

Adolfo Matamoros
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Education:

Postdoctoral research associate, Purdue University, 1999
Ph.D , Civil Engineering, University of Illinois at Urbana, 1999
M.S., Civil Engineering, University of Illinois at Urbana, 1994
Lic., Civil Engineering, University of Costa Rica, 1989

Academic Experience:

- 1999-present, University of Kansas, Department of Civil, Environmental, and Architectural Engineering. Assistant Professor, tenure track. Primary teaching responsibilities in undergraduate courses Structural Design I (Steel Structures), Structural Design II (Reinforced Concrete Structures), and graduate level courses on Behavior of Concrete Members, Structural Dynamics, and Bridge Design. Research interests include design and behavior of reinforced concrete members, steel connections, adaptive media, and earthquake engineering.
- 1999-2000, University of Kansas, Department of Civil, and Environmental Engineering. Assistant Professor, non-tenure track. Primary teaching responsibilities in undergraduate course Analysis of Engineering Systems.
- 1999, Purdue University, School of Civil Engineering, West Lafayette, Indiana, Postdoctoral Research Associate. Experimental study for a new provision, based on strut-and-tie models, for the design of reinforced concrete members. Responsibilities included the design and construction of the test configuration, test specimens and instrumentation.
- 1998-1999, Purdue University, School of Civil Engineering, West Lafayette, Indiana, Research Associate. NSF sponsored research program on the use of high-strength concrete in earthquake resistant structures. As part of this study 8 specimens were tested under repeated load reversals to investigate the influence of compressive strength on limiting drift of columns.
- 1992-1998, University of Illinois, Department of Civil and Environmental Engineering, Urbana, Illinois, Graduate Research and Teaching Assistant. NSF sponsored research programs on the use of high-strength concrete in earthquake resistant structures and methods to assess seismic vulnerability of buildings in areas of moderate seismicity. Created C coded versions of two dynamic analysis programs for reinforced concrete structures, SARSAN (elastic analysis) and LARZ (nonlinear analysis). During 1993 worked as teaching assistant for CE374, a graduate level class on structural dynamics.

Courses Taught at the University of Kansas

Graduate: CE 762 Behavior of Concrete Members, CE/AE 704 Structural Dynamics, CE 790 Reinforced Concrete Bridge Design

Undergraduate: CE 563 Structural Design II (Reinforced Concrete Structures), CE 562 Structural Design I (Steel Structures), CE 250 Engineering Systems Analysis.

Awards

2003 Bellows Scholar

School of Engineering, University of Kansas

Journal Publications

- Von Ramin, M., and Matamoros, A., “Monotonic Shear Strength of Reinforced Concrete Members,” in press, *ACI Structural Journal*.
- Brachmann, I., Browning, J., Matamoros, A., “Drift –Dependent Confinement Requirements for Reinforced Concrete Columns Under Cyclic Loading,” *ACI Structural Journal*, Vol. 101, No.5, September-October 2004, pp. 669-677.
- Matamoros, A., Garcia, L. E., Browning, J., and Lepage, A., “The Flat-Rate Design Method for Low- and Medium-Rise Reinforced Concrete Structures,” *ACI Structural Journal*, Vol. 101, No. 4, July-August 2004, pp. 435-446.
- Matamoros, A., Browning, J., and Luft, M., “Evaluation of Simple Methods for Estimating Drift of Reinforced Concrete Buildings Subjected to Earthquakes,” *Earthquake Spectra*, Vol. 19, I 4, November 2003, pp. 839-861.
- Matamoros, A., Kuok-Hong, “Design of Simply-Supported Deep Beams using Strut-and-Tie Models,” *ACI Structural Journal*, V. 100, No. 6, November-December. 2003.
- Matamoros A. and Sozen, M., “Drift Limits of High-Strength Concrete Columns Subjected to Load Reversals,” *Journal of Structural Engineering*, ASCE., V. 129, No. 3, March 2003, pp. 297-313.
- Aguilar, G., Matamoros, A., Parra-Montesinos, G., Ramirez, J., and Wight, J., “Experimental Evaluation of Design Procedures for Shear Strength of Deep Reinforced Concrete Beams,” *ACI Structural Journal*, V. 99, No. 4, July-August 2002, pp. 539-548.

Other Publications

- Reetz, R., Von Ramin, M., and Matamoros, A., “Performance of Mechanical Splices Within The Plastic Hinge Region of Beams Subjected to Cyclic Loading,” *13th World Conference on Earthquake Engineering*, Vancouver, B.C., August 1-6, 2004. 14 pp.
- Russell, R., Matamoros, A., Browning, J., “Strain Limits for Plastic Hinge Regions of Reinforced Concrete Columns,” *13th World Conference on Earthquake Engineering*, Vancouver, B.C., August 1-6, 2004. 13 pp.
- Brachmann, I., Browning, J., and Matamoros, A., “Relationships Between Drift and Confinement in Reinforced Concrete Columns Under Cyclic Loading,” *13th World Conference on Earthquake Engineering*, Vancouver, B.C., August 1-6, 2004. 15 pp.

- Wood, S., Anagnos, T., Arduino, P., Eberhard, M., Fenves, G., Finholt, T., Futrelle, J., Jeremic, B., Kramer, S., Kutter, B., Matamoros, A., McMullin, K., Ramirez, J., Rathje, E., Saiidi, M., Sanders, D., Stokoe, K., Wilson, D., “Using NEES to Investigate Soil-Foundation-Structure Interaction,” *13th World Conference on Earthquake Engineering*, Vancouver, B.C., August 1-6, 2004. 6 pp.
- Gur, T., Ramirez, J., Sozen, M., Pay, C., Johnson, A., Bobet, A., Matamoros, A., Irfanoglu, A., and Aikin, L., “Performance of School Buildings in Bingol during the 1 May 2003 Earthquake,” *13th World Conference on Earthquake Engineering*, Vancouver, B.C., August 1-6, 2004. 15 pp.
- Lambrecht, J., Matamoros, A., “Energy Dissipation using High-Performance Composite Elements in Concentrically Braced Steel Frames,” *Proceedings of International Symposium on Network and Center Based Research For Smart Structures Technologies and Earthquake Engineering*, Osaka, Japan, July 6-9, 2004, pp. 109-114.
- ACI Committee 408, “ACI 408R-03, Bond and Development of Straight Bars in Tension, Report by ACI Committee 408,” American Concrete Institute, Farmington Hills, Michigan, November, 2003, 49 pp.
- Roddis, W. M. K., Matamoros, A., “Overcoming the Language Barrier: AISC’s CIS/2 Initiative” *Towards a Vision for Information Technology in Civil Engineering*, 4th Joint Symposium on Information Technology in Civil Engineering, Nashville, Tennessee, 12-15 November, 2003, pp. 298-305.
- Matamoros, A., and Roddis, W. M. K., “AISC Building Design Case Study,” Publication in Digital Format, American Institute of Steel Construction, Chicago, IL., October 2003.
- Matamoros, A., and Ramirez, J., “Example 6: Prestressed Beam,” *Example for the Design of Structural Concrete with Strut-and-Tie Models, SP-208*, American Concrete Institute, Farmington Hills, MI, 2002, pp. 163-184.
- Matamoros, A. Smart Composites with Shape Memory Alloys. Workshop on Smart Structural Systems, U.S.-Japan Cooperative Research Programs on Smart Structural Systems (Auto-adaptive Media) and Urban Earthquake Disaster Mitigation. Tsukuba, Japan, October 18-19, 2002.
- Darwin, D., McCabe, S., Browning, J., Matamoros, A., and Zuo, J., Evaluation of Development Length Design Expressions. Bond in Concrete – from research to standards – International Symposium sponsored by CEB – FIP and International Federation for Structural Concrete, Budapest, Hungary, 20-22 November 2002.
- Browning, J., Matamoros, A., Marsh, J., “Evaluation of Simple Methods for Performance Assessment of Buildings Subjected to Earthquakes,” International Conference on Advances on Structural Dynamics, Hong Kong 13 –15th December 2000.
- Frosch, R., Matamoros, A., “Monitoring and Assessment of Reinforced Concrete Structures”, The 2nd International Workshop on Structural Health Monitoring, Stanford University, Stanford, CA 94305, September 8-10, 1999.

Reports

- Von Ramin, Malte, and Matamoros, A., “Shear Strength of Reinforced Concrete Members Subjected to Monotonic and Cyclic Loads, *SM Report No. 72*, University of

Kansas Center for Research, Inc., Lawrence, Kansas, June 2004, 517 pp.

- Ozcebe, G., Ramirez, J., Wasti, T. and Yakut, A. (Technical Editors) “1 May 2003 Bingol Earthquake Engineering Report,” Joint Report to TUBITAK and NSF, Middle East Technical University and Purdue University, <http://bridge.ecn.purdue.edu/~anatolia/BINGOL/Joint%20Report.pdf> , 2003, 139 pp.
- Zeckmann, R., and Matamoros, A., “Use of Strut-and-Tie Models to Calculate the Strength of Deep Beams with Openings,” *SM Report No. 69*, University of Kansas Center for Research, Inc., Lawrence, Kansas, July 2002, 69 pp.
- Brachmann, I., Browning, J., and Matamoros, A. “Drift Capacity Approaches of Rectangular Slender Reinforced Concrete Columns Under Cyclic Loading,” *SM Report No. 68*, University of Kansas Center for Research, Inc., Lawrence, Kansas, May 2002, 221 pp.
- Von Ramin, M., Matamoros, A., and Browning, J. “Effect of Shear Strength and Geometry on Performance of Short-Period Systems,” *SL Report 02-1*, University of Kansas Center for Research, Inc., Lawrence, Kansas, May 2002, 125 pp.
- Luft, M., and Matamoros, A., “Performance of Reinforced Concrete Structures Subjected to Earthquake Motions,” *SM Report No. 62*, University of Kansas Center for Research, Inc., Lawrence, Kansas, May 2001, 69 pp.
- Eberhard, M., Matamoros, A. and Whittaker, A. “Royal Palm Resort Investigation, Cyclic Testing of Reinforced Concrete Captive Columns”. *Report No. EERCL-STI/97-01*. Earthquake Engineering Research Center, University of California at Berkeley, June 1997, 120 pp.

Professional Organizations

- American Concrete Institute
- American Society of Civil Engineers
- Earthquake Engineering Research Institute
- NEES Consortium, Inc.
- Consortium of Universities for Research in Earthquake Engineering
- American Society of Engineering Educators

Membership in Professional Committees

American Concrete Institute:

- Committee 408, Bond and Development Length: Voting Member and Secretary.
- Committee 445: Shear and Torsion, Voting Member
- Committee 439, Steel Reinforcement, Voting Member
- TAC Technology Transfer, ITG-4: High-Strength Concrete for Seismic Applications, Voting member and co-author.
- Committee 341, Earthquake Resistant Concrete Bridges, Voting Member
- Committee 314, Simplified Design of Concrete Buildings
- Ad hoc Committee on Shear on Prestressed Concrete Members, Member and Chair.