2002) "Stabilizing Fine-Grained Soils by Phosphate Electro-Grouting," *Journal of the Transportation Research Board*, TRB, No. 1787, *Geomaterials 2002*, pp.53-60.
 27. Adrian, D. D., Alshawabkeh, A. N. and Ozkan, S. (2001) "Tracer Transport in a Soil Column for Sine Wave Loading," *Soil Science Society of America (SSSA), Physical and Chemical Processes for Water and Solute Transport/Retention in Soils*, V. 56, 169-188.
 28. Alshawabkeh, A. N., Yeung, A. T., Bricka, R. M. (1999) "Practical Aspects of In-situ Electrokinetic Extraction," *ASCE, J. of Environmental Engineering*, V. 125, pp. 27–35.
 29. Alshawabkeh, A. N., Gale, R. J., Ozsu-Acar, E., and Bricka, R. M. (1999) "Optimization of 2-D Electrode Configuration for Electrokinetic Remediation" *Journal of Soil Contamination*, Vol. 8, No. 6, pp. 617-635.
 30. Oppenheimer, S. F., Adrian, D. D. and Alshawabkeh, A. N. (1999) "A River Water Quality Model for Time Varying BOD Discharge Concentration," *Journal of Mathematical Problems in Engineering*, Vol. 5, pp. 193- 221.
 31. Alshawabkeh, A. N., Ozsu-Acar, E., Gale, R. J. and Puppala, S. K. (1998) "Remediation of Soils Contaminated with Tetraethyl Lead by Electric Fields," *Transportation Research Record 1615, Applications of Emerging Technologies in Transportation*, pp. 79-85.
 32. Adrian, D. D., and Alshawabkeh, A. N. (1997) "Approximate Dissolved Oxygen Model for A Sinusoidally Varying BOD Discharge Concentration," *ASCE, Journal of Hydrologic Engineering*, Vol. 2, No. 4, pp. 180-187.
 33. Alshawabkeh, A. N. and Adrian, D. D. (1997) "Analytical Water Quality Model for a Sinusoidally Varying Waste Discharge Concentration," *Water Research*, V. 1201, No. 5, pp. 1207-1215.

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34. Puppala, S., Alshawabkeh, A. N., Acar, Y. B., and Gale, R. and Bricka, R. (1997) "Enhanced Electrokinetic Remediation of High Sorption Capacity Soils," *Journal of Hazardous Materials*, Vol. 55, 1997, pp. 203-220.
 35. Acar, Y. B. and Alshawabkeh, A. N. (1996) "Electrokinetic Remediation: I. Pilot-Scale Tests with Lead Spiked Kaolinite," *ASCE, J of Geotechnical Engineering*, 122, No. 3, pp.173-185.
 36. Alshawabkeh, A. N. and Acar, Y. B. (1996) "Electrokinetic Remediation: II. Theoretical Model," *ASCE, Journal of Geotechnical Eng.*, V. 122, No. 3, pp. 186-196.
 37. Acar, Y. B., Ozsu, E. E., Alshawabkeh, A. N., Fazle Rabbi, M., and Gale, R. (1996) "Enhanced Soil Bioremediation with Electric Fields," *Chemtech, ACS*, Vol. 26, No. 4, pp. 40-44.
 38. Acar, Y. B., Gale R. J., Alshawabkeh, A. N., Marks, R. E., Puppala, S., Bricka, M., and Parker, R. (1995) "Electrokinetic Remediation: Basics and Technology Status," *Journal of Hazardous Materials*, Elsevier Technical Publications, Vol. 40, pp. 117-137.
 39. Acar, Y. B., Hamed, J., Alshawabkeh, A. N. and Gale R. J., (1994) "Cadmium Removal from Saturated Kaolinite by Electrokinetics," *Géotechnique*, UK, 44(3), pp. 239-254.
 40. Acar, Y. B. and Alshawabkeh, A. N. (1993) "Principles of Electrokinetic Remediation," *Environmental Science and Technology*, Feature Article, Vol. 27, No. 3, pp. 2638-2647.
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 - Camp Dresser & McKee, Boston, MA August 5, 2003.
 - Cambridge University, Cambridge, UK - August 13, 2001
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 - The University of Massachusetts Amherst – March 31, 2000
 - The Norwegian University of Science and Technology, Trondheim - Nov. 25, 1999
2. "Contaminant Transport in a Deformable Porous Media," presented at the University of Illinois, Chicago, Department of Civil and Materials Engineering, October 29, 2004
3. "Time Domain Forward Computational Modeling of Complex Dispersive Media for Underground Sensing Applications," 2003 Subsurface Science Symposium, "Advances in Understanding and Modeling Subsurface Processes" Organized by INRA and INEEL, Salt Lake City, Utah, October 7, 2003
4. "Potential for Enhancement of In-Situ Bioremediation by Electrochemical Methods," 2003 Subsurface Science Symposium, "Advances in Understanding and Modeling Subsurface Processes" Organized by INRA/INEEL, Salt Lake City, Utah, Oct. 7, 2003
5. "Nonlinear Advective Contaminant Transport in Clay under Consolidation," 2003 Subsurface Science Symposium, "Advances in Understanding and Modeling Subsurface Processes" Organized by INRA and INEEL, Salt Lake City, Utah, October 7, 2003.
6. "EK Soil Remediation at NAWS, Point Mugu," 4th symposium on Electrokinetic Remediation (EREM03), Belgian Nuclear Res. Center (SCK-CEN), May14-16, 2003, Mol, Belgium
7. "A System Dynamics Approach to Modeling Cesium Fate in Soil" 2003 Canadian Society of Civil Engineering Annual Conference, Moncton, NB, Canada, June 5, 2003.

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8. "Efficiency of lactate in Sand and Clay under DC Fields," 2003 Canadian Society of Civil Engineering Annual Conference, Moncton, NB, Canada, June 5, 2003.
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 10. "Electrokinetic Soil Remediation" Invited speaker, 25 Years of Hazardous Substance Research at Louisiana State University, May 1-2, 2003, Lod & Carole Cook Center, Baton Rouge, LA.
 11. "Reactive geocomposite to remediate contaminated sediments," ACS, 224 National Meeting, August 18-22, 2002, Boston, MA.
 12. "EK Soil Remediation at NAWES, Point Mugu," 4th International Congress on Environmental Geotechnics, August 11-15, 2002, Rio de Janeiro, Brazil
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 19. "Use of Acetic Acid for Enhanced Electrokinetic Extraction of Lead from Contaminated Army Firing Range", 12 Annual Conference on Contaminated Soils, Univ. of Mass., Amherst, Oct. 20-23, 1997.
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 21. "Multi-component Species Transport Under Electric Field," Emerging Technologies in Hazardous Waste Management VI, Industrial & Chemistry Division of the American Chemical Society (ACS), Georgia, Atlanta, Sept. 1994

Presentations by Graduate Student and Collaborators

1. "Ionic injection of lactate in soils," ACS, 224 National Meeting, August 18-22, 2002, Boston, MA, Authors: **X. Wu** , A. Alshawabkeh , J. Wang , D. Gent , S. Larson
2. "Modelling Cesium fate in the rhizosphere," 2001 International Containment and Remediation Technology, June 11-13, 2001, Orlando, Fl. by **Lori S. Siegel**, Akram Alshawabkeh and Melinda Hamilton.
3. "Microbial Activity under Electric Fields," by **Maillacheruvu K.** and Alshawabkeh, A. N., Emerging Technologies in Hazardous Waste Management, American Chemical Society (ACS) 1998 Meeting, Industrial and Engineering Chemistry Division, August 23-27, 1998, Boston, MA.

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 6. "Exact Solution for Tracer Transport in Soil Columns for Sine Wave Loading," by **Adrian, D. D.**, Alshawabkeh, A. N. and Roider, E. M., 1998 Annual Meeting of the Soil Science Society of America (SSSA), October 18-22, 1998, Baltimore, MD.
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