

# MACAN DOROUDIAN, Ph.D., P.E., G.E. SENIOR MANAGING CONSULTANT

mdoroudian@engsys.com

Dr. Macan Doroudian has over 20 years of experience in the fields of geotechnical, foundation, and earthquake engineering. He has worked on a broad array of projects including geotechnical and ground motion assessments for earthen dams, embankment dam and spillway evaluation and breach modeling, stabilization of large landslides, moisture intrusion through slab-on-grade concrete floors, failure analysis of mechanically stabilized earth retaining walls, sheet pile wall design and channel bank stabilization, settlement, soil erosion associated with landfill cover, construction vibration monitoring and damage potential assessment associated with such vibrations, and pipeline failure investigations, geotechnical site characterization and evaluation of horizontal directional drilling and horizontal auger borings. Dr. Doroudian has also performed geotechnical engineering analysis for numerous telecommunication facility sites.

In addition, he has extensive laboratory soil testing experience, including the design and fabrication of specialized testing equipment, development of testing protocols, and devising new testing methodologies. This experience includes custom-development of a device for measuring small-strain behavior of soils (a replica is currently used at University of Rome, Italy), development of special equipment for sample preparation from wide-diameter tubes for triaxial testing, and devising special techniques for centrifuge testing of soil-nail excavation models under cyclic loads. He is also experienced in geotechnical field instrumentation for performing measurements including the use of tiltmeters, inclinometers, piezometers, geophones, and seismometers.

Dr. Doroudian is currently serving on the ASCE Standards Committee KSTAT (Fitting of Hydraulic Conductivity with Statistical Spatial Estimation). He also serves as part-time faculty at the University of California, Los Angeles.

Dr. Doroudian's major areas of research include development of a GIS-based geotechnical database for seismic microzonation for the Southern California Earthquake Center (SCEC) and University of Zagreb, Croatia. He has performed joint research with an international team on evaluating the socioeconomic impacts of large earthquakes using a combination of a GIS-based geotechnical database and nonlinear I-D site response effective stress analysis to evaluate the effect of local geologic conditions and soil type on seismic response. Other major areas of research have been small-strain behavior of soils in NGI direct simple shear test, centrifuge testing of soil-nail excavation models under cyclic loads, and settlement of compacted fill under seismic and similar cyclic loads.



## Areas of Specialization

- Geotechnical assessment of earth dams
- Ground motion and seismic hazard evaluations
- Landslide analysis and stabilization
- Moisture intrusion through slab-on-grade concrete floors
- Failure analysis of mechanically stabilized earth retaining walls and soil-nail walls
- Evaluation of earth retention systems
- Landfill cover, settlement, and stability
- Construction vibration monitoring and damage potential assessments
- Pipeline failure investigations
- Geotechnical laboratory testing
- Foundation design and failure evaluation

- Geotechnical field instrumentation (tiltmeters, inclinometers, piezometers, geophones, and seismometers)
- Centrifuge testing of retention systems
- Slope stability, settlement, and seepage analysis
- GIS-based geotechnical database development
- Flood hazard analysis
- Post-wildfire erosion, flooding, and debris flows
- Levee accreditation/certification
- Field compaction testing
- Site characterization and assessment of differing site conditions

### Education

Ph.D., Geotechnical Engineering, University of California, Los Angeles (UCLA), 1997 M.S., Geotechnical Engineering, University of California, Los Angeles (UCLA), 1993 B.S., Structural Engineering, University of California, Los Angeles (UCLA), 1991

#### **Professional Licenses**

Licensed Professional Engineer, California, #62177 Licensed Professional Civil Engineer, Arizona, #51184 Licensed Geotechnical Engineer, California, #2815 Licensed Professional Civil Engineer, Nevada, #031086 Licensed Professional Engineer, Colorado, #0062076 Licensed Professional Engineer, Oklahoma, #34032

### Academic Appointments

Part-time Faculty, Department of Civil and Environmental Engineering, University of California, Los Angeles, 1997-2020

#### **Previous Experience**

Senior Managing Consultant, Engineering Systems Inc., 2018 - present Managing Engineer, Exponent, Inc., 2001-2018 Project Manager, Bing-Yen and Associates, 1998-2001 Post-doctoral Fellow, University of California, Los Angeles, 1996-1997



## **Professional Affiliations**

ASCE Geo-Institute (G-I) Los Angeles (chair) American Society of Civil Engineers — ASCE ASCE Standards Committee — KSTAT Earthquake Engineering Research Institute — EERI Association of State Dam Safety Officials — ASDSO

### **Publications**

- Shaller PJ, **Doroudian M**, Hart MW. The Eureka Valley Landslide: Evidence of a Dual Failure Mechanism for a Long-Runout Landslide. Lithosphere 2020; (1): 1–26. doi: <u>https://doi.org/10.2113/2020/8860819</u> Extended version also available at: <u>https://www.engsys.com/media/1043-eureka-valley-lithosphere-8860819-extended.pdf</u>
- Loaiciga HA, et al. Estimation of aquifer hydraulic properties by inverse numerical model of aquifer pumping tests. ANSI/ASCE/EWRI 70-19. ASCE Press, Reston, VA, 2020.
- Cydzik, K., Shaller, P.J., Shrestha, P., and **Doroudian, M**. Post-fire planning, policy, and natural hazards mitigation: lessons learned during recovery from wildfires in the state of California, USA, 2015-2019. American Geophysical Union 2019 Fall Meeting, San Francisco, CA. December 9-13, 2019.
- Loaiciga HA, et al. Standard guideline for Calculation of the saturated hydraulic conductivity of Fine-Grained Soils. ASCE/EWRI Standard 65-2017, ASCE Press, Reston, VA, 2017.
- Shaller P, Sykora D, **Doroudian M**, Churchman GJ. Rapid In Situ Conversion of Late-Stage Volcanic Materials to Halloysite Implicated in Catastrophic Dam Failure, Hawaii. Clay Minerals 2016; 51:499- 515.
- Shrestha PL, Su SH, James SC, Shaller PJ, **Doroudian M**, Firstenberg CE, Thompson CT. Conceptual site model for Newark Bay - Hydrodynamics and sediment transport. Journal of Marine Science and Engineering 2014; 2(1):123-139.
- Loaiciga HA, et al. Standard guideline for geostatistical estimation and block-averaging of homogeneous and isotropic saturated hydraulic conductivity. ASCE/EWRI Standard 54-2010, ASCE Press, Reston, VA, 2010.
- Loaiciga HA, et al. Standard guideline for fitting saturated hydraulic conductivity using probability functions. ASCE/EWRI Standard 50-2008, ASCE Press, Reston, VA, 2008.
- Loaiciga HA, et al. Standard guideline for estimating the effective saturated hydraulic conductivity. ASCE Standard 51-2008, ASCE Press, Reston, VA, 2008.



- Shaller PJ, Shrestha PL, Doroudian M, Sykora D, Hamilton D. The 2005 La Conchita landslide, California: Part 1 - Geology. In: 5th International Conference on Debris-Flow Hazards Mitigation: Mechanics, Prediction and Assessment, Padua, Italy, June 14-17, 2011. Italian Journal of Engineering Geology and Environment, Genevois R, Hamilton D, and Prestininzi A (eds), GeneCasa Editrice Università La Sapienza, Rome, Italy, 2011; 745-750.
- Shrestha PL, Shaller PJ, Doroudian M, Sykora D, Hamilton D. The 2005 La Conchita landslide, California: Part 2 - Modeling. In: 5th International Conference on Debris-Flow Hazards Mitigation: Mechanics, Prediction and Assessment, Padua, Italy, June 14-17, 2011. Italian Journal of Engineering Geology and Environment, Genevois R, Hamilton D, and Prestininzi A (eds), GeneCasa Editrice Università La Sapienza, Rome, Italy, 2011; 751-758.
- Heuze FR, Archuleta RA, Bonilla F, Day SM, Doroudian M, Elgamal A, Hoehler M, Lai T, Lavallee D, Lawrence B, Liu PC, Martin A, Matesic L, Minster B, Oglesby D, Park S, Riemer M, Steidl J, Vernon F, Vucetic M, Wagoner J, Yang Z. Estimating site-specific strong earthquake motions. Soil Dynamics and Earthquake Engineering 2004; 24(3):199-223.
- Vucetic M, Lanzo G, **Doroudian M**. Effect of the shape of cyclic loading on damping ratio at small strains. Soils and Foundations 1998; 38(1):111-120.
- Vucetic M, Lanzo G, **Doroudian M**. Damping ratio at small strains in simple shear test. ASCE Journal of Geotechnical and Geoenvironmental Engineering 1998; 7k:124:585-594.
- Lanzo G, Vucetic M, **Doroudian M**. Reduction of shear modulus at small strains in simple shear. ASCE Journal of Geotechnical and Geoenvironmental Engineering 1997; 123(11):1035-1042,
- King S, Kiremidjian A, Basoz N, Law K, Vucetic M, Doroudian M, Olsen R, Eidinger J, Goettel K, Homer G. Methodologies for evaluating the socio-economic consequences of large earthquake. Earthquake Spectra 1997; 13(4):565-584.
- **Doroudian M**, Vucetic M. A direct simple shear device for measuring small-strain behavior. ASTM Geotechnical Testing Journal 1995; 18(1):69-85.
- Vucetic M, Tufenkjian MR, **Doroudian M**. Dynamic centrifuge testing of soil nailed excavations. ASTM Geotechnical Testing Journal 1993; 16(2):172-187.

### **Conference Proceedings**

Shrestha PL, Shaller PJ, **Doroudian M**, Cydzik, K. Evaluating sediment dynamics in waterways. Proceedings, 10th International Conference on Scour and Erosion (ICSE-10), pp. 237-250, October 18-21, 2021 (Virtual).



- Shaller, P.J., Doroudian, M., Cydzik, K. and Shrestha, P., 2020. Construction, Operation, and Failure of Ka Loko Dam, Kauai, Hawaii: Association of Engineering Geologists 2020 Annual Meeting, Dams and Levees Lesson Learned Symposium, Part 1, September 17, 2020.
- Shrestha PL, James SC, Shaller PJ, Doroudian M, Peraza DB, Morgan TA. Estimating the storm surge recurrence interval for Hurricane Sandy. Proceedings, World Environmental and Water Resources Congress 2014: Water without Borders, Environmental Water Resources Institute of the American Society of Civil Engineers, Portland, OR, pp. 1906-1915, 2014.
- Shaller PJ, Wren J, Shrestha PL, Sama M, Doroudian M. An evaluation of post-wildfire mitigation measures on flood hazard potential in Southern California. Poster, World Environmental and Water Resources Congress 2014: Water without Borders, Environmental Water Resources Institute of the American Society of Civil Engineers, Portland, OR, 2014.
- Shrestha PL, Su SH, James SC, Shaller PJ, Doroudian M, Firstenberg CE, Thompson CT. Conceptual Site Model for Newark Bay - Hydrodynamics and Sediment Transport. Presented at the 13th International Conference on Estuarine and Coastal Modeling, San Diego, CA, November 4-6, 2013.
- Vucetic M, Doroudian M, Sykora DW, Cyclic Compression of Compacted Clayey Sand at Small Cyclic Strains. Proceedings, Fifth International Conference on Recent Advances in Geotechnical Engineering and Soil Dynamics, pp. 699-706, San Diego, CA, May 24-29, 2010.
- Shaller PJ, Shrestha PL, **Doroudian M**, Rezakani M. Assessment of flood hazard, Travertine Point Area, Southeastern California. Presented at 2010 Floodplain Management Association Annual Meeting, Henderson, NV, November 3, 2010.
- Shaller PJ, Shrestha PL, **Doroudian M**, Hamilton DL, Sykora, DW. The January 10, 2005 La Conchita landslide. Presented at 2010 Geological Society of America Cordilleran Section and Pacific Section AAPG Meeting, Anaheim, CA, May 29, 2010.
- Shrestha PL, Hamilton DL, Cydzik K, Wardak S, Jordan N, Shaller PJ, **Doroudian M**. Flood hazard analysis and mitigation. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), pp. 699-706, New Delhi, India, January 12-16, 2009.
- Murillo B, Wardak S, Hamilton DL, Shrestha PL, Cydzik K, Doroudian, M. Sedimentation analysis for existing and proposed development conditions. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), pp. 1636-1641, New Delhi, India, January 12-16, 2009.



- Wardak S, Murillo B, Hamilton D, Shrestha PL, Doroudian M, Cydzik K, Medellin J, Shaller PJ. Sedimentation analysis in an open channel network for existing and proposed development conditions. ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12-16, 2008.
- Shrestha PL, Hamilton D, Jordan N, Lyle JE, **Doroudian M**, Shaller PJ, Wardak S, Cydzik K, Medellin J. Inland flood hazard analysis and mitigation. ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12-16, 2008
- Shrestha P, Hamilton D, Lyle J, **Doroudian M**, Shaller P. Analysis of flood hazards for a residential development. Proceedings, ASCE World Environmental and Water Congress, Tampa, FL, May 15-19, 2007.
- Shrestha P, Bigham G, Hamilton D, **Doroudian M**. A three-dimensional model for Lake Sam Rayburn, Texas. Proceedings, ASCE International Perspective on Environmental and Water Resources, New Delhi, India, December 18-20, 2006.
- Hamilton D, Shrestha P, Lyle J, **Doroudian M**, Shaller P. Flood hazard analysis and protection plan for a residential development. Proceedings, ASCE World Environmental and Water Resources Congress, Omaha, NE, May 21-25, 2006.
- Shaller P, Hamilton D, Shrestha P, Lyle J, Doroudian M. Investigation of flood and debris flow recurrence — Andreas Canyon, San Jacinto Range, Southern California. Proceedings, ASCE World Environmental and Water Resources Congress, Omaha, NE, May 21-25, 2006.
- Shaller P, Hamilton D, **Doroudian M**, Shrestha P, Lyle J, Cattarossi A. Investigation of flood hazards on alluvial floodplains. Proceedings, ASCE World Water and Environmental Resources Congress, Anchorage, AK, May 16-19, 2005.
- Shrestha P, Hamilton D, Jordan N, **Doroudian M**, Hong S, Proctor D. Impact of sewage line spills on pathogen levels in recreational waters. Proceedings, ASCE World Water and Environmental Resources Congress, Anchorage, AK, May 16-19, 2005.
- Hamilton D, Shaller P, Shrestha P, Lyle J, Doroudian M. Investigating flood hazards on alluvial floodplains. Presentation, Alluvial Fan Flood Hazard Management Symposium, Phoenix, AZ, April 20-22, 2005.
- Hamilton D, Shaller P, Lyle J, Doroudian M, Shrestha P. Multi-disciplinary approach to distinguishing flood hazards on alluvial floodplains. Presentation, Arid Regions 10th Biennial Conference, Restoration and Management of Arid Watercourses, Mesa, AZ, November 16-19, 2004.
- Shaller P, Hamilton D, Doroudian M, Shrestha P, Lyle J, Cattarossi A. Interpretation of tectonic, fluvial, and eolian landforms in the Upper Coachella Valley, California, using aerial photography, DEM, and LiDAR technology. Poster Presentation, Geological Society of America, Denver Annual Meeting, Denver, CO, November 7-10, 2004.



- Shaller P, Hamilton D, Lyle J, **Doroudian M**, Shrestha P. Fire-flood-erosion sequence: Analysis and mitigation. Presented at ASFPM Arid Regions 10th Biennial Conference, Restoration and Management of Arid Watercourses, Mesa, AZ, November 2004.
- Shaller P, Hamilton D, Lyle J, Doroudian M, Shrestha P. Multi-disciplinary approach to distinguishing flood hazards on alluvial floodplains. Presented at ASFPM Arid Regions 10th Biennial Conference, Restoration and Management of Arid Watercourses, Mesa, AZ, November 2004.
- Vucetic M, Kocijan J, **Doroudian M**. Kinematics and failure of soil-nailed excavation models in dynamic centrifuge tests. Proceedings, International Symposium on Landmarks in Earth Reinforcement, Fukuoka, Japan, A.A. Balkema Publisher, Vol. 1, pp. 737-742, 2001.
- Lanzo G, Doroudian M, Vucetic M. Small-strain cyclic behavior of Augusta clay in simple shear. Proceedings, 2nd International Symposium on Pre-failure Deformation Characteristics of Geomaterials, IS Torino 99, Published by A.A. Balkema, Vol. 1, pp. 213-219, September 1999.
- **Doroudian M**, Vucetic M. Integration of 3-D geotechnical database of Los Angeles and 1-D nonlinear site response model into a GIS for seismic microzonation. Proceedings, NEHERP Conference and Workshop on Research on the Northridge, California Earthquake of January 1994, Published by Nonprofit Organization "California Universities for Research in Earthquake Engineering CUREe," Richmond, CA, Vol. II, Earth Sciences, pp. 189-198.
- **Doroudian M**, Vucetic M. Small-strain testing in an NGI-type direct simple shear device. Proceedings, XI Danube-European Conference on Soil Mechanics and Foundation Engineering, Pore, Croatia, May 1998.
- Doroudian M, Vucetic M, Martin GR. Development of 3-Dimensional geotechnical database for Los Angeles seismic microzonation. Proceedings (on CD-ROM), 11th World Conference on Earthquake Engineering, Elsevier Science Ltd. Publications, Paper No. 2148, Acapulco, Mexico, 1996.
- Iskandar V, Doroudian M, Vucetic M. Development of geotechnical database for Palo Alto and its utilization for seismic microzoning. Proceedings (on CD-ROM), 11th World Conference on Earthquake Engineering, Elsevier Science Ltd. Publications, Paper No. 2148, Acapulco, Mexico, 1996.
- Vucetic M, Iskandar V, Doroudian M, Luccioni L. Centrifuge testing of the failure mechanism of soil-nailed excavations under dynamic loads. Proceedings, International Symposium on Earth Reinforcement, A.A. Balkema Publisher, Vol. 1, pp. 829-834, Fukuoka, Japan, 1996.
- **Doroudian M**, Vucetic M, Martin GR. Development of geotechnical database for Los Angeles and its potential for seismic microzonation. Proceedings, 5th International Conference on Seismic Zonation, Vol. II, pp. 1512-1514, Nice, France, October 1995.



- Vucetic M, **Doroudian M**, Martin GR. Development of geotechnical site database for Southern California for seismic microzonation. Proceedings, 3rd Annual Caltrans Seismic Workshop, Sacramento, CA, June 1994.
- Tufenkjian MR, Vucetic M, **Doroudian M**. Stability of soil nailed excavations. Proceedings, International Workshop on Technology for Hong Kong's Infrastructure Development Infrastructure '91,' pp. 751-762, Hong Kong, 1991.

#### Published Conference Abstracts

- **Doroudian M**, Vucetic M. Integration of 3-D geotechnical database for Los Angeles and I-D nonlinear site response model into a GIS for seismic microzonation. Proceedings, Northridge Earthquake Research Conference, 42 p., Los Angeles, CA, August 1997.
- **Doroudian M**, Vucetic M. Densification of the SCEC Geotechnical Database and its integration with a nonlinear site response model in a GIS environment. Proceedings, Southern California Earthquake Center 1997 Annual Meeting, p. 61, Costa Mesa, CA, 1997.
- Vucetic M, **Doroudian M**. Methodology for utilization of SCEC geotechnical database to assess nonlinear site response. Proceedings, Southern California Earthquake Center, 1996 Annual Meeting, pp. 44-45, Palm Springs, CA, 1996.
- **Doroudian M**, Vucetic M, Martin GR. Development of geotechnical database for Los Angeles. Proceedings, 1995 Annual Conference of the International Association for Mathematical Geology and the International Symposium for Geoinformatics, Session No. IV, pp. 161-163, Osaka, Japan, 1995.

### **Research Reports**

- Cydzik K, Shaller P, **Doroudian M**, Jirschefske J. July 2019 Ridgecrest earthquake sequence observations from a post-earthquake reconnaissance, ESi White Paper, California, December 2019
- Day S, Doroudian M, Elgamal A, Gonzales S, Heuze F, Lai T, Minster B, Ogelsby D, Riemer M, Vernon F, Vucetic M, Wagoner J, Yang Z. Strong earthquake motion estimates for three sites on the U.C. San Diego Campus. LLNL report, UCRL-ID-140523; 51 p., May 2002.
- Vucetic M, Doroudian M, Matesic L. Results of geotechnical laboratory tests on soil samples from the UC San Diego Campus. Report for University of California's Campus-Laboratory Collaboration (CLC) Program research project "Estimation of the Ground Motion Exposure from Large Earthquakes at Four UC Campuses in Southern California," UCLA Research Report No. ENG-99-203, Civil and Environmental Eng. Department, University of California, Los Angeles, 110 p., May 1999.
- **Doroudian M**, Vucetic M. Results of geotechnical laboratory tests on soil samples from the UC Santa Barbara Campus. Report for University of California's Campus-Laboratory Collaboration (CLC) Program research project:" Estimation of the Ground Motion



Exposure from Large Earthquakes at Four UC Campuses in Southern California," UCLA Research Report No. ENG-99-203, Civil and Environmental Eng. Department, University of California, Los Angeles, 107 p., April 1999.

- Vucetic M, Hsu CC, Doroudian M. Results of cyclic and dynamic simple shear tests on soils from La Cienega Site conducted for ROSRINE project and other research purposes. UCLA Research Report No. ENG-98-200, Civil and Environmental Engineering Department, University of California, Los Angeles, 440 p., December 1998.
- Doroudian M, Vucetic M. Development of 3-D geotechnical database and its application to the evaluation of nonlinear site effects and seismic zonation. Research Report No. ENG 97-186, Civil and Environmental Engineering Department, University of California, Los Angeles, 347 p., September 1997.
- Vucetic M, Doroudian M. Task H-5: Geotechnical site database for Southern California. Final Report to Southern California Earthquake Center at USC, Research Report, Civil and Environmental Engineering Department, University of California, Los Angeles, Vol. I, Vol. II, Vol. III, 1546 p., October 1995.
- **Doroudian M**, (with Kajima-CUREe (24 authors). Methodologies for evaluating the socioeconomic consequences of large earthquakes. Year Two Report of the Kajima-CUREe Joint Project, Kajima Corporation Research Institute, Tokyo, Japan, 1995.
- Vucetic M, **Doroudian M**. Task H-5: Geotechnical site database for Southern California. Second Year Annual Report to Southern California Earthquake Center at USC, Research Report, Civil and Environmental Engineering Department, University of California, Los Angeles, 255 p., May 1994.
- **Doroudian M**, Vucetic M. A direct simple shear device for measuring small-strain behavior of soil. Research Report No. ENG 93-185, Civil and Environmental Engineering Department, University of California, Los Angeles, 129 p., June 1993.
- Vucetic M, Tufenkjian MR, Doroudian M. Dynamic centrifuge testing of soil-nailed excavations

   Testing program and procedure. Research Report No. ENG 92-180, Civil and Environmental Engineering Department, University of California, Los Angeles, 50 p., June 1992.

#### Lectures

- **Doroudian M**. Double specimen direct simple shear device for measuring small-strain behavior. Invited instructor at University of Rome, Rome, Italy, November 2002.
- **Doroudian M**, Vucetic M. Methodology for utilization of SCEC Geotechnical Database to assess nonlinear site response. Taisei Institute of Construction Technology, Taisei Corporation, Yokohama, Japan, November 1994.
- **Doroudian M**. Small-strain behavior of soils in direct simple shear. Institute of Industrial Science, Tokyo University, Tokyo, Japan, June 1994.



- **Doroudian M**. Utilization of geotechnical database for seismic microzonation. Kajima Institute of Construction Technology, Kajima Corporation, Tokyo, Japan, June 1994.
- **Doroudian M**. Development of geotechnical database for Palo Alto and its utilization for seismic microzoning. CUREe-Kajima Annual Meeting, California Institute of Technology, Pasadena, CA, October 1994.
- **Doroudian M**, Vucetic M. Geotechnical database for Southern California. NSF Workshop on Scientific Supercomputing, Visualization, and Animation in Geotechnical Earthquake Engineering and Engineering Seismology, Carnegie Mellon University, November.

#### Posters

- Shrestha PL, Hamilton D, Jordan N, Lyle JE, **Doroudian M,** Shaller PJ, Wardak S, Cydzik K, Medellin J. Inland flood hazard analysis and mitigation. Poster, ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12-16, 2008.
- Wardak S, Murillo B, Hamilton D, Shrestha PL, Doroudian M, Cydzik K, Medellin J, Shaller PJ. Sedimentation analysis in an open channel network for existing and proposed development conditions. Poster, ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12-16, 2008.
- **Doroudian M,** Vucetic M. Cyclic engineering properties of soil at small stains in simple shear device. Poster Session, UC/CLC Earthquake Workshop, San Ramon, CA, March 1997.
- **Doroudian M,** Vucetic M. Methodology for utilization of SCEC Geotechnical Database to assess nonlinear site response. Poster Session, Southern California Earthquake Center Annual Meeting, Palm Springs, CA, October 1996.
- **Doroudian M.** Development of geotechnical site database for Southern California. Poster Session, NSF/USGS 3rd-Year Review Site Visit of the Southern California Earthquake Center, University of Southern California, Los Angeles, September 1993.
- **Doroudian M,** Tufenkjian. Seismic stability of soil nailed excavations. EERI, Annual Meeting, San Francisco, CA, 1991.