CARMINE PAUL POLITO, Ph.D., P.E.
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EDUCATION

Doctor of Philosophy: December, 1999
Major: Civil Engineering, Emphasis: Geotechnical Engineering
Virginia Polytechnic Institute & State University
Research Topic: The Effects of Non-Plastic and Plastic Fines on the Liquefaction of Sandy Soils

Master of Science Degree: May 2006
Major: Civil Engineering, Emphasis: Transportation and Infrastructure Management
Purdue University, West Lafayette

Master of Science Degree: May 1989
Major: Civil Engineering, Emphasis: Geotechnical Engineering
Virginia Polytechnic Institute & State University

Bachelor of Science Degree: June 1986
Major: Civil Engineering
California Polytechnic State University, San Luis Obispo, CA

EXPERIENCE

VALPARAISO UNIVERSITY
Valparaiso, Indiana

Associate Professor	8/07 – Present
Frederick F. Jenny, Jr. Professor of Emerging Technology	8/04 – 8/06
Assistant Professor	8/01 – 8/07

Taught or co taught classes in the Civil Engineering Department. Taught GE 109 Statics, CE 202 Statistical Applications in Civil Engineering, CE 253 Transportation Engineering, CE 320 Introduction to Soil Mechanics, CE 322 Foundation Engineering, CE 490 Geotechnical Aspects of Earthquake Engineering and CE 422 Advanced Soil Mechanics. Both taught and co-taught CE 494, Senior Design.

Former faculty advisor to Engineers Without Borders, supervised a total of 39 students on four trips to Kenya between 2004 and 2006. The project involved the design and construction of a water supply and irrigation system for the village of Nakor Kenya, which is located in the Turkana region. The group raised over $165,000 for the project.

Developed a complete geotechnical engineering laboratory facility. Laboratory equipment includes both standard and cyclic triaxial test set ups, direct shear apparatus, consolidometer, relative density shaking table, hydraulic conductivity testing systems, compaction equipment, grain size analysis equipment, etc. Wet laboratories contain sinks, ovens and other traditional geotechnical engineering laboratory equipment. Desktop computers are equipped with software that has been used for development of data acquisitions for geotechnical engineering research and education

CLARKSON UNIVERSITY
Potsdam, NY

Visiting Assistant Professor 1/00 – 6/01

- Taught three sections of ES 220, Introduction to Statics, two sections of CE 310, Introduction to Soil Mechanics, CE 415 Foundations, Stability, and Retaining Structures (with an added graduate section), CE 516 Advanced Soil Mechanics, two sections of ES 330, Introduction to Fluid Mechanics, and CE 523 Geotechnical Aspects of Earthquake Engineering. Co-taught two sections of CE 490, Senior Design, with a structural engineering faculty member.

Post-Doctoral Research Associate 8/00 – 6/01

- Performing research related to the transfer of an image analysis based system for determining grain size distribution from laboratory to field application

Visiting Assistant Professor 5/00 - 6/00

- Taught ES 330, Introduction to Fluid Mechanics, a junior level engineering class. Received an above average teaching evaluation of 4.8 out of a possible 5.0. University wide average for the semester was 4.5.

Visiting Assistant Professor 1/00 - 5/00

- Taught or co taught three classes in the Civil Engineering Department. Taught CE 310, Introduction to Soil Mechanics, a junior level introductory geotechnical engineering class, and CE 516, Advanced Soil Mechanics, a graduate level class which an emphasis on the shear strength of soils. Co-taught CE 490, Senior Design, with a structural engineering faculty member. Received an above average teaching evaluations (Respectively 4.8, 4.4 and 4.0 out of a possible 5.0. University wide average for the semester was 4.0).

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY
Blacksburg, VA

Graduate Research Assistant 8/94 - 12/99

- Researched the effects of fines content and plasticity upon the liquefaction resistance of sands. This research included a review of the published literature, fabrication of numerous soil gradations, and a laboratory-testing program consisting of index tests and static and cyclic triaxial testing.
- Organized, supervised, and executed site investigation of two failed channel walls in Thousand Oaks, California following the1994 Northridge earthquake.
- Performed seismic site response analyses to determine probable site accelerations.
- Determined wall failure was induced by seismic loading rather than liquefaction of the backfill.

CH2M HILL, INC.
Santa Ana, CA 8/91-7/94

- Oversaw field investigation, geotechnical design including seismic considerations, specification preparation, and provided construction services for North City Wastewater Treatment Plant in San Diego, CA. The plant consists of over 20 structures and required almost 500,000 cubic yards of earthwork.
- Performed liquefaction susceptibility analyses for 12 highway bridges for the I-5 widening project in Southern Orange County, CA.
- Supervised field investigation for the I-10 widening project in Los Angeles, CA.
- Performed liquefaction susceptibility and slope stability analyses for of Pier 300 at Port of Long Beach, Long Beach, CA.
- Prepared geotechnical cost estimates for successful Eastern Transportation Corridor Design/Build Project bid, which was awarded for approximately 730 million dollars.
- Performed environmental soil and groundwater sampling and monitoring well installation for RI/FS at Long Beach Naval Station and Naval Shipyard in Long Beach, CA.
- Performed soil sampling, vapor and groundwater monitoring well installation, and well closure at Buena Vista Landfill in Aptos, CA.

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY
Blacksburg, VA

Graduate Research and Teaching Assistant 5/90-6/91

- Organized and assisted in site investigation of sand fills in San Francisco, CA for analysis of liquefaction potential.
- Performed seismic site response analyses to determine probable site accelerations.
- Predicted settlements due to liquefaction at various sites.
- Organized, prepared, and taught two semesters of undergraduate Introduction to Soils Mechanics lab.

U.S. ARMY CORPS OF ENGINEERS
Los Angeles, CA
Engineer, Materials and Investigation Section 8/87-8/88

- Oversaw and evaluated ongoing construction projects on Los Angeles River.
- Prepared aggregate and concrete feasibility reports for inclusion in Design Memorandum.
- Authored numerous specifications for Corps projects in the Southern California area.
- Prepared soil cement mix design for bank stabilization projects on the Agua Fria River, Avondale, Arizona and on the Rillito River, Tucson, Arizona.
- Evaluated quality of soil cement during construction and adjusted mix design accordingly, Agua Fria River Project.

U.S. ARMY CORPS OF ENGINEERS
Los Angeles, CA
Engineer, Rotational Training Program 9/86-8/87
Areas of rotation included:

- Coastal Engineering and Planning Sections
- Construction Assignment, FT. Irwin,
- Geotechnical Engineering Section
- Materials and Investigation Section
- LACDA Planning Section
- Specifications and Estimating Section

RESEARCH

NSF Funded Research 8/09-Present
Major Research Instrument grant to purchase combined cyclic simple shear/cyclic triaxial/resonant column device. The device will be used to further evaluate the effects of load path on pore pressure generation and energy dissipation in cyclic triaxial tests. Budget: $172,000.

Valparaiso University Funded Research 5/08 – 1/11
Received Richardson Summer Research Grant to investigate effects of load path on pore pressure generation and energy dissipation in cyclic triaxial tests. Collaborated with a Valparaiso students Erin Dillon, Changbum Sohn and Jeff Mackey on this work. Budget: $5,000

Valparaiso University Funded Research 5/08 – Present
Received Alton Riethmeier Faculty Research Award to investigate the effects of filter paper strips in measuring pore pressures generated in clayey soils during cyclic loading. Budget: $1,000.

Valparaiso University Funded Research 8/07-8/08

Named University Research Professor to examine relationship between penetration resistance and liquefaction of silty soils. Also developing low-cost cyclic triaxial machine for use by primarily undergraduate institutions and schools in developing countries with limited equipment budgets.

NSF Funded Research – Subcontractor to VA Tech 8/07-9/10
Continued and expanded work begun in 2006 study on unanticipated settlement from strength loss and softening occurred in saturated silts and clays at the Carrefour Shopping Center in Turkey during the 1999 Kocaeli Earthquake (M7.4). Traveled to Istanbul with researcher from Virginia Tech to perform field and laboratory testing of the material. Subcontract Budget: $89,000.

NSF Funded Research – Subcontractor to University of Illinois 8/07-Present

Performing research into soil improvement methods to mitigate liquefaction damage to bridges. This work is being performed with faculty at the University of Illinois. This work will utilize the centrifuge at RPI and computer modeling to evaluate different configurations of improved area. Subcontract Budget: $39,900

Valparaiso University Funded Research 6/07 – 6/08
Received Richardson Summer Research Grant to investigate effects of sample preparation on liquefaction of silty soils. Collaborated with a Valparaiso student Jeff Travis on this work. Budget: $5,000

Valparaiso University Funded Research 6/07 – 1/08
Received Alton Riethmeier Faculty Research Award to develop regression models for developing parameters for and validating results of cyclic triaxial tests. Budget: $1,000.

NSF Funded Research – Subcontractor to VA Tech 3/06

Studied unanticipated settlement from strength loss and softening occurred in saturated silts and clays at the Carrefour Shopping Center in Turkey during the 1999 Kocaeli Earthquake (M7.4). Traveled to Istanbul with researcher from Virginia Tech to perform field and laboratory testing of the material. Subcontract Budget: $8,000

Valparaiso University Funded Research 6/05 – 4/06

Awarded a Caterpillar Corporation Faculty Development Research Grant to study the generation of pore pressures in silty sands and silts. Subcontract Budget: $4,000

NSF Funded Research – Subcontractor to VA Tech 6/03

The research involved studying the effects of plastic fines on the liquefaction of sandy soils. This research occurred at Virginia Tech. Subcontract Budget: $21,000

CERTIFICATIONS, HONORS, AND ORGANIZATIONS

Professional Engineer License, State of California
Professional Engineer License, State of Indiana
Outstanding Service Award, ASEE Illinois/Indiana Section, 2006
Outstanding Teaching Award, ASEE Illinois/Indiana Section, 2009
Tau Beta Pi 2000 Faculty of the Year, Clarkson University
Chi Epsilon (National Civil Engineering Honor Society)
ASCE, Associate Member
ASEE, Member/Section Treasurer

EERI, Member
Order of the Engineer, Member
Engineers Without Borders, Member

PUBLICATIONS

Refereed Scientific Publications

1. Polito, C.P. (2011). “Regression Models for Validating Cyclic Triaxial Test Results” *Geotechnical Testing Journal*. Vol. 34, Issue 2, March 2011, pp. 335-346.

2. Polito, C.P. (2009). “Linear Regression Models for Cyclic Triaxial Testing” Geotechnical Testing Journal. Vol. 32, Issue 3, July 2009, pp. 335-346.

3. Polito, C., Green, R., and Lee, J. (2008). “Pore Pressure Generation in Sands and Silty Soils during Cyclic Loading” *Journal of Geotechnical and Geoenvironmental Engineering*. Vol. 134, No. 10, October 2008, pp. 1490-1500.

4. Olgun, C., Sezen, A., Kayali, S., Martin, J., Polito, C., and Yildirim, H. (2008). “Dynamic Behavior of Fine Grained Soils – 1999 Kocaeli Earthquake Case History,” Proceedings of the 14th World Conference on Earthquake Engineering, Beijing, China, October 12-17, 2008.

5. Green, R.A., Olson, S., and Polito, C. (2006). “A Comparative Study Of The Influence Of Fines On The Liquefaction Susceptibility Of Sands: Field Versus Laboratory” Proceedings of the 8Th National Conference on Earthquake Engineering, San Francisco, CA, April 18-26, 2006.

6. Polito, C.P., and Martin, J.R., (2003). “A Reconciliation Of The Effects Of Non-Plastic Fines On The Liquefaction Resistance Of Sands As Reported In The Literature” *Earthquake Spectra*, Volume 19, No. 3, pp 635–651, August 2003.

7. Polito, C.P., and Martin, J.R., (2001). “The Effects Of Non-Plastic Fines On The Liquefaction Resistance Of Sands” *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 127, No. 5, May 2001, pp. 408-415.

8. Polito, C.P., (2001). "Plasticity Based Liquefaction Criteria.” Proceedings of the Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, Paper No. 1.33, San Diego, CA, March 2001.

9. Polito, C.P., and Martin, J.R., (2000). “The Effects Of Fines Content and Plasticity On Pore Pressure Generation in Sands", Proceedings of the Fourteenth Engineering Mechanics Conference, EM2000, Austin, TX, May 2000.

10. Green, R.A., Mitchell, J.K. and Polito, C.P. (2000). "An Energy-Based Pore Pressure Generation Model for Cohesionless Soils", *Proceedings of the John Booker Memorial Symposium* Sydney, New South Wales, Australia, November 16-17, 2000. A.A. Balkema Publishers, Rotterdam, Netherlands, pp. 383-390.

Refereed Pedagogical Publications

1. Polito, C. (2009). “An Inexpensive Cyclic Triaxial System for Educational Universities” American Society for Engineering Education 2006 National Conference, Austin, TX, June 18-22, 2006.

2. Husfeld, R., Polito, C., and Gingerich, E. (2006). “Lessons Implemented On An International Service Learning Project.” American Society for Engineering Education 2006 National Conference, Chicago, IL, June 18-22, 2006.

3. Katterheinrich, B. and Polito, C. (2006). “Experiences With International Well-Drilling.” American Society for Engineering Education 2006 National Conference, Chicago, IL, June 18-22, 2006.

4. Polito, C., and Fricker, J.F. (2006). “A Transportation Engineering Body of Knowledge for Undergraduate Civil Engineers”, American Society for Engineering Education 2006 IL/IN Sectional Conference, Fort Wayne, IN, March 31 -April 1, 2006.

5. Polito, C. and Tougaw, D. (2006). “Graduate School After the PhD: When Is Enough Enough?”, American Society for Engineering Education 2006 IL/IN Sectional Conference, Fort Wayne, IN, March 31 -April 1, 2006.

6. Polito, C. (2005). “WIP: The Role of Non-Engineers in an International Engineering Service Learning Project.” Frontiers In Education National Conference, Indianapolis, IN,
7. October 19-22, 2005.

8. Polito, C., Tougaw, D. and Olejniczak, K. (2005). “Preparing the Way: Helping Students Discern Engineering as a Vocation” RECU Conference, University of Dayton, Dayton, OH, September 22-24, 2005.

9. Polito, C., and Husfeld, R. (2005). “Lessons Learned From An International Service Learning Project.” Paper 2005-1536, American Society for Engineering Education 2005 National Conference, Portland, OR, June 12-15, 2005.

10. Polito, C., and Gingerich, E. (2005). “Fundraising for Service-Learning Projects,” Paper P160, American Society for Engineering Education 2005 IL/IN Sectional Conference, Dekalb, IL, April 1-2, 2005.

11. Polito, C., and Sanders, L. (2004). “Indicators For Early Detection Of At-Risk Statics Students” Paper III-A-4, American Society for Engineering Education 2004 IL/IN Sectional Conference, Peoria, IL, March 26-27, 2004.