AYHAN IRFANOGLU

Structural Engineering
Purdue University
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Education

Doctor of Philosophy
Civil Engineering, California Institute of Technology, Pasadena, CA 2000
Dissertation Title: *Structural Design under Seismic Risk Using Multiple Performance Objectives*

Master of Science
Civil Engineering, California Institute of Technology, Pasadena, CA 1994

Bachelor of Science
Civil Engineering, Middle East Technical University, Ankara, Turkey 1993

Experience

2005-Present	*Assistant Professor* Purdue University, West Lafayette, IN
2000-2005	*Engineer* Wiss, Janney, Elstner Associates, Inc., Emeryville, CA
1994-2000	*Graduate Research Assistant* California Institute of Technology, Pasadena, CA
1993-1998	*Graduate Teaching Assistant* California Institute of Technology, Pasadena, CA

Honors

California Institute of Technology Graduate Student Council Teaching Assistant Award, 1997-1998
Harold Hellwig Fellowship in Structural Engineering, 1993-1994

Teaching Activities

Graduate Courses:	Structural Dynamics Geologic and Engineering Seismology (*new course*)
Undergraduate Courses:	Structural Analysis II

Research Projects

Impact Simulation and Structural Response Analysis of 11 September 2001 World Trade Center Attacks. Conducting with M.A. Sozen (CE) and C.M. Hoffmann (CS).

Calibration of Numerical Hydro-Codes using Fluid-Solid Impact Experimental Data. Conducting with M.A. Sozen (CE).

Modal Analysis and Vibration Testing of a Full-Scale 3-Story Flat-Plate Building. Conducting with M.A. Sozen (CE) and S. Pujol (CE).

Increasing Efficiency in Urban Area Earthquake Emergency Response Using an Engineering-Based Intensity Scale. Conducting with S.A. Freeman (WJE Assoc., Inc.).

Grants

National Science Foundation (NSF) grant to participate in the *"Istanbul at the Threshold" Workshop*. Acted as the Secretary of the workshop. NSF and Japan International Cooperation Agency funded joint-workshop between researchers and engineers from Turkey, United States of America, and Japan, held in Aydin/Turkey2005

NSF grant to conduct *earthquake reconnaissance of the 1 May 2003 Bingol, Turkey earthquake*, as member of the NSF team lead by Prof. J.A. Ramirez, Purdue University, 2003.

NSF grant to participate in the 7th *U.S./Japan Workshop on Urban Earthquake Hazard Reduction*, organized by the Earthquake Engineering Research Institute and the Institute of Social Safety Science of Japan, Hawaii, 2003.

Consortium of Universities for Research in Earthquake Engineering grant to attend and present at the *12th World Conference on Earthquake Engineering* in Auckland, New Zealand, 2000.

Pacific Earthquake Engineering Research Center *research grants* (1998-2000) and Consortium of Universities for Research in Earthquake Engineering-Kajima Corporation (Japan) *research grants* (1995-1999)

Journal Publications

Beck, J. L., E. Chan, A. Irfanoglu, and C. Papadimitriou, "Multi-Criteria Optimal Structural Design Under Uncertainty", *Earthquake Engineering and Structural Dynamics*, 28:741-761, 1999.

Book Chapters

Earthquake Engineering Research Institute, "Reinforced Concrete Frame Structures Manual", *Construction Methods*, A. Yakut, Ed., EERI, *in preparation*.

Peer-Reviewed Proceedings

Irfanoglu A. and S.A. Freeman, "Using the Earthquake Engineering Intensity Scale to Improve Urban Area Earthquake Emergency Response", *accepted for presentation* at *the 8th U.S. National Conference on Earthquake Engineering*, San Francisco, CA, 2006.

Freeman, S.A., A. Irfanoglu, and T.F. Paret, "Earthquake Engineering Intensity Scale: A Template with Many Uses". *Proceedings of the 13th World Conference on Earthquake Engineering*, Vancouver, Canada, August 1-6, 2004.

Paret, T.F., A. Irfanoglu, M.M. Hachem, and S.A. Freeman, "Efficient Application of the Secant Method for Capturing the Peak Response of Complex Multi-Story Buildings". *Proceedings of the 13th World Conference on Earthquake Engineering*, Vancouver, Canada, August 1-6, 2004.

National Science Foundation (NSF) Team, "Performance of School Buildings in Bingol during the 1 May 2003 Earthquake". *Proceedings of the 13th World Conference on Earthquake Engineering*, Vancouver, Canada, August 1-6, 2004.

Freeman, S.A., A. Irfanoglu, and T.F. Paret, "Improving Emergency Response Using Building Response Data, ShakeMap Data, and the Earthquake Engineering Intensity Scale".

Proceedings *of the 7th U.S./Japan Workshop on Urban Earthquake Hazard Reduction*, Earthquake Engineering Research Institute (EERI) and Institute of Social Safety Science, Maui, Hawaii, March 23-26, 2003.

Freeman, S.A., A. Irfanoglu, and T.F. Paret, "Structural Implications of the TriNet Instrumental Intensity Scale". *Proceedings of the 7th U.S. National Conference on Earthquake Engineering*, Boston, MA, 2002.

Freeman, Sigmund A., Ayhan Irfanoglu, and Terrence F. Paret, "Integrating the TriNet System with an Engineering Intensity Scale [abs.]". Seismological Research Letters 73 (2): 256, March/April 2002. Presented at the *Seismological Society of America Annual Meeting*, 2002.

Irfanoglu, A., and J.L. Beck, "Optimal Structural Design under Seismic Risk Using Engineering and Economic Performance Objectives". *Proceedings of the International Conference on Structural Safety and Reliability*, Newport Beach, CA, 2001.

Beck, J.L., A. Irfanoglu, C. Papadimitriou, and S.K. Au, "A Performance-Based Optimal Design Methodology Incorporating Multiple Criteria". *Proceedings of the 12th World Conference on Earthquake Engineering*, Auckland, New Zealand, 2000.

Mason, A.B., J.L. Beck, Y. Achkire, S. Wilkie, and A. Irfanoglu. "Optimal Strategy for Business Recovery after Earthquakes". *Proceedings of the 12th World Conference on Earthquake Engineering*, Auckland, New Zealand, 2000.

Beck, J.L., A. Irfanoglu, C. Papadimitriou, and E. Chan, "Performance-Based Optimal Design under Seismic Risk". *Proceedings of the 11th European Conference on Earthquake Engineering*, Paris, France, 1998.

Beck, J. L., A. Irfanoglu, C. Papadimitriou, and E. Chan, "A Methodology for Performance-Based Optimal Structural Design". *Proceedings of the 12th ASCE Engineering Mechanics Conference*, La Jolla, CA, 1998.

Beck, J.L., E. Chan, A. Irfanoglu, C. Papadimitriou, S.F. Masri, H.A. Smith, and T. Tsugawa, "A Methodology for Reliability-Based Multi-Criteria Optimal Structural Design". *Proceedings of the 7th International Conference of Structural Safety and Reliability*, Kyoto, Japan, 1997.

Beck, J.L., C. Papadimitriou, E. Chan, and A. Irfanoglu, "Reliability-Based Optimal Design Decisions in the Presence of Seismic Risk". *Proceedings of the 11th World Conference on Earthquake Engineering*, Acapulco, Mexico, 1996.

Reports

National Science Foundation (NSF) and the Scientific and Technical Research Council of Turkey (TUBITAK), G. Ozcebe, J. Ramirez, S. Tanvir Wasti, and A. Yakut, Eds., "1 May 2003 Bingol Earthquake - Engineering Report". NSF and TUBITAK, 2003.

Irfanoglu, A., "Structural Design under Seismic Risk Using Multiple Performance Objectives". Ph.D. Thesis, *California Institute of Technology, Earthquake Engineering Research Laboratory, Report No 2000-02*, 2000.

Beck, J.L., A. Kiremidjian, S. Wilkie, A. Mason, T. Salmon, J. Goltz, R. Olson, J. Workman, A. Irfanoglu and K. Porter, "Decision Support Tools for Earthquake Recovery of Businesses", *Consortium of Universities for Research in Earthquake Engineering (CUREe)-Kajima Phase III Final Report*, CUREe, CA, 1999.

Beck, J.L., C. Papadimitriou, E. Chan, and A. Irfanoglu, "A Performance-Based Optimal Structural Design Methodology". *California Institute of Technology, Earthquake Engineering Research Laboratory, Report No. 97-03*, 1997.

Beck, J.L., E. Chan, A. Irfanoglu, S.F. Masri, W.M Xu, H.A. Smith, V. Vance, and L. Barroso, "New Computer Tools for Optimal Design Decisions in the Presence of Seismic Risk". *CUREe-Kajima Phase II Final Report*, CUREe, CA, 1996.

Invited Presentations

Irfanoglu, A., "Performance of School Buildings during Earthquakes: Peru versus Turkey", *Seminar Series on Earthquake Engineering, Earthquake Engineering Research Laboratory, Middle East Technical University*, Ankara, Turkey, 2005.

Irfanoglu, A., "Loss Estimation for Structures under Seismic Risk", *Aon Re University Chairman Series*, California Institute of Technology, 2000.

Irfanoglu, A., "A Personal Album of the 17 August 1999 Kocaeli, Turkey Earthquake", Earthquake *Research Associates/Caltech-USGS Broadcast of Earthquakes Users Meeting* and *California Institute of Technology Civil Engineering Seminar Series*, 1999.

Professional Societies and Service

American Concrete Institute

California Integrated Seismic Network, region of the Advanced National Seismic System
Member (2003-05) of the Building Instrumentation Subcommittee

Consortium of Organizations for Strong Motion Observation Systems

Earthquake Engineering Research Institute
Faculty representative for the Purdue EERI Student Chapter (2006-)

Seismological Society of America

Major Professor

Current Ph.D. Students

Fabian A. Consuegra, anticipated graduation date: May 2009