

Haydar Arslan

PhD, Postdoctoral Research Fellow
 Department of Civil, Environmental, and Architectural Engineering
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Education

PhD (2006), Civil Engineering, University of Colorado-Boulder 2003 – 2006

Dissertation: Localization Analysis of Granular Materials in Cosserat Elastoplasticity – Formulation and Finite Element Implementation – Advisor: Prof. Stein Sture

M.S., (2003) Civil Engineering, Bogazici University, Turkey 2001-2003 *Dissertation: Effect of Crushing on the Shear Behavior of Granular Materials Advisor: Prof. Gokhan Baykal*

B.S. (1997) Civil Engineering, Turkey, 1993-1997

Academic and Professional Experience

2006 December-: University of Colorado- Boulder (LASP); Postdoctorate Research Fellow
 2003 – 2006: University of Colorado-Boulder; Graduate Research and Teaching Assistant
 2000 – 2003: Bogazici University, Turkey; Teaching and Graduate Research Assistant
 2005 April – 2005 December; RockSol Consulting Group, Inc, Boulder, CO, Project Engineer
 1997 -2000; KONUR Engineering Inc.; Geotechnical Project Engineer, Ankara, Turkey

Teaching Experience

University of Colorado-Boulder (Instructor): Introduction to Finite Element (ABAQUS, PLAXIS and MatLab Instructor), Engineering Geology (Substitute Lecturer).

University of Colorado-Boulder Teaching Assistant: Geotechnical Engineering I, Geotechnical Engineering II, Engineering Geology, Structural Mechanics II (Dynamics).

Bogazici University Teaching Assistant: Soil Mechanics, Engineering Graphics, Transportation Engineering, Soil Improvement

Professional Services

- Organizer, and Course Assistant, Computational Geotechnics and 3D modeling PLAXIS Short Course, Boulder, 2006 August, CO-USA
- Abstract Administrator , Organizing Committee, 15th U.S. National Congress on Theoretical and Applied Mechanics, June 25-30, 2006, Boulder, Colorado-U.S.A
- Organizing Committee, XV th International Soil Mechanics and Geotechnical Engineering Conference 27-31 August 2001, Istanbul-Turkey

Honors, Fellowships and Biographical Citation:

Listed, Who's Who in America, Marquis, since 2007

Recipient, University of Colorado Travel Award Fellowship for: USACM 9 2007 San Francisco;

Geo-Congress 2006, Atlanta; McMat conference, 2005, LA

Recipient, Departmental Fellowship, University of Colorado-Boulder, 2004

Journal Publications

Arslan, H., Siyahi, B. (2007) Evaluation of linear/nonlinear dynamic analysis of Alibey earth dam, Engineering Geology, under review

Arslan, H., Sture, S. (2007) Finite element analysis of localization and micro-macro structure relation in granular materials: Part I: Formulation, Acta Mechanica (under review)

Arslan, H. Sture, S., (2007) Finite element analysis of localization and micro-macro structure relation in granular materials: Part II implementation and verification, Acta Mechanica (under review)

Arslan, H., Sture, S (2007) Length scale-size effect relation in computational modeling of localization in granular materials, Computers and Geotechnics, under review

Arslan, H., Sture, S., Batiste, S. (2007) Experimental Simulation of Tensile Behavior of Lunar Soil Simulant JSC-1, Material Science and Engineering Journal, accepted for publication

Arslan, H., Sture, S., Willam, K. (2007) Analytical and geometrical representation of localization in granular materials, Acta Mechanica, in press.

Siyahi, B., **Arslan, H.** (2007) Nonlinear dynamic finite element simulation of Alibey earth dam, Environmental Geology Journal, Springer Publication, in press

Arslan, H., Sture, S. (2007) Evaluation of a physical length scale for granular materials, Acta Mechanica, under review.

Arslan, H., Rosassanchez, L. (2007) Failure analysis of the granite for a dam foundation, Environmental Geology Journal, Springer Publication, in press

Arslan, H., Baykal, G., Sture, S. (2007) Analysis of crushing of granular materials, Granular Matter Journal, Springer Publishers (*under re- revision*)

Arslan, H. Baykal, G., Ertas, O. (2007) Influence of tamper weight shape on dynamic compaction, Ground Improvement Journal, Thomas Telford Publishers, London, Vol. 11, No. 2, pp 61-66.

Arslan, H., Siyahi, B. (2006) A Comparative study on linear and nonlinear site response analysis Environmental Geology Journal, Springer Publication, Volume 50, No. 8, pp 1193-2000

Arslan, H., Baykal, G. (2006) Analyzing the crushing of granular materials by sound analysis technique ASTM, Journal of Testing and Evaluation, Vol. 34, No: 6, pp. 464-470.

Arslan, H., Baykal, G. (2006) Utilization of fly-ash as engineering pellet aggregates, Environmental Geology Journal, Springer Publishers, Vol. 50, No. 5, pp 761-770.

Arslan, H. (2005) Finite Element Study of Soil Structure Interface Problem, Electronic Journal of Geotechnical Engineering, (EJGE) (<http://www.ejge.com/2005/JourTOC10C.htm>) ISSN 1089-3032, Vol. 10, Bundle C.

Peer Reviewed Conference and Special Publications

Arslan, H., Sture, S. (2008), Micropolar modeling of localization in granular materials, The 12th IACMAG Conference, Geomechanics in the Emerging Social & Technological Age, October 1-6 2008, in Goa, India, abstract is accepted, paper is in preparation.

Arslan, H., Baykal, G., Sture, S. (2008) Potential Application Areas of Fly-Ash in Geotechnical Engineering, ASCE GeoCongress 2008: The Challenge of Sustainability in the Geoenvironment, March 9-12, 2008, New Orleans, Louisiana, USA, abstract is accepted paper is in preparation

Arslan, H., Sture, S. (2007) Effects of Micro-structure on the Localization Analysis of Granular Materials 18th Engineering Mechanics Division Conference of the American Society of Civil Engineers, June 3-6, Blacksburg, VA, 6 pages, proceeding (in press).

Arslan, H., Siyahi, B. (2007) Effect of Nonlinearity on the Site Response Analysis of Geo-Structure 4ICEGE, 4th International Conference on Earthquake Geotechnical Engineering, Thessalonki-Greece, June 25th-28th, 2007, 10 pages, proceeding (in press)

Arslan, H., Sture, S., Batiste, S. Tensile Strength Properties of Lunar Soil Simulant JSC-1 ASCE Geo-Denver 2007: New Peaks in Geotechnics, February 18-21, 2007, Denver Colorado, Geotechnical Special Publication 173, Advances in Measurement and Modeling of Soil Behavior, pp. 1- 8.

Siyahi, B., **Arslan, H.** Investigation of Failure Modes and Mechanism of Alibey Earth Dam by Nonlinear Dynamic Finite Element Simulation, SEMC-2007 The Third International Conference on Structural Engineering, Mechanics and Computation, Cape Town South Africa 10-12 September 2007, 6 pages, Millpress Science Publication, Rotterdam, Netherlands in press.

Arslan, H., Sture, S., (2006), “Importance of Length Scale on the Elastoplastic Constitutive Modeling of Granular Materials”, ASCE *Geo-Congress 2006: Geotechnical Engineering in the Information Age*, February 26 - March 1, 2006 Atlanta, Georgia, 6 pages, CD

Arslan, H., Baykal, G. (2006) Introducing sound analysis technique into simulation of crushing of granular materials”, ASCE *Geo-Congress 2006: Geotechnical Engineering in the Information Age*, February 26 - March 1, 2006 Atlanta, Georgia, 6 pages, CD

Arslan, H., Siyahi, B., Ertas, O. (2005) Investigations of Site Response of Soil Column by True Nonlinear and Linear Method of Analysis”, *McMat2005, June 1-3 Joint ASME/ASCE/SES Conference on Mechanics and Materials*, Baton Rouge, Louisiana, USA, 6 pages, CD.

Arslan, H., Ertas, O., Baykal, G. (2003) A New Approach for Dynamic Deep Compaction”, *International Conference on New Developments in Soil Mechanics and Geotechnical Engineering*, May 29-31, Lefkoşa, North Cyprus 2003, pp. 239-244.

Workshops

Geomechanics in transportation. Federal Highway Administration (FHWA), Denver, CO May, 2007
(**Invited Lecture**)

Presentations Given at Conferences and Invited Lectures

“Geotechnical Engineering in Practice” Colorado Department of Transportation, CDOT, CO May 2007 (**Invited Lecture**)

“Lunar Soil Mechanics Investigation”, University of Missouri-Rolla, (**Invited Presentation**), April, 2007

“Tensile Strength Properties of Lunar Soil Simulant JSC-1”, Geo-Denver 2007, Denver-Colorado, February, 2007

“Lessons learned from rigid plastic analysis of thin layers” (**keynote lecture**), USNCTAM-06, Boulder-Colorado, June, 2006

“Localization analysis of granular materials by using Micropolar continuum”, USNCTAM-06, Boulder-Colorado, June, 2006

“Importance of length scale on the elastoplastic constitutive modeling of granular materials”, Geo-Congress 2006, Atlanta-Georgia, February 2006

“Application of Noise Analysis Technique in to Geotechnical Engineering”, Geo-Congress 2006, Atlanta-Georgia, February 2006

“Investigations of Site Response of Soil Column by True Nonlinear and Linear Method of Analysis”, McMat 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials Baton Rouge, Louisiana, June, 2005

“A New Approach for Dynamic Deep Compaction” International Conference on New Developments in Soil Mechanics and Geotech. Eng. Lefkoşa, North Cyprus, May, 2003

Published Abstracts and Posters

Arslan, H., Sture, S., (2007) Formulation and finite element implementation of Cosserat Elastoplasticity for localization analysis, USACM, 9th US National Conference on Computational Mechanics, San Francisco, CA, in press

Arslan, H., Sture, S., Reguerio, R., A., “Finite Element Implementation and Simulation of Micropolar Elastoplasticity in Granular Materials”, in Proc. XVII World Congress on Computational Mechanics, Proceedings CD, Los Angeles, California, July, 2006.

Arslan, H., Sture, S., Reguerio, R., A., (2006). “Localization Analysis for Granular Materials by using Micropolar Continua”, USNCTAM06, 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder-Colorado, Arslan, Sture & Geers editors, CD

Willam, K., **Arslan, H.**, Blackard, B., Sture, S. (2006) “Lessons learned from rigid plastic failure analysis of thin layers”, USNCTAM06, 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder-Colorado Arslan, Sture & Geers editors, CD

Arslan, H., Baykal, G., (2006). “Implementation of Sound Analysis Technique to Analyze the Influences of Crushing on the Behavior of Granular Materials”, USNCTAM06, *15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder-Colorado, Arslan, Sture & Geers editors, CD.*

Technical Reports

Arslan, H., Batiste, S., Sture, S, Soil property characterization of lunar soil (regolith) simulant JSC-1A. National Aeronautics and Space Administration (NASA), George C. Marshall Space Flight Center

Arslan, H. Batiste, S., Sture, S., (2006) Engineering and Mechanical Properties of UNB-A1 lunar soil simulant, Marshall Space Flight Center, NASA.

Arslan, H. Batiste, S., Sture, S., (2006) Mechanical Properties of JSC-1A lunar soil simulant, Marshall Space Flight Center, NASA.

Geotechnical Investigation of I25 Road and Bridges Construction, Denver International Airport (DIA) and more than 10 other technical reports for **RockSol**, CO, (2005)

Arslan, H. (2003) *Crushing Effects on the Behavior of Manufactured Granular Materials*, Master Dissertation, Bogazici University, Istanbul-Turkey, 102 pages

Altay, G., **Arslan, H.**, Ceribasi, S. Mete, E., (2003) *Damage Assessment and retrofitting projects of Orman Bakanlıđı (Forest Ministry) buildings in Bursa, Turkey*

Arslan, H. (2002) (member of Research Assistants project group) *Structural and Geotechnical Analysis of Existing Buildings in Bogazici University Campuses, Turkey*

Software and Computer Knowledge

- Programming Language: FORTRAN 90, and Visual Basic.
- Finite Element and Geotechnical Software: ABAQUS (UMAT, UEL), Plaxis, Slope_W, Seep_W, FLAC, gINT Boring Log, SAP2000, Etabs.
- Scientific Software: Mat-Lab, Mathematica, IDL, AutoCAD, Shake, Lab-View.

Membership in Scientific and Professional Societies

- International Association for Computer Methods and Advances in Geomechanics
- Union of Chamber of Civil Engineers Turkey

References:

Prof. Stein Sture

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