# ANDREI M. REINHORN PE, PhD

**Professor Emeritus** 

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Andrei M. Reinhorn, PE PhD is a Clifford Furnas Eminent Professor Emeritus in the Department of Civil Structural and Environmental Engineering at University at Buffalo (SUNY), where he taught courses in structural engineering with emphasis on experimentation and simulations in structural dynamics and earthquake engineering. He conducted experimental and analytical research on structural control and on inelastic seismic behavior of buildings

and bridge systems. He preformed experimental studies and developed computational tools using generic macro-models for simulation of inelastic behavior of structures during progressive collapse. He was one of the initiators of the disaster management using resilience concepts leading to the resilience based design. He published in excess of seven hundred articles and reports in archival journals, conference proceedings and institutional publications. He developed several computer platforms on inelastic dynamic analysis (IDARC series) and base isolations (3DBASIS series), currently used by engineers and researchers around the world. He was a member of MCEER's executive committee and directed its' networking program. He was the leading team member of the expansion and served as the founding Director of the University at Buffalo's Structural Engineering and Earthquake Simulation Laboratory, hosting the most versatile equipment site of the George E. Brown Network for Earthquake Engineering Simulation (NEES). He



served as one of the founding members of the Board of Directors of NEESinc., the organization that coordinated the new network, and is the past chair of the Data Sharing and Archiving Committee. He led the effort of development of NEES Data Sharing and Archiving national policies and developed a comprehensive model for data architecture. A former Chair of his Department, he served in the Presidential Review Board for promotions and tenures at University at Buffalo, and in other departmental, school and university assignments. He taught routinely design and analysis classes, and hands on experimentation. He educated numerous graduates (MS, PhD) now in leadership positions in academe and industry. He is the recipient of 2015 ASCE Moisseiff Award, 2011 ASCE Nathan M. Newmark Medal, 2007 SUNY Chancellor Award for Excellence in Scholarship and Creative Activity, 2005 ASCE-CREF Charles Pankow Award for Innovation, among numerous others.

# **PERSONAL DATA**

EDUCATION: Doctor of Science in Civil Engineering, (D.Sc.) equiv. Ph.D., 1978; Technion - Israel

Institute of Technology - Haifa, Israel; Thesis: Static and Dynamic Torsional Coupling in

Tall Building Structures.

Bachelor of Science in Civil Engineering, (B.Sc.) 1968; Technion - Israel Institute of

Technology - Haifa, Israel; Major: Structural Engineering.

Bachelor - Gymnasium Diploma - 1963; "Alex I. Cuza" High School - Bucharest, Romania

**LICENSES:** Professional Engineer – PE - New York State, #59572 - since 1982

Professional Engineer – PE - Israel, #07402- since 1969

**TRAINING:** Operation of Seismic Simulation Systems - MTS, Minneapolis, MN - 1982

Experimental Methods in Earthquake Engineering - University of California at Berkeley,

Berkeley, CA - 1983

PERSONAL: B.10/23/1945 Bucharest, Romania; Married Tova (1968) + 2 Children + 5 Grandchildren

**CITIZENSHIP:** U.S. Naturalized Citizen, since 1987 **LANGUAGES:** English, Hebrew, Romanian, French

### **EMPLOYMENT HISTORY**

### **ACADEMIC**

STATE UNIVERSITY OF NEW YORK AT BUFFALO, Buffalo, NY

Professor Emeritus 2013-

Clifford C. Furnas Eminent Professor, 2002-2013;

Department Chairman (CSEE) 1996-1999;

Professor 1990-2002;

Associate Professor 1986-1990;

Assistant Professor 1981-1986;

Visiting Assistant Professor 1979-1981

TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY, Haifa, Israel

Visiting Professor, Lady Davis Fellowships (Fall 1999)

Visiting Professor, Theresa Palay Manson (Spring 1991);

Lecturer - Equivalent of Assistant Professor, 1978-1979;

Instructor, 1975-1978;

Teaching Assistant 1973-1975

UNIVERSITY OF PAVIA, Pavia, Italy

Visiting Professor (Fall 1999)

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### **PROFESSIONAL**

OFFICE OF J. FRUCHTBAUM, Buffalo, NY 1980-1986; Consulting - Structural Engineer (Part-Time); PRIVATE PRACTICE, Reinhorn Consulting, Haifa, Israel - Structural Engineer 1973-1979; MILSTEIN-ZINGER CONSULTING ENGINEERS, Tel - Aviv, Israel-Structural Engineer- 1972-1973; CORPS OF ENGINEERS - ISRAEL DEFENSE FORCES, Haifa, Israel 1968-1972 Design Engineer and Project Manager (Acting Captain)

## PRIVATE CONSULTING - REINHORN CONSULTING ENGINEERS

ATC -APPLIED TECHNOLOGY COUNCIL Redwood City CA, 2005-2009;

JOHN A. MARTIN & Associates, Los Angeles, CA 1993-2010;

BASE ISOLATION CONSULTANTS, San Francisco, CA 1993;

ANDCO ENVIRONMENTAL PROCESSES, Inc., Amherst, NY 1993;

LE MESSURIER & Associates, Boston, MA 1992-1993;

FLEMING Corp., San Francisco/Los Angeles, CA 1990-1994;

WALTER P. MOORE & Associates, Houston, TX; 1991-1992;

DAMES & MOORE, Los Angeles, CA 1989-1990;

T. SULLIVAN/WEST VALLEY NUCLEAR DUMP, Buffalo, NY 1987-1993;

WESTINGHOUSE ELECTRIC CO., Bloomington, IN 1986-1987;

WALT DISNEY WORLD CO., Lake Buena Vista, FL 1985-1986;

WATSON, BOWMAN AND ACME, INC., Buffalo, NY; 1984-1985;

WESTWOOD PHARMACEUTICALS, INC., Buffalo, NY 1983-1986;

WSF INDUSTRIES, INC., Buffalo, NY 1981-1992;

NIAGARA MACHINE AND TOOLS WORKS, Ltd., Buffalo, NY 1972-1979;

MESCO FORMWORKS AND CONSTRUCTION TOOLS, Haifa, Israel 1981-1992;

INTERNATIONAL FERROCEMENT INFORMATION CENTER, AIT, Bangkok, Thailand 1981-1982;

PENNSYLVANIA PLASTICS PRODUCTS, Eldred, PA 1981-1982

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### **PROFESSIONAL ACTIVITIES**

### SPECIAL ASSIGNMENTS

Member of Presidential Review Board (PRB) at University at Buffalo (2005-2007)

Chairman, Decanal Review Committee - School of Informatics, University at Buffalo (2005-2006)

Chairman, International Advisory Board Ben-Guirion University, Program in Structural Engineering (2005-2007)

Member Board of Directors, George E. Brown Jr. Network for Earthquake Engineering Simulation Inc (NEESinc) (2003-2005, Reelected 2005-2008)

Chairman, Data Sharing and Archiving Committee, NEESinc.(2003-2005)

Member of Executive Committee of Multidisciplinary Center for Eartquake Engineering Research (1996-2007)

Director, Structural Engineering and Earthquake Simulation Laboratory, University at Buffalo/CSEE (2000-2007)

Senior Associate Editor, Earthquake Spectra, Journal of EERI (2001-2006)

Chairman, Technical Program Committee, 7<sup>th</sup> US National Conference in Earthquake Engineering, (1999-2002).

Member of Organizing Committee, 7<sup>th</sup> US Conference on Earthquake Engineering (1999-2002)

Corresponding Member of Technical Subcommitte 2 (by invitation) for development of the 2000 NEHRP Provisions for Seismic Regulations for New Buildings Structures, Building Seismic Safety Council, Washinghton, DC., since 1993.

Member of NCHRP 12-49 Project Team - Comprehensive Specifications for the Seismic Design of Bridges - Revised LRFD Specifications (Seismic provisions) - 1998-1999

Member of AD-HOC Committee of the Israeli Council of Higher Education for examination of new programs on Civil Engineering in Israeli Universities, 1998-present

Steering Committee 12ECEE (2001-2002)

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### MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS

NETWORK FOR EARTHQUAKE ENGINEERING SIMULATIONS (NEESinc)- Member (2002), Board of Directors (2003-2008), Chair, Data Sharing and Archiving Committee,

MULTIDISCIPLINARY CENTER FOR EARTHQUAKE ENGINEERING RESEARCH (MCEER) (1997-pres.); - Member Executive Committee and Investigator

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) - Fellow #196569 (1981-pres.); Fellow since December 1, 1994; President Buffalo Section (1993-1994), [President Elect, Vice President, Secretary, (Buffalo Treasurer. Director Section)](1988-1996); Chairman. Committee on Control/Engineering Computations (1991-1994); Member of National Committee Dynamics/Engineering Mechanics Division (1989-1993); Chairman, Structures / Computer Committee, (Buffalo Section 1986-1990); Faculty Adviser, (Buffalo Section 1981-1984)

STRUCTURAL ENGINEERING INSTITUTE (SEI) of ASCE, Fellow #196569 (2000-pres.); (subset of ASCE)

ENGINEERING MECHANICS INSTITUTE (EMI) of ASCE, Fellow #196569 (2005-pres.); (subset of ASCE)

EARTHQUAKE ENGINEERING RESEARCH INSTITUTE (EERI) Member #470 (1986-pres.); Member EERI Committee on Experimental Research, Member of Editorial Board of Earthquake Spectra, Associate Editor (2004-2008)

AMERICAN CONCRETE INSTITUTE (ACI) - Member #3/615694 (1982-2002); Member of Committees: ACI-449 Seismic Loadings, ACI-118 Use of Computers

ASSOCIATION OF ENGINEERS AND ARCHITECTS IN ISRAEL (1969-1979)

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS- Member #0446805

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### **EDITORIAL POSITIONS**

- "Journal of Structural Control and Health Monitoring" Member Editorial Board (2008-pres)
- "The Structural Design of Tall and Special Buildings", Member International Editorial Board (1998present)
- "Earthquake Spectra", Deputy Chief Editor Senior Associate Editor (2003-2008)
- "ASCE/ Journal of Structural Engineering", Assoc. Editor (2001-2004)
- "Advances in Earthquake Engineering," Assoc. Editor (Beskos & Kaussel, eds.)

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#### **REVIEWER**

NATIONAL SCIENCE FOUNDATION/ Earthquake Hazard Mitigation Program;

NATIONAL SCIENCE FOUNDATION/ Engineering Initiation Awards;

AMERICAN CONCRETE INSTITUTE/Structural Journal;

AMERICAN CONCRETE INSTITUTE/Concrete International Journal;

AMERICAN SOCIETY OF CIVIL ENGINEERS/Journal of Structural Engineering;

AMERICAN SOCIETY OF CIVIL ENGINEERS/Journal of Engineering Mechanics;

ASME/Journal of Dynamic Systems, Measurements and Control;

ASME/Journal of Vibration, Acoustics, Stress and Reliability in Design;

JOURNAL OF ENGINEERING ANALYSIS;

JOURNAL OF OPTIMAL CONTROL - Applications and Methods;

JOURNAL OF STRUCTURAL CONTROL AND HEALTH MONITORING;

EARTHQUAKE ENGINEERING and STRUCTURAL DYNAMICS, International Journal; EARTHQUAKE ENGINEERING RESEARCH INSTITUTE - Earthquake Spectra THE STRUCTURAL DESIGN OF TALL AND SPECIAL BUILDINGS;

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### WORKSHOPS / SESSIONS CHAIRMAN

CHAIRMAN, Session on Numerical Methods in Experimental Mechanics, SES, 3rd Annual Meeting, August 1986.; CHAIRMAN/ORGANIZER, Forum on Structural Applications of Protective Systems for Earthquake Hazard Mitigation, NCEER/SUNY, Buffalo, May 1987.: CHAIRMAN, Session on Seismic Behavior of Structural Systems, ASCE/EMD Specialty Conference, Buffalo, May 1987.; VICE-CHAIRMAN, Session on Hardware Innovations, Workshop on Seismic Computer Analysis and Design of Buildings with Interactive Graphics, NCEER/Cornell University, August, 1987; VICE-CHAIRMAN, Sessions on Structural Control and Isolations, ASME/Design Technology Conferences, 11th Biennial Conference on Mechanical Vibrations and Noise, Boston, Sept. 1987; VICE-CHAIRMAN & PANELIST, 3rd Symposium of Seismic Shock and Vibration Isolation, ASME/PVP Conference, Honolulu, Hawaii, July 1989; CHAIRMAN, Session of Workshop: New Trends and Applications of Distributed Parameter Control Systems, Minneapolis, Minnesota, August 7-12, 1989.; CHAIRMAN/Session Organizer, "Active Control of Structural Vibrations - Toward Applications", 8th ASCE/Structures Congress, Baltimore, ME, April 1990; CHAIRMAN/Session on "Seismic Design of Structural Systems", 4th U.S. National Conference on Earthquake Engineering, Palm Springs, CA, May 20-23, 1990; CHAIRMAN/Session Organizer, "Active and Passive Control of Structural Vibrations", 9th ASCE/EMD Specialty Conference, Columbus, OH, May 1991; CHAIRMAN/Session Organizer, "Efficiency of Active Passive and Hybrid Control Systems for Seismic Protection, 9th ASCE/Structures Congress, Indianapolis, IN, May 1991; CHAIRMAN/Session Organizer, "Damage Risk in Design of Seismic Structures", 9th ASCE/Structures Congress, Indianapolis, IN, May 1991; CHAIRMAN/Session Organizer, "Active Control of Space Structures", IASS-CSCE/Congress of Space Structures, Toronto, Canada, July 1992; CO-CHAIRMAN/Organizer, Session on Structural Control, ASCE/Structures Congress 94, Atlanta, May 1994; CHAIRMAN, "Workshop on Damage Quantification and Performance Evaluation," NCEER, San Francisco, Feb. 7-8, 1995; CHAIRMAN/Session Organizer, "Seismic Retrofit of Structures," ASCE/Structures Congress 95, Boston, May 1995. CHAIRMAN/Session Organizer, "Probabilistic Methods in Structural Control," EMD/ASCE/Structures Congress 96, Worcester, June, 1996; SESSION CHAIR, 4<sup>th</sup> World Congress on Joint Sealing and Bearing Systems for Concrete Structures; MEMBER/International Scientific Advisory Committee of First International Symposium on Earthquake Resistant Engineering Structures 96, Oct. 30 - Nov. 1, 1996, Tessaloniki, Greece; SESSION CHAIRMAN/Workshop on Earthquake Engineering - Evaluation, Design, and Practice," Kefar HaMakabiah, Israel, March 97., INTERNATIONAL ADVISORY COMMITTEE, STESSA 2000-Behavior of Steel Structures in Seismic Areas, Aug. 22-24, 2000 Montreal CA; SESSION CHAIRMAN/12 World Conference in Earthquake Engineering, Auckland, New Zealand, SESSION (x2) CHAIRMAN at "Network For Earthquake Engineering Simulation (NEES) Grid Integration, Los Angeles, Nov. 2000, SESSION CHAIRMAN "2002 Structures Congress, INTERNATIONAL ADVISORY COMMITTEE, 2000.; ERES 2001- Earthquake Resistant Engineering Structures, September 4-6, 2001, Malaga, Spain., INTERNATIONAL ADVISORY COMMITTEE, 12<sup>th</sup> European Conference in Earthquake Engineering, London UK, September 2002, CHAIRMAN, TECHNICAL PROGRAM COMMITTEE, 7th US National Conference in Earthquake Engineering, Boaton, MA (1999-2002), Member of Organizing Committee, 7th US Conference on Earthquake Engineering (1999-2002), "Member International Scientific Committee". -12ECEE, 2002, SESSION CHAIRMAN - MODERATOR - ASCE Structures Congress, Seattle May 2003, "Member International Advisory Committee" of STESSA 2003, SESSION CHAIRMAN 13 World Conference in Earthquake Engineering, Vancouver, Canada, 2004, SESSION CHAIRMAN -MODERATOR – 1<sup>st</sup> AESE, Nagoya Japan, Aug 2005, SESSION CHAIRMAN - MODERATOR – 8<sup>th</sup> US Nat'l Conf. in Earthq. Eng., San Francisco, May 2006, INTERNATIONAL ADVISORY BOARD, COMPDYN, Crete, Greece, 2007, 2009; etc.;

< not updated after 2007>.

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### AWARDS AND HONORS

2015 ASCE-Moisseiff Award – "Simulated Bilinear-Elastic Behavior in a SDOF Elastic Structure Using Negative Stiffness Device: Experimental and Analytical Study"

2011 ASCE-Nathan M. Newmark Medal

2007 SUNY Chancellor's Award for Excellence in Scholarship and Creative Activity

2006 UB - University at Buffalo - "Exceptional Scholar" Sustained Achievement Award

2005 NEES Outstanding Service Award - for development of NEES Data Sharing and Archiving

2005 ASCE/CERF Charles Pankow Award for Innovation- "Coupled Truss Walls with Damped Link Elements" (with WSF Cantor-Seinuk, With E.M. Romero(SA), with Taylor Devices Inc, with UB / SUNY) with M.C. Constantinou

2003 UB - University at Buffalo - Clifford C. Furnas Eminent Professor

2002 Engineer of the Year Award, NYSPE

1998 AGC - Build San Diego Award for NCEER project of seismic protection of Naval Station Bldg

1996 Outstanding 1995 Journal Paper Award - Los Angeles Tall Buildings Structural Design Council: "Seismic Performance Analysis of a Multistory Steel Moment Frame Building Damaged During the 1994 Northridge Earthquake" (awarded 1996);

1995 Outstanding Achievements Award - Los Angeles Tall Buildings Structural Design Council: for outstanding contributions to the advancement of state-of-the-art in structural analysis techniques;

1995 Honorable Mention Award of Seventh North American Masonry Conference - "Flexural Behavior of Unreinforced Masonry Shear Walls with Unbonded Reinforcement";

1995 NYSPE/Buffalo Historical Society-Historical Achievement Award: "Active Control Implementation";

1992 Best Paper Award - 3rd World Congress on Joint Sealing and Bearing;

1991 Lady Davis Fellowship/Theresa Palay Manson Lectureship/Technion IIT;

1991 Educator of the Year Award, NYSPE;

1984 ASCE Award for outstanding service;

1967-1968 Merit Scholarship - Technion, I.I.T

1967-1968 Dean's List - Technion, I.I.T

Listed in

"Who Is Who in the World" Marquis Publication (current);

"Who Is Who in the America" Marquis Publication, (current);

"Who Is Who in the East" Marquis Publication, (current);

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### **PATENTS**

"Press Brake Deflection Compensation Structure", <u>US Patent Number 4,586,361</u>, May 6, 1986 (Inventors: A.M. Reinhorn and G.M. Trautman)

"Diagnostic Techniques for Momentarily Operating Machineries" <u>US Patent Number 4,980,844</u>, December 15, 1990 (Inventors: V. Demjanenko, A. Soom, Y. Lee, T.T. Soong, A.M. Reinhorn and D. Benenson)

"Negative Stiffness Device and Method", <u>US Patent Number 8,857,110</u>, October 14, 2014, (Inventors: M.C Constantinou, A.M Reinhorn, A.A Sarlis, D. Taylor, D.A Lee, S. Nagarajaiah and D.T.R Pasala)

"Compact Negative Stiffness Bracing System", <u>US Patent Number 9,206,616</u>, December 8, 2015 (Inventors: A.A Sarlis, M.C Constantinou, A.M Reinhorn, D. Taylor and D.A Lee)

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# **Research Grants**

Re	search and Other Competitive Grants			
1	Active Control of Civil Engineering Structures Under Earthquake Excitations, (w/ T.T. Soong and	1/84-1/86	NSF-ECE-8311756	\$327,802
2	J.N. Yang (GWU)), Grant [1] Power Circuit Breaker Diagnostics (w/D. Benenson, T.T. Soong, A. Soom, Y. Lee and	11/85-11/87	EPRI & NYSERDA	\$260,000
2	V. Demjanenko); EPRI (#2747-1) and NYSERDA (1859-EEED-TD-86)	11/83-11/8/	EPKI & NI SEKDA	\$260,000
3	Seismic Safety of Liquid Storage Plastic Tanks (w/Y.J. Park, & R.L. Ketter; including \$33,500 materials and consulting from sponsor) <sup>1</sup>	3/87-1/88	NALGE/	\$63,687
4	Seismic Performance and Risk, (w/Y.J. Park; in cooperation with Cornell Univ., Lehigh Univ., Rice Univ.) <sup>1</sup>	9/86-9/91	NCEER/NSF/NYS	\$690,748
5	Static and Dynamic Response of Steel Building Frames with Semi-Rigid Connections (in cooperation with Univ. of South Carolina) <sup>1</sup>	9/87-9/89	NCEER/NSF/NYS	\$60,000
6	Active Seismic Control of - Active Bracing System (w/T.T. Soong; including contributions of MTS Corp., MN, USA (\$72,539.00) and Takenaka Company and Kayaba Ind., Japan (\$352,000.00)) <sup>2</sup>	9/87-9/89	NCEER/NSF/NYS	\$568,930
7	Passive Control of Building Structures1	9/87-9/89	NCEER/NSF/NYS	\$100,000
8	Power Circuit Breaker Diagnostics (w/D. Benenson, A. Soom, Y. Lee and V. Demjanenko)	4/88-4/90	EPRI/ NYSERDA	\$200,000
9	Seismic Isolation of Bridge Structures (w/ M. Constantinou; including \$25,000 materials and consulting)1	1/88-1/89	WB &ACME	\$400,002
10	Seismic Qualification of 500 KV DC Capacitor Bank1 and Computer Bank CCVT-230KV1	4/88-9/89	WESTING-HOUSE	\$9,200
11	Active Control of Structures (w/T.T. Soong; incl. contributions from MTS Corp., MN, USA (\$137,309.00) and Takenaka Co. and Kayaba Ind., Japan (\$2,700,000))2	9/89-9/93	NCEER/NSF/NYS	\$3,097,302
12	Seismic Base Isolated Structures Testing and Modeling, (w/M.C. Constantinou & Nagarajaiah), Contributions Watson Bowman & ACME (\$29,000)[2]	9/89-9/90	NCEER/NSF/NYS	\$106,000
13	Inelastic Structures - Modeling and Analysis of R/C Buildings, (w/S.K. Kunnath)1	9/90-9/95	NCEER/NSF/NYS	\$376,787
14	Infilled Frames, (w/J.B. Mander & S.P. Prawel)1	9/90-9/96	NCEER/NSF/NYS	\$185,000
15	Seismic Evaluation of the Tishman Building, Buffalo, N.Y. (w/S.K. Kunnath) <sup>1</sup>	9/90-5/91	NY-NF/ National Fuel	\$16,000
16	Seismic Performance of Bridge Structures - Analytical Modeling, (w/S.K. Kunnath)1	10/90-5/91	NIST	\$23,000
17	Development of 3-D Basis computer program for Base Isolated Structures1 Demonstration Tower for Active Control in Akron, Ohio1	9/91-8/92	CIRD	\$23,800
18	Energy Dissipation Systems, Hybrid Control Systems, and Elastomeric Isolation Systems,1	9/92-8/96	NCEER/NSF/NYS	\$242,250
19	Retrofit of R/C Structures Using Conventional and Complementary Damping1 (contribution \$35,000 Sumitomo Co., Japan & \$16,500 Tekton Co., US)	9/93-9/94	NCEER/NSF/NYS	\$252,252
20	Analytical Modeling of Bridge Structures, (w/M.C. Constantinou)1	9/93-9/95	NCEER/NSF/NYS	\$133,000
21	Seismic Qualific. of ThermalockTM Block Walls,1	9/93-9/94	THERMALOK / DOE	\$16,400
22	US/PRC Cooperative Research Program in Structural Control, (w/T.T. Soong PI/PD)	10/94-9/97	NSF-CMS-941234	\$457,000
23	Seismic Strengthening of a Navy Building with Viscoelastic Dampers, (Fac. Assoc.w/T.T. Soong, PI/PD)	10/94-3/98	US / NAVY	\$1,419,300
24	University Industry Research Program - Seismic Design of ThermalockTM Block Walls,1	10/94-10/95	NYSERDA	\$49,890
25	"Analytical Modeling of Bridge Structures, (PI/PD w/M.C. Constantinou)1	9/93-9/97	NCEER/NSF/NYS	\$222,400

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26	Parametric evaluation of differential ground motions in bridge structures (PI/PD w/I.Buckle)1	4/95-3/97	NCEER/FHWA	\$128,000
27	Development of Nonlinear Static procedure for Rapid Analysis and Design of Highway Bridges1 (PI/PD)	11/97-9/98	NCEER/FHWA	\$95.00
28	Fragility Evaluation and Calibration1 (PI/PD)	11/97-10/00	MCEER/NSF/NYS	\$186.00
29	Networking of Computational and Experimental Facilities1	11/98-10/00	MCEER/NSF/NYS	\$86.00
30	Equipment Grant for Video-Conferencing System1	11/98-10/99	MCEER/NSF/NYS	\$15.00
31	Development of Analytical Tools for Analysis1	11/99-10/00	MCEER/NSF/NYS	\$26.00
32	Networking of Computational and Experimental Facilities1	11/00-10/01	MCEER/NSF/NYS	\$29,729
33	Development of Analytical Tools for Analysis1	11/00-10/01	MCEER/NSF/NYS	\$84,610
34	Seismic Fragility and retrofit of non-ductile r/c stuctures2 (w/Tsopelas PI/PD)	06/01-5/02	NSF-CMS-0085261	\$74,999
35	Large Scale High Performance Testing Facility1 PI/PD w/others	01/01-09/04	NSF-CMS-0086611	\$4,379,865
36	Versatile High Performance Shaking Tables1 PI/PD w/others	01/01-09/04	NSF-CMS-0086612	\$6,160,685
37	US-Japan Facilities Evaluation (w/ Theva PI/PD)	04/01-09/01	NSF-CMS-0120634	\$36,800
38	Localized velocity-based energy dissipation systems - Advanced technologies and data for validation of integration methodologies (PI/PD)	10/02-09/03	MCEER/NSF/NYS	\$79,406
39	Networking of Computational and Experimental Facilities 1 Coordination and Networking Infrastructure	10/02-09/03	MCEER/NSF/NYS	\$54,592
40	Seismic Retrofit of Lifeline Systems: Shaking Table Tests for Fragility of Electric Transformers	10/02-9/03	MCEER/NSF/NYS	\$44,666
41	Definition and quantification of resilience – A center-wide system-integrated resilience measures	10/02-9/05	MCEER/NSF/NYS	\$45,000
42	Networking of Experimental Facility – NEES Supplemental Grant1	06/03-9/05	NSF-CMS-0086612	\$458,540
43	Advanced Data Acquisition – NEES Supplemental Grant1	06/03-9/04	NSF-CMS-0086612	\$118,000
44	Behavior of Braced Steel Frames with Innovative Bracing Schemes – Leon (GIT), /Reinhorn-PI / Bruneau (UB), Moehle (Berkeley), Shing (Colorado),	10/03-9/04	NSF-CMS-0324277	\$177,681
45	NEES Consortium Operation: FY 2005-2014 (w Buckle (PI/PD), R, Leon, C Pancake, T, Anagnos, A Reinhorn Co-PIs) - in behalf of NEESInc	10/04-9/09	NSF-CMS-0402490	\$106,848,913
46	Sesismic Global Retrofit of Structures by Strength Reduction and Damping Enhancement (PI/PD)	10/04-9/07	MCEER/NSF/NYS	\$233,500
47	Networking of Experimental and Computational Facilities (PI/PD)	10/04-9/07	MCEER/NSF/NYS	\$154,000
48	Seismic Retrofit of Lifelines: Fragility of High Voltage Electrical Equipment: Bushings and Disconnect Switches (PI/PD)	10/04-9/07	MCEER/NSF/ EPRI	\$133,000
49	Quantification of Resilience Dimensions for Specific Facilities -(w/Bruneau PI/PD, Tierney, Shinozuka, Chang, Rose, Davidson, Filiatrualt)	10/04-9/07	MCEER/NSF/NYS	\$41,650
50	Maintenance, Operations, and Management of NEES services of Structural Engineering and Earthquake Simulation Laboratory (Reinhorn PI/PD, w Bruneau, Constantinou, Whittaker and Filiatrault)	10/04-9/09	NSF/NYS (NEESinc)	\$7,373,625
51	Hamiltonian Methods for Dynamic Analysis of Detriorrating Structuresin Multi-Hazard Environments (w/Dargush PI/PD)	10/05-9/07	MCEER/NSF/NYS	\$110,000
52	Analysis of Collapse of Structures (PI/PD w/G Dargush, M Sivaselvan, O. Lavan) incl \$90,000 at U Colorado	10/05-9/07	CUREE-KAJIMA	\$120,000
53	Analysis of Collapse of Structures (PI/PD w/G Dargush, M Sivaselvan, O. Lavan) incl \$80,000 at U Colorado-renewed	04/08-03/10	CUREE-KAJIMA	\$100,000
54	Quantification of Organizational Resilience for Health Care Facilities -(w/Bruneau PI/PD)	10/06-09/09	DHS/PACER	\$132,000

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55	NEESR-GC- Nonstructural Components (Filiatrault PI, CoPI UB) - AMR -Share \$54,163	10/07-09/12	NSF-CMMI-0721399	\$765,499
56	Seismic Evaluation and Modeling of Transformers (Reinhorn, PI-PD, Filiatrault CoPI)	06/08-03/09	BONEVILLE.P.AD.	\$129,000
57	NEESR-SG- Adaptive Control (Nagarajaiah PI-PD, Reinhorn, PI- UB, Constantinou, Co-PI)-UB Share \$467,780	10/08-09/12	NSF-CMMI-0830391	\$1,600,000
58	Improved Seismic Perfomance of Transformer Bushings (Reinhorn, PI-PD, Filiatrault CoPI)	10/08-03/10	CALIF.ENERG.COM	S <b>\$241,43</b> 0
59	Seismic Protection of Transformers and Substation Equipment (Reinhorn, PI-PD, Filiatrault CoPI, Constantinou, CoPI)	04/08-09/12	BONEVILLE.P.AD.	\$1,170,000
60	A Framework for Defining and Measuring Disaster Resilience at the Community Scale(Reinhorn, PI-PD,Bruneau, CoPI, Renschler, CoPI)	09/09-09/10	NIST- 60NANB9D9155_0	\$69,751
			<u>C</u>	o to List of Sections
Ma	jor Capital Equipment & Service Grants			
1	Automated Control/Data Acquisition System for Buffalo's Earthquake Simulator (Faculty associate w/G.C. Lee Principal Investigator)	1983	NSF	\$197,824
2	Earthquake Engineering and System Dynamics Research Center, (Faculty Associate w/R.L. Ketter, Center Director)	10/85-10/86	SUNY/Buffalo	\$100,000
3	Addition and Expansion of Ketter Hall - Structural Engineering and Earthquake Engineering Laboratory	1999-2003	State of New York	\$9,000,000
			<u>C</u>	o to List of Sections
Int	ernational Travel Grants			
1	International Travel Grant for International Symposium on ferrocement, Bangkok 1985.(Recommended by ACI/Committee 549).	1/1/85	NSF	\$1,500
2	International Travel Grant for 9th World Conference on Earthquake Engineering (9WCEE - Tokyo, Japan). (Award based on national competition).	8/1/88	NSF/EERI	\$1,610
3	International Travel Grant for Milestone Meeting on Active Control (Japan). Taknaka, Kayaba	8/1/88	TAKENAKA	\$2,000
4	Workshop on Energy Methods - Bled, Slovenia	7/1/92	NSF/Stanford	\$1,600
5	US/China/Japan Trilateral Workshop on Active Control, Shanghai, China	10/1/92	NSF	\$2,000
6	US/Japan Workshop on Active Control, Hawaii, U.S.	8/1/93	NSF/USC	\$2,000
7	Workshop on Energy Methods - Bled, Slovenia	6/1/97	NSF/Stanford	\$1,600
8	Workshop on Energy Methods - Bled, Slovenia	6/4/06	NSF/PEER	\$1,600
			<u>C</u>	So to List of Sections
Su	mmary Grants			
	Research and Other Competitive Grants			\$15,633,012
	Special Equipment Grants (NEES)			\$17,914,175
	Group Organization Grants			\$106,848,913
	Major Capital Equipment & Service Grants			\$9,297,824
	International Travel Grants			\$13,910

### **PUBLICATIONS**

BOOKS	
BOOKS CHAPTERS.	
REVIEWED PAPERS IN JOURNALS	
REVIEWED PAPERS IN EDITED BOOKS	
SECTIONS IN CODES AND STANDARDS	
COMPUTER SOFTWARE - INTERNATIONAL DISTRIBUTION	12
PAPERS IN CONFERENCE PROCEEDINGS (including presentations)	
M(N)CEER REPORTS.	
MISCELLANEOUS TECHNICAL REPORTS.	

### **HONORARY BOOK**

1. "Computational Methods, Seismic Protection, Hybrid Testing and Resilience in Earthquake Engineering - A Tribute to the Research Contributions of **Prof. Andrei Reinhorn**" (2015), Cimellaro, G. P., Nagarajaiah S., and Kunnath S.K. (eds.), *Geotechnical, Geological and Earthquake Engineering Series*, Vol 33, Springer International Publishing Co., 329p, (ISBN 978-3-319-06393-5)

The book is a tribute to the research contribution of Professor Andrei Reinhorn in the field of earthquake engineering. It covers all the aspects connected to earthquake engineering starting from computational methods, hybrid testing and control, resilience and seismic protection which have been the main research topics in the field of earthquake engineering in the last 30 years. These were all investigated by Prof. Reinhorn throughout his career. The book provides the most recent advancements in these four different fields, including contributions coming from six different countries giving an international outlook to the topics.

## **BOOKS - MONOGRAPHS**

- Deierlein, G.G., Reinhorn A.M. and Willford, M.R. (2010), "Nonlinear Structural Analysis for Seismic Design- A Guide for Practicing Engineers", NEHRP Seismic Design Technical Brief No. 4, produced by NEHRP Consultants Joint Venture Partnership of Applied Technology Council and Consortium of University for Earthquake Engineering research for the National Institute of Standards and Technology, Gaithersburg, MD, (NIST GCR 10-917-5)
- 3. Chu, S.Y., Soong, T.T. and Reinhorn, A.M. (2005) "Active, Hybrid, Semi-Active Structural Control A Design and Implementation Handbook", John Wiley and Sons (ISBN-13 978-0-470-01352-6)
- 4. Falconi, R. A, Barbat, A. H., Reinhorn A.M. and C.J. (1993), "Seismic Damage and Vulnerability in Reinforced Concrete Structures", Editorial ESPE, Ejecito Polytechnic School, Santa Clara-Valle de Los Chillos, Ecuador (ISBN-9978-92-057-9), (in Spanish)

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- Cimellaro, G.P. Reinhorn, A.M. and Bruneau M. (2015), "<u>Chapter 9: Metamodel Assisted Performance-Based Optimization for Hospital Systems</u>", in N.D. Lagaros, Y. Tsompanakis and M. Papadrakakis, (Editors), "New Trends in Seismic Design of Structures", Saxe-Coburg Publications, Stirlingshire, UK, Chapter 9, pp 241-288, 2015. doi:10.4203/csets.37.9
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- 9. Constantinou, M.C., Reinhorn, A., Tsopelas, P., and Nagarajaiah, S. (1999), "Techniques in nonlinear dynamic analysis of seismic isolated structures," in Structural Dynamic Systems Computational Techniques and

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- 12. Ryu, K.P. and Reinhorn, A.M., (2017), "Analytical study of large area suspended ceilings", in *Journal of Earthquake Engineering*, xx: xxx-xxx, DOI:10.1080/13632469.2017.1326416
- 13. Shmerling A., Levy R. and Reinhorn, A.M., (2017), "Seismic retrofit of frame structures using passive systems based on optimal control", Journal of Structural Control and Health Monitoring, 24(2), xxx-xxx, DOI: 10.1002/stc.2038 (on-line)
- 14. Ryu, K.P. and Reinhorn, A.M., (2017), "Real Time Control of Shake Tables for Nonlinear Hysteretic Systems", in *Journal of Structural Control and Health Monitoring*, 24(2), xxx-xxx, DOI: 10.1002/stc.1871 (on-line)
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- 615. Gluck, J. and Reinhorn, A. (1975), "Dynamic Eccentricity of Static Equivalent Earthquake Loads in Asymmetric Building Structures". Unpublished Report (private distribution only), Fac. of Civ. Eng. Technion, I.I.T., Haifa, Israel, Sept. 1975

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#### **LECTURES**

#### INVITED LECTURES

- 1. Technion Israel Institute of Technology, "Real Time Control of Shake Tables for Nonlinear Hysteretic Systems", Seminar Series, Faculty of Civil Engineering, May 21, 2017, (Invited Speaker)
- 2. UB/EERI Seminar Lecture, "Passive Control of Structures using Apparent Weakening and Damping for Seismic Protection", Friday, March 9, 2017, (Invited Speaker)
- 3. University of Florence, Department of Architectural and Structural Engineering, "Introduction to disaster management of communities using resilience based design", Florence, Italy, "Control of Seismic Response of Structures using Protective Devices", Engineering Seminar and Workshop, April 1, 2016 (Invited Speaker)
- 4. Technion Israel Institute of Technology, "Adaptive Passive Stiffness Shaping using NSD and Apparent Weakening for Seismic Protection", Seminar Series, Faculty of Civil Engineering, March 20, 2016, (Invited Speaker)
- 5. Association of Engineers and Architects-Catania Province, Italy and the Department of Engineering and Architecture of University of Catania, Italy, "Adaptive Passive Stiffness Shaping and Apparent Weakening for Seismic Protection", Engineering Seminar, May 30, 2014 (Invited Speaker)
- 6. Association of Engineers and Architects-Catania Province, Italy and the Department of Engineering and Architecture of University of Catania, Italy, "Control of Seismic Response of Structures Using Protective Devices", Engineering Seminar, May 23, 2014 (Invited Speaker)
- 7. EERI / NEES Webinar, "Adaptive Passive Stiffness Shaping using NSD and Apparent Weakening for Seismic Protection", March 17, 2014 (Invited Group Speakers)
- 8. FIB Symposium of International Federation of Concrete, "Seismic Analyses of Damageable Concrete Structures", Tel-Aviv, Israel, April 22-24, 2013, (Plenary Keynote Invited Speaker)
- 9. UB/EERI/T.T.Soong Distinguished Seminar Lecture, "Control of Inelastic Structures by Weakening and Damping", Friday, April 5, 2013, (Invited Speaker)
- 10. The Metropolitan Autonomous University of Mexico City, Department of Civil and Environmental Engineering, "Control of Inelastic Structures by Weakening and Damping", Seminar Lecture, February 22, 2013, (Invited Speaker)
- 11. The Mexican Society of Structural Engineering, Inc. and the Engineering Institute at National Autonomous University of Mexico, "Control of Inelastic Structures by Weakening and Damping", Engineering Seminar, February 21, 2013, (Invited Speaker)
- 12. Rice University, "Control of Inelastic Structures by Weakening and Damping", Seminar Lecture, Department of Civil and Environmental Engineering, November 2, 2012, (Invited Speaker)
- 13. University of Houston, "Control of Inelastic Structures by Weakening and Damping", Distinguished Lecture Series, Department of Civil and Environmental Engineering, November 2, 2012, (Invited Speaker)
- 14. ASCE/SEI Invited Plenary Lecture "Control of Inelastic Structures by Weakening and Damping", Keynote Lecture at the 20th Analysis and Computation Specialty Track, March 27, 2012, (Invited Speaker)
- 15. Technion Israel Institute of Technology, "Weakening and Damping for Control of Seismic Response of Structures", Seminar Series, Faculty of Civil Engineering, January 5, 2011, (Invited Speaker)
- 16. University of Notre Dame, Seminar Series, Department of Civil and Geological Engineering, "Integral Design of Controlled Resilient Structures", September 15, 2010, (Invited Speaker)
- 17. Public Safety Canada, Ottawa, Ontario, "Conceptual Aspects of Disaster Resilience A Framework for Defining and Measuring Disaster Resilience at the Community Scale", June 22, 2010, (Invited Speaker)
- 18. National Institute of Standards and Technology (NIST) "Quantification of Seismic Resilience Extending to Multiple Hazards", Washington, April12, 2009, (Invited Speaker)
- 19. UB/SUNY/Structural Engineering lecture series Fall Semester 2008 "Optimal Design of Controlled Structures", Monday, October 20, 2008, (Invited Speaker)
- 20. United States Japan Panel on Wind and Seismic Effects 40-th Joint Meeting (UJNR), "Developing Resilient high-Rise Buildings Using Optimally Controlled Structural Systems", Washington, May 19-21, 2008, (Invited Speaker)
- 21. Technion Israel Institute of Technology, "Corotational formulation for analysis of frame structures with material and geometric nonlinearities", Seminar Series, Faculty of Civil Engineering, November 25, 2007, (Invited Speaker)
- 22. Technion Israel Institute of Technology, "Hybrid Simulation of Structural Systems, A Unified Approach to Combined Physical and Computational Simulations", Seminar Series, Faculty of Civil Engineering, November 11, 2007, (Invited Speaker)

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23. Rice University, "Hybrid Simulation of Structural Systems, - A Unified Approach to Combined Physical and Computational Simulations", Seminar Series, Department of Civil Engineering, October 29, 2007, (Invited

- 24. Texas A&M University, "Hybrid Simulation of Structural Systems, A Unified Approach to Combined Physical and Computational Simulations", Seminar Series, Department of Civil Engineering, October 26, 2007, (Invited
- 25. 12th US-Japan Workshop / ATC-15-11 Seminar, "Earthquake Simulator Testing and Evaluation of Suspended Ceiling System", Kauai, HI, October 12, 2007, (\*Invited Lecture and Paper),
- 26. Kajima Corp, Tokyo-Japan, "Analytical Issues In Progressive Collapse of Structures: Applications in Structural and Earthquake Engineering, , October 2, 2007, (Invited Speaker)

  27. The National Academies – Washington, DC- 20<sup>th</sup> Disaster Roundtable: Science, Technology and Decision
- Support Tools, "Moving Toward Multi-hazard Research at MCEER", June 28, 2007, (Invited Speaker)
- 28. ECCOMAS (2007) Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, , Rethymno, Crete, "Mixed Lagrangian Formulation in Analysis of Collapse of Structures", June 15, 2007, (Keynote lecture)
- 29. Technion Israel Institute of Technology, "Hamiltonian-Lagrangian Approach to Collapse Analysis of Structures", Seminar Series, Faculty of Civil Engineering, December 25, 2005, (Invited Speaker)
- 30. Kajima Corp, Tokyo-Japan, "Analytical Issues In Progressive Collapse of Structures: Applications in Structural and Earthquake Engineering, September 7, 2005
- 31. Technion Israel Institute of Technology, "Seismic Resilience: A comprehensive engineering-economicalsocietal and political approach" Seminar Series, Faculty of Civil Engineering, (Invited Speaker), April 28, 2005
- 32. MCEER Seminar at the California Office of State health Planning and Development (OSHPD), Engineers and Researchers (50), Sacramento, February 25, 2005
- 33. 13th World Conference on Earthquake Engineering, Vancouver, Canada, August 2004, Bruneau, M., Reinhorn, A., Constantinou, M., Whittaker, A., Thevanayagam, S., "The UB-NEES Versatile High Performance Testing Facility", - CD-ROM paper #1577
- 34. Workshop on "Performance-Based Seismic Design (PBSD) -- Concepts and Implementation", Bled Slovenia, June 28-July 1, 2004, Bruneau M. and Reinhorn, A. M. - paper - "Seismic Resilience of Communities -Conceptualization and Operationalization"
- 35. Workshop on "Performance-Based Seismic Design (PBSD) -- Concepts and Implementation", Bled Slovenia, June 28-July 1, 2004 - Reinhorn, A. M. Sivaselvan, M.V, Liang Z, and Shao X. –paper - "Real-time Dynamic Hybrid Testing of Structural Systems",
- 36. 14th Israeli Congress of Civil Engineers / 9th Israeli Congress of Earthquake Engineering, "Seismic Retrofit Through Weakening and Damping", (Keynote Speaker), Tel-Aviv, Israel, November 17-19, 2003.
- 37. Buffalo Historical Society: "Technical Issues in Construction of Tall Structures Historical Perspective", (Invited Lecture), Buffalo, NY October 23, 2002
- 38. ECO Leader Workshop, "Real Time Dynamic Hybrid Testing System New Testing Technology" (Invited Lecture), Oxford UK, Sept 2002
- 39. 2002 Northeastern University, "Protective Systems for Structural Vibration Control", (Invited Lecture), May
- 40. Eighth Chilean Conference on Seismology and Earthquake Engineering "Modern Methods of Seismic Protection - Base Isolations and More..." (Invited Key Note Lecture), April 26-28, 2002
- 41. NYSPE, Buffalo: "Forensic engineering at ground zero", (Invited lecture), NY, November 2001
- 42. UB SEAS Dean's Council: Bruneau, M., Reinhorn A., and Whittaker, A. "Structural Engineering Reconnaissance at Ground Zero", Buffalo, NY, October 2001
- 43. American Society of Civil Engineers, Buffalo Chapter: Bruneau, M., Reinhorn, A., and Whittaker, A. "Structural Engineering Reconnaissance at Ground Zero", (Invited Lecture), Buffalo, NY, October 2001
- 44. Cornell University, "Analysis and Design Toward Performance Based Engineering" (Invited Lecture), April 8,
- 45. Army Corp of Engineers / MCEER Short Course on Structural Assessment after Earthquakes Building Structural Damage during Earthquakes (Invited Lecture), University at Buffalo, July 26.2001
- 46. Georgia Institute of Technology, "Seismic retrofit of Structures Designed for Gravity Loads Only -Conventional and Advanced Technologies ", (Invited Lecture), February, 7, 2001
- 47. National Science Foundation, "Teleparticipation- new approach in experimentation", February 22, 2001, (Invited Lecture)
- 48. Joint Research Center of European Community, "Spectral Evaluation of Seismic Fragility of Structures", (Invited Lecture) Ispra, Italy, Oct. 12, 1999.
- 49. University of Pavia, "Structural Control for Seismic Mitigation", (Invited Lecture Series), Pavia, Italy, Oct. 6 -Oct 14, 1999.

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50. Israeli Association of Engineers And Architects, "Modern Methods of Seismic Protection of Structures-Structural Control", (Invited Lectures Series), Tel-Aviv, Israel, Nov-Dec, 1999

- 51. Technical University of Civil Engineering Bucuresti, "Spectral Evaluation of Seismic Fragility of Structures", (Invited Lecture in Romanian), Bucharest, Romania, July 2, 1999.
- 52. 12<sup>th</sup> Israeli Congress of Civil Engineers / 7<sup>th</sup> Israeli Congress of Earthquake Engineering, "Towards performance based design in new seismic standards", (Keynote Speaker), Tel-Aviv, Israel, April 28-29, 1999.
- 53. Technion Israel Institute f Technology, "Fragility of structures as measure of seismic performance" Seminar Series, Faculty of Civil Engineering, (Invited Speaker), April 26, 1999
- 54. MCEER / Tri Centers Oversight Committee Meeting, "Graduate Earthquake Education A New Concept", (Invited Speaker), U/C Berkeley, July 23, 1998
- 55. EERI / FEMA Workshop on Performance Based Design "State of the art on analyses methods for performance evaluation and design" (Invited Paper and Speaker), San Diego, July 22, 1998
- 56. US-Italy Workshop on Protective Systems for Bridges, "Sensitivity of Inelastic Seismic Response of Base Isolated Bridges," (Invited Paper), New York, April 26-28, 1998.
- 57. ASCE/Civil Engineering Night Meeting, Buffalo, NY, (Invited Speaker) "Future Directions in Civil Engineering Education". April 16,1998
- 58. EERI 1997 New York Regional Seminar on Seismic Engineering Issues, "R/C Structures in Moderate Seismic Zones- Research, (Invited Speaker), New York, November, 6, 1997
- 59. "Workshop On Earthquake Engineering Evaluation, Design And Practice," (Chaired Session) Kefar HaMakabiah, Israel .March 13, 1997,
- 60. 4<sup>th</sup> World Congress on Joint Sealing and Bearing Systems For Concrete Structures, (Chaired Session ) on Seismic Systems 9/29-10/3 Sacramento, CA., Oct 1996
- 61. 12<sup>TH</sup> US-Japan Bridge Engineering Workshop, (UJNR Panel on Wind and Seismic Effects), "Experimental Study of Ball-In-Cone Isolation System," (Invited Paper), October 1996.
- 62. Los Angeles Tall Buildings Structural Design Council/Practicing Engineers, "Inelastic Analysis of Structures," (Keynote Speaker), May 10, 1996.
- 63. ASCE/Structures Congress, Chicago, IL, "Fuzzy Sets of Control of Hybrid Systems," (with M. Riley and R. Subramaniam), April 16, 1996.
- 64. EERI Annual Meeting/Northridge Testing/Los Angeles, "Influence of Spatial Variation on Bridge Structures," (Invited Speaker), February 3, 1996.
- 65. Workshop On Seismic Retrofit of Structures, NIST, Washington "State-of-the-Art on Retrofitting Supplemental Dampers," (Invited Speaker), June 1995.
- 66. ACI/Bridge Research Council, Montreal, Canada, "Influence of Spatial Variation of Ground Motion on Bridge Structures," (Invited Speaker), November 9, 1995.
- 67. NIST/National Institute for Standards and Technology Workshop on Seismic Retrofit, "Retrofit of Structures with Supplemental Damping," (Invited Speaker), June 2, 1995.
- 68. NYSPE Buffalo Section, "Active Structural Control", Professional meeting (Invited Speaker) Dec. 6, 1995
- 69. Technion Israel Institute of Technology, "Retrofit of Structures with Supplemental Damping," Seminar Series, Faculty of Civil Engineering, (Invited Speaker), March 20, 1995.
- 70. University of Notre Dame, "Design of Supplemental Damping in Seismic Retrofit of Structures," (Invited Speaker), November 18 1994.
- 71. Center for Infrastructure Research & Development/Tokyo, Japan, "Briefing on Structure Aspects of Northridge Earthquake," (Invited Speaker), March 14, 1994.
- 72. ASCE/BUFFALO Section, Buffalo, N.Y., "Overview of January 17, 1994 Northridge Earthquake" (Invited Speaker), February 25, 1994.
- 73. NCEER/Buffalo, N.Y., "Technical Briefing on Northridge Earthquake," (Invited Speaker), February 11, 1994.
- 74. Cornell University, "Seismic Retrofit of Reinforced Concrete Structures Conventional and Innovative Systems," (Invited Speaker), February 3, 1994.
- 75. Rensselaer Polytechnic Institute, "Active Control of Motion in Building Structures," (Invited Speaker), October 28, 1993.
- 76. Athens Polytechnic University, Athens, Greece, "Protective Systems in Structures from Base Isolations to Active Control," (Invited Speaker), June 17, 1993.
- 77. University of Naples, Naples, Italy, "Seismic Retrofit of Gravity Load Designed Structures," (Invited Speaker), June 10, 1993.
- 78. University of Naples, Naples, Italy, "Protective Systems in Structures from Base Isolations to Active Control," (Invited Speaker), June 4, 1993.
- 79. University of Rome, (LaSapienza), Faculty of Engineering Italy, "Vibration Protective Systems in Structures from Base Isolations to Active Control," (Invited Speaker), May 28, 1993.

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80. Swiss Federal Institute of Technology (E.T.H.) - Zurich, Switzerland, "Vibration Protective Systems in Structures from Base Isolations to Active Control," (Invited Speaker), May 25, 1993.

- 81. Technion/Israel Institute of Technology, Haifa Israel, "Full-Scale Implementation of Active Control," (Invited Speaker), May 5, 1993.
- 82. McGill University, Montreal, Canada, "Full Scale Implementations of Active Structural Control," (Invited Speaker), May 1992.
- 83. Technion/Israel Institute of Technology, Haifa Israel, "Seminar Series (3 presentations) on Active Control of Structures toward Applications," (Invited Speaker), May 1991.
- 84. University of Colorado at Boulder, "Seismic Damage of Reinforced Concrete Structures Evaluation and Design Issues", (Invited Speaker Seminar Series), November 15, 1990.
- 85. ASCE/North Jersey Branch New Jersey Section, Newark, New Jersey, Fall Seminar, 1990, (Invited Speaker) "Seismic Damage and Detailing of Non-Seismically Designed Buildings".
- 86. National Taiwan University/MTS Corporation, "Modeling of Structures and Scale Model Studies", (Invited Speaker at Workshop/Seminar on Experimental Methods Using Shaking Tables), July 30-31, 1990, Taipei, Taiwan.
- 87. National Taiwan University/MTS Corporation, "Active Control of Structures", (Invited Speaker at Workshop/Seminar on Experimental Methods Using Shaking Tables), July 30-31, 1990, Taipei, Taiwan.
- 88. Israel Association for Earthquake Engineering/Israel Association for Civil Engineering, "Design and Retrofit of Buildings Based on Damageability Assessment", Keynote Speaker at Conference on Recent Advances in Earthquake Engineering, February 20, 1990, Ramat Gan, Israel.
- 89. Cornell University/Structures Seminar, Ithaca, New York, (Invited Speaker), "Seismic Damage Assessment of R/C Structures", October 3, 1989.
- 90. Technion/Israel Institute of Technology, Haifa Israel, "A New Deterministic Model For Seismic Damage Assessment of R/C Structures", (Invited Speaker), July 2, 1989.
- 91. Polytechnic University of Catalunia, Barcelona, Spain, "Motion Control of Sliding Base Isolated Structures", International Center of Numerical Methods In Engineering, (Invited Speaker), June 5, 1989.
- 92. Polytechnic University of Catalunia, Barcelona, Spain, "Damage Model for R/C Components and Structures. Seismic Damage Assessment of R/C Structures", International Center of Numerical Methods In Engineering, , (Invited Speaker), June 7, 1989.
- 93. ASCE/Metropolitan Section Monthly Dinner, New York, NY, (Invited Speaker) "Applications of Current Seismic Research on Practical Design.", April 6, 1989 canceled due to hospitalization.
- 94. Lehigh University Seminar Lectures, (Invited Speaker), "Active Control of Building Structures", Bethlehem, PA March, 15, 1989.
- 95. ASCE/Mohawk and Upper Hudson Valley Seismic Design of Structures Seminar, (Invited Speaker). , Albany, NY, February 2, 1989
- 96. APWA/American Public Work Association Annual Spring Meeting, Invited Speaker on "Earthquake Resistant Design". Buffalo May 1-4, 1988,
- 97. NYSPE/Buffalo Section, Invited Speaker: "Impact of NCEER on Local and National Industries". Buffalo. NY, September 21, 1987
- 98. US/P.R. China-Working Group, "Construction in Seismic Areas", (Invited Speaker), "Protective systems for Earthquake Hazard Mitigation". NCEER/SUNY/Buffalo July 29, 1987
- 99. US/USSR-Working Group "Construction in Seismic Areas", (Invited Speaker) "Experimental Studies on R/C Structural Components". NCEER/SUNY/Buffalo June 2-3, 1987
- 100. Technion/Civil Engineering Seminar Series, "Active Control and Protective Systems for Seismic Structures", (Invited Speaker). Haifa, Israel, January 11, 1987
- 101.ASCE-FEAS/Workshop on Micro-computers in Civil Engineering Practice, (Instructor/Speaker) "Microcomputers in Structural Engineering Hands-On Instruction". Buffalo, NY Jan. 8-9, 1985
- 102.McMaster University Seminar Lectures, (Invited Speaker) "SUNY/Buffalo Earthquake Simulator Capabilities and Outlook". Hamilton, Ontario, Canada, April 18, 1984
- 103.ASCE/Civil Engineering Night Meeting, (Speaker) "Civil Engineering Profession". Buffalo, NY, October 6, 1982
- 104.ASCE/Buffalo Section Monthly Dinner, (Invited Speaker) "Earthquake Engineering Experimental Approach". Buffalo, NY, April 13, 1981
- 105.Technion/Structural Engineering Seminar Series, (Speaker) "Static and Dynamic Torsional Coupling of Structures with Earthquake Excitations". Haifa, Israel, April 18, 1978

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# LECTURES IN SEMINARS/CONFERENCES W/O PROCEEDINGS

- 1. SUNY/Civil Engineering Seminar Series, Buffalo, NY, March 7, 1980 (Speaker) "Dynamic Torsional Coupling in Building Structures".
- 2. SUNY/Civil Engineering Seminar Series, Buffalo, NY, Feb. 24, 1981 (Speaker) "Experimental Methods in Earthquake Engineering".
- 3. SUNY/Civil Engineering Seminar Series, Buffalo, NY, September 25, 1981 (Speaker) "Alaskan Earthquake".
- 4. ASCE/NYSPE Workshop on Computers in Engineering Practice, Buffalo Convention Center, Buffalo, NY, Nov. 16, 1982 (Speaker) "Use of Micro-computers in Small Civil/Structural Engineering Companies".
- 5. ASCE/Structures and Computers Committee Meeting, NY, Nov. 27, 1984 (Speaker and Earthquake Simulator Demonstration).
- 6. ASCE/Structures and Computers Committee Meeting, Buffalo, NY Feb. 26, 1985 (Speaker & Demonstration) "Structural Design Using Lotus 1-2-3 on Microcomputers".
- 7. SUNY/Civil Engineering Seminar, Buffalo, NY, April 1985 (Speaker) "Active Control of Building Structures".
- 8. ASCE/Structures and Computers Committee Meeting, Buffalo Nov. 25, 1986 (Speaker): "Active Control of Building Structures during Earthquakes".
- 9. ASCE/Structures and Computers Committee Meeting, Buffalo, Feb. 3, 1987, (Speaker and Instructor), "Hands-on Design of R/C and P/C Elements Using Spread Sheets".
- 10. Gao, Q., Park, Y.J. and Reinhorn A., "Deterioration of R.C. Columns Under Earthquake Loading", Abstracts of ASCE/Engineering Mechanics Division Specialty Conference, Buffalo, May 1987.
- 11. Lin, R.C., Chung, L.L., Soong, T.T. and Reinhorn, A., "Experimental Evaluation of Optimal Control Algorithms for Seismic Applications", <u>Abstracts</u> of ASCE/Engineering Mechanics Division Specialty Conference, Buffalo, May 1987.
- 12. Reinhorn, A., Park, Y.J., Wen, C., Choudhury, I.A. nd Caspe, M.S., "Experimental Verification of an Earthquake Protection System", <u>Abstracts</u> of ASCE/Engineering Mechanics Division Specialty Conference, Buffalo, May 1987.
- 13. Kunnath, S.K., Park, Y.J. and Reinhorn, A., "Substructuring Technique for Shaking Table Testing", Abstracts of ASCE/Engineering Mechanics Division Specialty Conference, Buffalo, May 1987.
- 14. ASCE/Structures and Computers Committee Meeting, Buffalo, Nov. 5, 1987, (Speaker), "Preliminary Reconnaissance Report on Whittier Earthquake (Los Angeles) of Oct. 1, 1987".
- 15. SUNY/Seminar on Structural Engineering Research series, Buffalo, NY, Feb. 19, 1988, (Speaker): "Hybrid Systems-Combined Active and Passive Control".
- 16. Reinhorn, A.M., Panashahi, N., Lu, L.W. And Huang, T.T., "Seismic Response of Building Structures with Flexible Floor Diaphragms", <u>Abstracts</u> of ACI/Annual Convention, Orlando, Fl, March, 1988.
- 17. Reinhorn, A.M., Park, Y.J. and Kunnath, S.K., "Damageability Assessment of Buildings Using Identified Component Properties", Abstracts of ASCE/Spring Convention, Nashville, May 1988.
- 18. Niagara Frontier Building Officials Association (NFBOA) "Earthquake Seismic Design in Non-Seismic Areas", Buffalo, NY, January 10, 1990.
- 19. Reinhorn, A.M., Panahshahi, N., Kunnath, S.K., Lu, L.W., Huang, T.T., and Yu, K., "Seismic Response of a 1:6 Scaled Model Structure With Flexible Floor Diaphragms", ACI/Fall Convention/Recent Studies of Special Concrete Structures, San Diego, November 1989.
- 20. Kunnath, S.K. And Reinhorn, A.M., and Panahshahi, N., "Computational Modeling of Inelastic Seismic Response of RC Buildings with Inplane Floor Flexibility". ACI Spring Convention, Boston, March 1991.
- 21. Reinhorn, A.M. "Damage Control in Seismic Design of Structures", ASCE/Tenth Structures Congress, San Antonio, Texas, April 1992, 930 934.
- 22. Reinhorn, A.M., Soong, T.T., Constantinou, M.C., And Riley, M. (1993), "Seismic Protective Systems From Base Isolations to Active Control", 17th European Seminar for Young Scientists and Designers in the Field of Earthquake Engineering, Haifa Israel, September 1993.

- 23. Reinhorn, A.M., "Active Control Overview", Educational Session on Passive & Active Controlled Responses to Seismic Forces (Smart Buildings), ACI 1994 Spring Convention, San Francisco, CA, March 20, 1994.
- 24. Reinhorn, A.M., "Implication of Spatial Variation of Ground Motion on the Response of I5-I14 Interchange during the Northridge Earthquake", Special Session on Response of Bridges During Northridge Earthquake of 1994., ACI 1995 Fall Convention, Montreal, Canada, Nov. 9, 1995.
- 25. Reinhorn, A.M.,(2002), "Real Time Dynamic Hybrid Testing System New Testing technology" ECO-LEADER Workshop, Oxford UK, Sept 8, 2002
- 26. Reinhorn. A.M\* (2005)., "Seismic Resilience: A comprehensive engineering-economical-societal and political approach" Technion Israel Institute of Technology, Seminar Series, Faculty of Civil Engineering, (\*Invited Speaker), April 28, 2005
- 27. Reinhorn. A.M\*(2005), "Analytical Issues In Progressive Collapse of Structures: Applications in Structural and Earthquake Engineering, , Kajima Corp, Tokyo-Japan, September 7, 2005(\*invited lecture)
- 28. Reinhorn. A.M\*(2005)., "Hamiltonian-Lagrangian Approach to Collapse Analysis of Structures", Technion Israel Institute of Technology, Seminar Series, Faculty of Civil Engineering, \*(Invited Speaker), December 25, 2005
- 29. Reinhorn, A.M.\*(2007), "MCEER's "Moving towards Multi-Hazard Research-Disaster Resilience Concept Overview", *The National Academies 20th Disaster Round Table Workshop*, 28 June, 2007 (\*Invited Lecture)
- 30. Reinhorn, A.M\*., Sivaselvan M.S., Dargush G.F., Lavan O, (2007), "Mixed Lagrangian Formulation in Analysis of Collapse of Structures", *ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, 13–16 June 2007, Rethymno, Crete, Greece, paper #1507 (\*keynote lecture)
- 31. Gilani, A. S., Reinhorn A M\*., and Glasgow, R.B (2007), "Earthquake Simulator Testing and Evaluation of Suspended Ceiling System", *Proceedings 12<sup>th</sup> US-Japan Workshop / ATC-15-11 Seminar* (\*Invited Lecture and Paper), Kauai, HI

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#### CITATIONS IN POPULAR MEDIA

Source - Research Digest, Winter, 1984

"New Research Will Help Us Cope and Survive."

Buffalo Evening News, Sunday, March 11, 1984

"Three at UB Given Grant to Study Effects of Quakes on Buildings."

Reporter, Vol. 15, No. 22, March 15, 1984

"Three UB Professors Testing Earthquake - Resisting Devices with NSF Grant."

The Buffalo Evening News, Friday, 7, 1986

"UB in Race for \$25 Million Quake Grant."

Democrat & Chronicle, April 8, 1987

"Old Bridge Footings Slip?"

Reporter, Vol. 21, No. 3, September 14, 1989

"NCEER Project Protects Buildings Against Earthquake."

The Buffalo Evening News, Monday, Sept. 18, 1989

"Ouake Center Pioneers Flex"

Discover Magazine, Vol. V, No. 3, March 1990

"UB Front - Tokyo Tremors"

Popular Science Magazine, Vol. 236, No.2, March 1990, "Dynamic Duo Makes Buildings Stand Still."

New Scientist - Technology Magazine, Aug. 4, 1990

"Buildings That Wobble But Don't Fall Down."

The Voice: Official Publication of United University Professionals, Vol. 18, No. 2, 1990

"SUNY/Buffalo: The Epicenter of Seismic Studies."

Buffalo Evening News, Sunday, March 3, 1991

"Teflon Bridge System Developed, Sold Here Eases Quake Threat."

Business Week, March 1991

"Teflon Bridge System Developed, Sold Here Eases Quake Threat."

Business First, Vol. 7, No. 290, May 6, 1991

"Engineering Education Teacher of the Year by New York State Society of Professional Engineers"

Science, Magazine of American Association for

the Advancement of Science, Vol. 267, Jan. 13, 1995, 176-177

Buffalo Evening News, Sunday, August 2, 1992

"UB Scientists Help Develop Smart Building."

Engineering Times, January 1993

"Smart Bracing System Flexes Muscle's to Control Bad Vibrations in Tall Buildings."

The Construction Specifier, November 1994

"Bracing for the Big One", 134-139

ABC Radio, Los Angeles, January 1994

"Live Interview and Talk Show on Northridge Earthquake"

Engineering News Record, January 31, 1994

"Roads Down and Out for Less Than a Year, Northridge Earthquake."

Buffalo Evening News, February 6, 1994

"Unusual Motion Contributed to Quake Damage."

Spectrum, Vol. 43, No. 66, March 16, 1993

"UB Researchers Explore Northridge Earthquake."

Engineering Times/NSPE, March 1994, 16, (3), 13),

"California Earthquake Prompts PE Action"

Scientific American, April 1994

"Shaking Quakes - Antiquake Building Methods Begin to Emerge From the Lab."

Engineering News Records, July 25, 1994

"Seismic Engineers at a Loss..."

Buffalo Evening News, Sunday, August 7, 1994

"SUNY Research Offers Incentives to Draw of High-Tech Firms in Area."

The New York Times International, Sept. 20, 1994

"Major Tokyo Quake Would Cost 1.2 Trillion Study Says."

SCIENCE, Vol. 267, January 13, 1995 (pp. 176-177)

"Magazine of American Association for the Advancement of Science"

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Wall Street Journal, Tuesday, January 17, 1995

"Lessons from Kobe ... "

The New York Times International, Jan. 18, 1995 (pp. A13)

"Japanese and U.S. Ways of Structural Engineering Differ."

New Scientist - This Week, January 28, 1995

"Modern Building "'Tough Enough"

<u>UB News</u>, May 17, 1995

UB is Prime Contractor for \$1.4 Million Project to Protect San Diego Building From Earthquake Damage

Engineering News Record, July 1, 1996

Research Center Renewal Due as National Unity is Taking Hold.

Buffalo News, November 17, 1996

Honor Roll Column

Business First of Buffalo, December 9, 1996

People on the Move

Los Angeles Time, April 4, 1997

Quake alarms may buy time in some cases

Reporter, Vol. 32, No. 19, Feb. 8, 2001 - page 1

"UB gets \$16.5 million for quake work."

Spectrum Vol. 50 No. 51, Feb 112, 2001 - page 1

"Earthquake Research to Expand w/ NSF Grant"

Buffalo Evening News, Sunday, Feb. 4 2001

"Two grants to enhance UB quake research.

Additional Citations not recorded after 2001

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# **TEACHING ACTIVITIES**

# UNDERGRADUATE TEACHING1

O,	DENONADUATE TEACHING	
1.	Descriptive Geometry (Technion) (10) Principles of space geometry, projections, plane and space representation of regular objects,	1965-1968
	intersections, shading principles, isometry and perspective.	
2.	Structural Analysis (Technion) (30)	1978-1979
	Basic equilibrium under static loads, internal stress resultant distribution, beams, trusses,	-,,,,
	virtual work methods, influence lines, moment distributions, slope deflection, matrix	
	methods.	
3.	Experimental Mechanics (Technion (30)	1977-1979
	Hands on experiments on material testing (tension, compression, shear), photoelasticity,	
	strain gages, analog computers, structural vibrations.	
4.	Design of Structural Systems (Technion) (30)	1978-1979
	Definition of systems, planar and space tubular structures, shells, folded plates, precast	
	systems, blast protective systems.	2
5.	Numerical Methods SUNY/Buffalo (EAS 451) (100)	1980-1984 <sup>2</sup>
	Matrix analysis, transformations, eigenvalues, nonlinear equations, numerical integration,	
	differentiation, error analysis, nonlinear differential equations, partial differential equations,	
_	curve fitting, introduction to optimization.	
6.	Engineering Mechanics (SUNY/Buffalo EAS205 & EAS206) (30)	1981-1982
	Principles of equilibrium, dynamics, vectorial motion, structural members, stress - strain	
	constitutive laws, stress-strain tensors, transformations, stress resultants introduction to	
7.	design of simple mechanical components.  Structural Analysis & Design (SUNY/Buffalo CIE323 and CIE324) (30)	1982-1983
7.	Basic equilibrium under static loads, internal stress resultant distribution, beams, trusses,	2006
	virtual work methods, influence lines, moment distributions, slope deflection, matrix	2000
	methods, basic design of steel and reinforced concrete members, shear and torsion analysis.	
0	· · · · · · · · · · · · · · · · · · ·	1984-2005
8.	Reinforced Concrete Analysis and Design (SUNY/Buffalo CIE429) (55) <sup>3</sup> Design of concrete buildings- sections, beams, slabs, columns, footings including shear,	1984-2005
	torsion, axial-bending interactions - system approach. Introduction to basic engineering	
	sketching and drafting	
9.	Structures Laboratory (SUNY/Buffalo CIE325) (10-80) <sup>‡</sup>	1985-1996
٠.	Experiments or basic material testing and structural members, shear, torsion, indeterminate	1705 1770
	frames, arches, force measurements, introduction to modern measurement systemselectrical	
	instrumentation, computer data acquisition.	
10.	Computer Graphics (SUNY/Buffalo, CIE 460) (10) <sup>‡</sup>	1989-1992
	Basic X-Y plotting, spread-sheet interactive graphics ("QUATRO"), principle of engineering	
	drawing-planes, lines, objects - "In-A-Vision", lettering-text superposition advanced	
	graphics, curves, and curved surfaces ("Grapher"), Analysis of buildings ("Strand"), Basic	
	graphics theory-using, translation, rotations, ("Hoops").	
11.	Structural Analysis Advanced (SUNY/Buffalo CIE423) <sup>6</sup>	2009-2012
	Virtual work methods, influence lines, moment distributions, slope deflection, matrix	
	methods, approximate methods of analysis.	
	Code	Tint of Continue

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# **GRADUATE TEACHING<sup>4</sup>**

1. Advanced Structural Dynamics (Technion) (8)

1978-1979

Second course in structural vibrations, nonlinear systems, energy principles Lagrange equations, Laplace and Fourier domain, probabilistic and statistical methods, computer analog simulations, approximate methods, Galerkin, Rayleigh, Ritz, etc.

<sup>&</sup>lt;sup>1</sup> Numbers in parentheses show approximate class size per semester. <sup>2</sup> Taught every semester i.e., twice a year.

<sup>&</sup>lt;sup>3</sup> Courses newly developed or substantially changed.

<sup>&</sup>lt;sup>4</sup> Numbers in parentheses show approximate class size per semester.

7/1/2017 Andrei M Reinhorn

2.	Earthquake Engineering and Structural Dynamics (SUNY/Buffalo CIE619) (15) <sup>‡</sup> Advanced methods in structural dynamics - approximate methods (Rayleigh, Ritz, direct and subspace iterations, transfer matrix), probabilistic approaches and random processes, nonlinear dynamics. Introduction to seismology, ground motion, earthquake simulation, structure response, spectrum approach, concrete and steel structures design, frequency analysis, nondeterministic analysis.	1981-2002 2009
3.	Advanced R/C and Prestress Concrete Design (SUNY/Buffalo CIE525) (15)  Analysis and design of prestress concrete (P/C) beams, frames, slabs, limit design of frame structures, ductility and hysteretic behavior. Yield line theories and plastic design of slabs; shells - circular and hypars.	1982-1988
4.	Experimental Mechanics (SUNY/Buffalo CIE616) (5) <sup>‡</sup>	1982-1991
т.	Hands on experiments on material testing (tension, compression, shear), photoelasticity, strain gages, analog computers, structural vibrations, in depth theory of instrumentation, vibration measurements and processing of vibration data - frequency analysis, filtering etc.	1702 1771
5.	Civil Engineering Seminar (SUNY/Buffalo CIE505B) (15) <sup>‡</sup>	1988-1995.
	Invited speakers in area of structures and geotechnical engineering speak about current topics	
	of research which were partially solved and need discussions and further investigations.	
	Invited lectures from local faculty and graduate students. Invited several speakers from other	
	Universities in U.S. and abroad.	
6.	Introduction to Computer Graphics (SUNY/Buffalo CIE501 - Special Topics) (8) <sup>‡</sup>	1988-1990 <sup>5</sup>
	Newly developed course presents basic graphic representations using C-programming	
	language, translations, rotations, Civil engineering substructures, beams, columns, footings;	
	plotting in 2-D - 3D structures (Hoops environment); screen oriented interaction; interactive	
	structural analysis (PREPF, STRAND, QUAND, IDARC) - [Developed in association with	
	Professor J. Abel (Cornell Univ.), and Dr. S.K. Kunnath (SUNY/Buffalo)].	
7.	Experimental Methods in Structural Engineering (SUNY CIE616 (12 avg) <sup>6</sup>	1997,2002
	New course on experimental methods including design of experiments; scaled models,	2004, 2007
	development and use of electronic instruments, data acquisition systems and advanced data	2008, 2010,
	processing Two-hour lecture and three-hour lab weekly.	2011
8.	Dynamics of Structures (SUNY/Buffalo, CIE519) (20)	1991-2001
	Introductory course to dynamics of single and multi-degree-of-freedom systems,	
	Frequency domain approaches.	

<sup>&</sup>lt;sup>5</sup> Taught every semester i.e., twice a year. <sup>6</sup> Courses newly developed or substantially changed.

Andrei M Reinhorn PE PhD 7/1/2017

#### ADVISEMENT AND SUPERVISORY ACTIVITIES

# POST-DOCTORAL FELLOWS AND VISITING SCHOLARS

1.	Park, Y.J.	(1985-1987)	Ph.D., University of Illinois
2.	Panahshahi, N.	(1987-1990)	Ph.D., Cornell University
3.	Kunnath, S.K.	(1989-1991)	Ph.D., SUNY/Buffalo
4.	Lopez-Almansa, F.	(1989)	Prof., Univ. of Barcelona (Spain)
5.	Nagarajaiah, S.	(1990-1992)	Ph.D., SUNY/Buffalo
6.	Lin, R.C.	(1992-1993)	Ph.D., SUNY/Buffalo
7.	Faella, G.	(1993-1994)	Assoc. Prof., Univ. of Naples (Italy)
8.	Spyrakos, C.	(1994)	Assoc. Prof., University of West Virginia
9.	Li, R.	(1994)	Research Engineer, U/C Irvine
10.	Gluck, N.	(1994)	Ph.D., Technion, IIT (Israel)
11.	Valles-Mattox, R.	(1995)	Ph.D SUNY/Buffalo
12.	Sanders, D.	(1996)	Assoc. Prof., Univ. of Nevada at Reno
13.	Madan, A.	(1996)	Ph.D. SUNY/Buffalo
14.	Riley, M.	(1996-1997)	Ph.D. SUNY/Buffalo
15.	Mylonakis, G.	(1997-1998)	Ph.D., SUNY/Buffalo
16.	Colombo, Antonella	(1999)	Researcher, JRC/Ispra (Italy)
17.	Viti, Stefania	(2001-2002)	Asst Prof. Univ. of Florence, (Italy)
18.	Sivaselvan M.	(2002-2004)	Ph.D., SUNY/Buffalo
19.	Ribakov, Yuri	(2003)	Asst Prof, Univ of Judea & Samaria (Israel)
20.	Yuksel, Ercan	(2004-2005)	Asst Prof, Univ of Istanbul (Turkey)
21.	Lavan, Oren	(2005-2007)	Ph.D. Technion, IIT (Israel)
22.	Fumo, Cristina	(2007)	PhD Candidate, Univ of Udine (Italy)
23.	Sayed, Ali	(2008)	Assistant Professor, NWFP Univ, (Pakistan)
24.	Nasser, Amjad	(2008)	Assistant Professor, NWFP Univ, (Pakistan)
25.	Madaloni, Giuseppe	(2008)	Assistant Professor, Univ of Naples (Italy)
26.	Roh, Hwasung	(2007-2010)	PhD SUNY/Buffalo
27.	Benassi, Andrea	(2009-2010)	PhD Candidate, Univ of Bologna (Italy)
28.	Ryu, Ki Pung	(2015-2017)	PhD SUNY/Buffalo
	=		Co to Tiet of Continue

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## Ph.D. STUDENTS / DISSERTATIONS

#### PRINCIPAL ADVISER

- 1. Wen, C.Y., "Vibration Protection of Inelastic Structures by Means of Active Control", Ph.D., Aug 1987
- Kunnath, Sashi Kumar, "Modeling of Inelastic Response and Seismic Damage of 3D R/C Buildings", Ph.D., Dec 1988.
- 3. Nagarajaiah, Satish, "Nonlinear Dynamic Analysis of 3D Base Isolated Structures" Ph.D. June 1990.
- 4. Wang, Yen.P., "Experimental Study of MDOF Structures with Active Control" Ph.D. January 1991.
- 5. Bracci, Joseph, Ph.D., "Evaluation of Gravity Load Designed Reinforced Concrete Structures" Aug 1992
- 6. Lobo, Roy, "Inelastic Dynamic Analysis of R/C Structures in Three Dimensions" PhD, May 1994.
- Subramanian, Ravi, "Application of Fuzzy Sets Theory to Active Control of Systems" Ph.D. Sept 1994
- 8. Valles-Mattox, Rodolfo, Ph.D., "Evaluation, Prevention and Mitigation of Pounding Effects in Buildings" Jun 1995
- Li, Chen, Ph.D., "Analytical and Experimental Study of R/C Structures Retrofitted with Damping Devices" Aug. 1995.
- 10. Riley, Michael, Ph.D., "Experimental Implementation and Design of Hybrid Systems with Actuator Structure Interaction" Mar 1996
- 11. Alok Madan, Ph.D., "In-plane Behavior of Masonry Shear Walls with Unbonded Reinforcement" Mar. 1996
- 12. Reichman, Yossi, Ph.D., "3D Inelastic Analysis of Bridge Systems," April 1996.
- 13. Simeonov Vassil, PhD, "Seismic Damage in Bridges due Spatial Variation of Ground Motion", Sept 1999
- 14. Barron-Corvera, Raul, PhD, "Simplified Method for Evaluation of Seismic Fragility", Jan 2000
- 15. Sivaselvan, Mettupalayam., PhD, "Nonlinear Structural Analysis towards Collapse Simulation A Dynamical Systems Approach", Dec 2002

16. Kusumastuti, Dyah, PhD, "A Versatile Experimentation Model for Study of Structures near Collapse: Applications to Seismic Evaluation of Irregular Structures", Jan 2005

- 17. Shao, Xiaoyun PhD, "Unified Control Platform for Real Time Dynamic Hybrid Simulation", Jan 2007
- 18. Roh, Hwasung, PhD "Control of Seismic Motion through Weakening and Damping", Aug 2007
- Schachter, Macarena, PhD "Structure Three Dimensional Modeling of Inelastic Buckling in Frame Structures", Aug 2007
- Cimellaro, Gian-Paolo, PhD, "Improving Seismic Resilience of Structural Systems through Integrated Design of Smart Structures", Dec 2007
- Kong, Dohwan, PhD "Evaluation and Protection of High Voltage Electrical Equipment Against Severe Shock and Vibrations", Sept 2010
- 22. Mohammad, Fahad, PhD, "Seismic Evaluation and Qualification of Transformer Bushings", Jan 2013
- 23. Ray, Tathagata, PhD, "Modeling of Multi-Dimensional Inelastic and Nonlinear Elastic Structural Systems", June 2013
- 24. Ryu, KiPung, PhD, "Real Time Control of Shake Tables for Nonlinear Hysteretic Systems", Sept 2015

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# SECONDARY ADVISER (active supervision)<sup>1</sup>

- 1. Prucz, Zolan "On Reliability of Active Control of Tension Leg Platforms" Ph.D., June, 1983 (w/ T.T.Soong).
- 2. Lin, Ru Ci, "Experimental Investigation of Active Structural Control", Ph.D., July, 1987 (w/ T.T.Soong).
- 3. Chung, Lap Loi, "Analyses and Experiments for Practical Applications of Active Structural Control", Ph.D., July, 1987 (w/ T.T.Soong).
- 4. Lin, C.C., "On Methods of Damage Assessment", Ph.D., January, 1989 (w/ T.T.Soong).
- 5. Mokha, A., Ph.D. June 1990 (w/ M.C.Constantinou).
- 6. Khartoum, Allaoua, Ph.D., December 1991 (w/ M.C.Constantinou).
- 7. Makris, Nicos, Ph.D., August 1992 (w/ M.C. Constantinou).
- 8. Small, Edgar Ph.D. expected August 1996 (w/ M. Gaus)
- 9. Hong, Cao, Ph.D., May 1997 (w/T.T. Soong)
- 10. Kasalanti, Amarnath., Ph.D., May 1998 (w/ M.C. Constantinou)
- 11. Chu, S.C PhD, Sept 2001 (w/T.T. Soong)
- 12. Ahmadizadeh, Mehdi Sept. 2007 (w/G. Mosqueda)
- 13. Retamale, Rodrigo, Jan. 2008 (w/G. Mosqueda)
- 14. Pasala, Dharma-Theja, Aug 2012 (w/S Nagarajaiah-Rice U.)
- 15. Sarlis, Apostolos, Sep 2013 (w/MC Constantinou)
- 25. Oliveto, Nicholas, Sept 2014, "Development of Mixed Lagrangian Formulation Framework" (w/M Sivaselvan)
- 26. Koliou, Maria, Sept 2014, (w/A Filiatrault)
- 27. Oikonomou, Kostis, Sept 2015 (w/MC Constantinou)

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#### M.S. STUDENTS

#### PRINCIPAL ADVISER

- 1. Wang, Chen Cheng, "Experimental Analysis of Behavior of Infilled Planar Frames," M.S., Feb. 1981
- Hajj, Nabil, "Shear Behavior of Ferrocement Plates Loaded in Plane by Cyclic Loading Experimental Study", M.S., May 1981
- 3. Sentz, Gerald, "Bending Behavior of a Hyperbolic Parabola Shell: An Experimental and Theoretical Investigation", M.S. Thesis. May 1982.
- 4. Jeffrey, Frank, "Literature Survey of Experimental Methods Performed to Investigate Soil Structure Interaction Caused by Dynamic Excitations", M.S., Jan. 1983.
- McGreevy, Robert, "Frequency Analysis of Structural Response of a Composite Ribbed Ferrocement Plate", M.S., May 1983.
- Salamanca, Alberto, "Distribution of Internal Forces in Stiffening Systems of Tall Structures by Iteration", M.S., May 1983.
- 7. Jia, Zi He. "Retrofit and Strengthening of Buildings for Seismic Resistance, M.S., Jan. 1984.

<sup>&</sup>lt;sup>1</sup> Students who made their dissertation with complete supervision in major parts of their work.

8. Kunte, Suhas, "Design of Prestressed Box Girder for the Bridge Carrying Vehicular Traffic", M.S., August 1986.

- 9. Saldana, Wagner, "Pseudo-Dynamic Analysis of Cylindrical Fluid Storage Tanks", M.S. August 1987.
- Yeh, Len Jo., "Identification of Nonlinear Cyclic Behavior of R/C Frames Using Three Parameters Model", M.S., August 1987.
- 11. Singer, James, "Base Isolation of a Large Chlorine Tank", M.S., August 1987.
- 12. Hussein, Syed, "Analysis and Design of Steel Box Girder Bridge with Prestressing", M.S. Dec. 1987.
- 13. Wang, Chin-Tzu, "Shaking Table Studies of Liquid Storage Tanks", M.S. June 1988.
- 14. Seidel, Michael "Damage Analysis of R/C Structures in Eastern U.S." M.S. June 1988.
- 15. Wang, Yen-Po, "Active and Passive Control of Sliding Structures", M.S., Dec. 1988.
- 16. DiCorso, Paul, "Static and Dynamic Response of Structural Steel Building Frames with Semi-Rigid Connections", M.S., Dec. 1988.
- Oh, Soon Taek, "Identification of Hysteretic Properties of R/C Shear Walls Subjected to In-plane Loading", M.S. June 1989.
- 18. Bracci, Joseph, "A Normalized Seismic Damage Index for Building Structures", M.S. June 1989.
- 19. Fang, Lee, "Experimental Study of Structures with Flexible Floor Diaphragms", M.S. Dec. 1989.
- 20. Lao, Larry F., "Seismic Response of a Scaled 3 Stories R/C Model", M.S. Dec. 1989.
- 21. Xiong, Jay J., "Diagnostic Techniques for Vibrating Structures", M.S., Dec. 1989.
- 22. Gu, Xian, "Experimental Study of Displacement Control Devices for Base Isolations", M.S. May 1990.
- Riley, Michael, "Experimental Verification of Innovative Devices for Active Control of Equipment and Structures", M.S. January 1992.
- 24. Hoffmann, Garret "Influence of Design Detailing on Seismic Damage of R/C Buildings", MS January 1992.
- 25. Vladescu, Adriana, "Push-over Analyses of Inelastic Structures", MS August. 1995.
- 26. Lysiak, Matthew, "Retrofit Of Structures with Supplemental Damping Design Aspects MS January 1996.
- 27. Ozer, Cem, "Progressive Collapse Analysis in Strong Ground Motion" MS May 1997.
- 28. DeRue, Grant, "Simplified Nonlinear Analysis of Bridge Structures", MS Sept, 1998
- 29. Skliros, Costas, "Influence of Deteriorating Parameters on Steel Structures," MS Jan 1999.
- 30. Sivaselvan, M, "Hysteretic Models for Cyclic Behavior of Deteriorating Inelastic Structures", MS May, 1999
- 31. Agrawal, Dinesh, "Web Centric System for Analysis of Structures", MS Dec. 1999
- 32. Winkelmann, Katherine, "Inelastic Analysis of Structures in Three Dimensions IDARC3D an Object Oriented Approach", MS May 2001
- 33. Cimellaro, Gian-Paolo, "Multi Dimensional Fragility of Structures", MS Jan 2005
- 34. Oikonomou, Kostis, "Modeling and Evaluation of High Voltage Transformers", MS Jan 2010
- 35. Ryu, KiPung, "Experimental Facility for Testing of Suspended Ceilings", MS Jan 2010

Go to List of Sections

# **SECONDARY ADVISER (active supervision)**<sup>2</sup>

- Lio, Arthur I. "Seismic Resistant Design and Investigation of Infilled Shear Walls with Openings", M.S. 1980 (w/ S.P.Prawel).
- 2. Agai, Eitan, "An Integrated Software System for Analysis, Design and Drafting for Reinforced Concrete Buildings", M.S. August 1982 (w/G.C.Lee).
- 3. Chung, Lap Loi, "Optimum Closed-Loop Control of Structures Seismic Excitations", M.S., June 1985 (w/T.T.Soong).

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# ADDITIONAL M.S. AND Ph.D. COMMITTEES

F. K. Arwadi	M. S. Project	1981
M. S. Ghashghaiem	M. S. Project	1981
N. Al-Masri	M. S. Project	1981
J. Almozafar	M. S. Project	1982
J. Pitarresi	M. S. Thesis	1983
J. U. Kim	Ph.D. Qualifying	1983
T. Omorodion	Ph.D. Dissertation	1983

<sup>&</sup>lt;sup>2</sup> Students who made their dissertation with complete supervision in major parts of their work.

A. Gouetibi	M.S. Thesis	1983		
K. C. Chang	Ph.D. Qualifying & Dissertation	1984		
J. S. Hwang	Ph.D. Qualifying & Dissertation	1984,1987		
C. S. Tsai	Ph.D. Qualifying & Dissertation	1984, 1987		
H. Liu	Ph.D. Qualifying	1984		
Z.H. Jia	Ph.D. Qualifying & Dissertation	1984, 1988		
K. Emad	Ph.D. Qualifying	1984		
M. L. Liebler	M.S. Thesis	1984		
M. Ahmadian	Ph.D. Dissert. (Outside Reader/ME)	1984		
B. Bowers	M.S. Project	1985		
M. Gao	Ph.D. Qualifying	1985		
K. Sigiura	Ph.D. Qualifying	1985		
C. Cheng	Ph.D. Qualifying	1987		
M. Yae	Ph.D. Dissert. (Outside Reader/ME)	1987		
G. Yao	Ph.D. Qualifying	1988		
G. Juhn	Ph.D. Qualifying	1988		
G. Chen	Ph.D. Qualifying & Dissertation	1989		
N. Makris	Ph.D. Qualifying & Dissertation	1990, 1992		
J. Sah (Mech. Eng)	Ph.D. Dissert. (Outside Reader)	1990		
D. Farhey (Technion - Israel)	Ph.D. Dissert. (Outside Reader	1991		
A. Mooty (Univ. of Waterloo)	Ph.D. Dissert. (Outside Reader & Examiner)	1992		
P. Tsopelas	Ph.D. Dissertation & Dissertation	1992,1994		
M. Symans	Ph.D. Qualifying & Dissertation	1993		
V. Gattuli	M.S. Thesis	1994		
R. Helgeson	Ph.D. Qualifying	1994		
J. Quareshi	Ph.D. Qualifying	1996		
M. Gluck (Technion)	Ph.D. Qualifying/Advisor	1993-1996		
R. Rana	Ph.D. Qualifying & Dissertation	1998 (exp.)		
H. Cao	Ph.D. Qualifying & Dissertation	1997		
J Shen	Ph.D. Qualifying &	1998		
Y. Kitane	Ph.D. Qualifying &	1998		
Stopped Listing Committee Memberships from 1999				
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Andre M Reinhorn PE PhD 3/1/2016

# **CURRENT POSITIONS OF GRADUATED ADVISES**

In parenthesis are the responsibilities for full supervision (1); co-supervision (2); mentor and post-doctoral fellows (3); PhD/PostDocs employment: industry employed in italics; academe employed in italics-bold; MS employment: industry or private practice in normal font

- 1. Agai, E. (M.S.), President Office Processing Consultants, New York City, NY (2)
- 2. Barron-Corvera, R. (PhD,2000), Professor, Autonomous University of Zacatecas (UAZ), Zacatecas, Mexico (1)
- 3. Bracci, J.M. (M.S., Ph.D, 1992) Professor, Texas A&M University, College Station, Texas (1)
- 4. Chung, L.L. (M.S., PhD, 1987), Professor, National Taiwan University, Taiwan (2)
- 5. Cimellaro, Gian Paolo (M.S., PhD, 2007), Associate Professor, Polytechnic Institute of Torino, Italy (1)
- 6. DeRue, Grant (MS), Project Engineer, Good-Kind Engineers, Rochester NY(1)
- 7. Dicorso, P. (M.S.), Structural Engineer, Hatch & Associates, Buffalo, N.Y. (1)
- 8. Frank, J. (M.S.), Structural Engineer, Bergman & Associates, Rochester, N.Y. (1)
- 9. Fumo, C. (**PhD, 2010**), Structural Engineer, Spav Prefabbricati S.p.a, Udine, Italy (2)
- 10. Jia, Z.H. (M.S.), Structural Engineering Specialist, Pratt & Huth Assoc., Buffalo, N.Y. (1)
- 11. Kong, Dohwan (PhD, 2010), Structural Engineer, Skidmore, Owings & Merrill, LLP...,NYC, NY (1)
- 12. Kunnath, S.K. (PhD,1988), Professor and Chair, University of California at Davis, Davis, CA (1)
- 13. Kusumastuti, D., Mrs (PhD,2005) Associate Professor, Bandung Institute Technology (ITB), Indonesia (1)
- 14. Lavan, O., (PostDoc 2005-2008) Associate Professor, Technion-Israel Institute of Technology, Haifa, Israel (3)
- 15. Li, C (PhD,1995), Structural Engineer, Office of State Health Plan. & Develop. (OSHPD), Sacramento, CA (1)
- 16. Lin, C.C. (PhD,1988), Professor and Dean, National Chung-Hsing University (Taichung) Taiwan (2)
- 17. Lin, R.C. (M.S, Ph.D), Structural Engineer, Seinuk Group, New York, N.Y.(2)
- 18. Lobo R. (PhD,1994), Structural Engineer, Office of State Health Plan. & Develop. (OSHPD), Sacramento, CA (1)
- 19. Lysiak, M. (MS) Project Engineer, Barnhart Construction Co., San Diego CA(1)
- 20. Madan A., (PhD,1996), Professor, Indian Institute of Technology, New Delhi, India (1)
- 21. McGreevy, R. (M.S.), PE, Project Engineer, Sear & Brown, Rochester, NY. (1)
- 22. McGreevy, S. Mrs. (M.S.), Structural Engineer, Bergman & Assoc., Rochester, NY. (2)
- 23. Mokha A. (PhD,1988), Vice President, Earthquake Protection Systems, Richmond CA.(2)
- 24. Mohammad, Fahad (PhD, 2013), Assistant Professor, University of Peshawar, Pakistan (1)
- 25. Mylonakis, G. (PostDoc,1997), Professor, University of Patras, Greece (1)
- 26. Nagarajaiah S. (PhD,1990), Professor and Chair, Rice University, Houston TX. (1)
- 27. Ozer, C. (MS) Project Engineer, URS / John Blume., San Francisco, CA (1)
- 28. Panahshahi N.,(PostDoc) Professor, University of Southern Illinois University, Edwardsville, Illinois (3)
- 29. Park Y.J., (PostDoc, 1987-1989) Research Scientist, Brookhaven National Labs, Long Island, New York (deceased) (3)
- 30. Prucz, Z. (Ph.D,1984), P.E., Vice President & Assoc. Partner, Modjesky and Masters Engrg, Inc., New Orleans (2)
- 31. Reichman, Y. (PhD,1996), Senior Scientist, Israel Electric Power Company, Haifia, Israel (1)
- 32. Ray, Tathagata (PhD, 2013), Assistant Professor, Dept. of Civil Engineering, University of New Mexico (1)
- 33. Riley M. (MS, PhD, 1996), Senior Scientist, National Institute for Standards and Technology (NIST) (1)
- 34. Roh, Hwasung (PhD,2007), Assistant Professor, Dept. of Civil Engineering, Chonbuk National University, Korea (1)
- 35. Ryu, KiPung (MS, PhD, 2015), Research Scientist, University at Buffalo, SUNY, NY (1)
- 36. Salamanca, A. (M.S.), Senior Design Engineering, Bogota, Columbia (1)
- 37. Saldana, W. (M.S.), Independent Computer Consultant, Quito, Equador (1)
- 38. Schachter-Adaros, Macarena, Mrs. (PhD,2007), Design Engineer, Weidlinger and Assoc., Washington, DC (1)
- 39. Seidel, M. (M.S.), P.E., Structural Engineer, Bergman & Associates, Rochester, N.Y. (1)
- 40. Sentz, G. (M.S., 1982), P.E., Commissioner of Public Works, Erie County, Buffalo, N.Y.(1)
- 41. Shao, Xiao-Yun (PhD,2007), Associate Professor., Western Michigan University, Kalamazoo, MI (1)
- 42. Simeonov, V. K. (PhD,1999), Senior Bridge Engineer, California Department of Transportation, Sacramento CA(1)
- 43. Singer, J. (M.S.), Senior Maintenance Engineer, Occidental Chemicals, Niagara Falls, N.Y. (1)
- 44. Sivaselvan, Mettupalayam, (MS, PhD, 2002), Associate Professor, University at Buffalo, SUNY, NY (1)
- 45. Skliros, Costas (MS), Project Engineer, John A. Martin and Associates, Los Angeles, CA (1)
- 46. Subramaniam, R. (PhD,1994), Research Scientist, INTEL Corp., Santa Clara, CA (1)
- 47. Valles-Mattox R., (MS, PhD, 1995), Director General of DITEC Company, Mexico City(1)
- 48. Vitti, Stefania, (Post-Doc 2001-2002), Assistant Professor. University of Florence, Italy (3)
- 49. Wang Y.P. (PhD,1991), Professor, National Chiao-Tung University, Hsinchu City, Taiwan (1)
- 50. Wang, C.T. (M.S.), Programmer Analyst, Louis Berger & Assoc, Inc. East Orange, New Jersey (1)
- 51. Wen, C.Y., Mrs- (PhD.,1987), Chief Branch, California Department of Transportation, CA (1)
- 52. Winkelmann, K., Mrs (MS, 1996), (PhD Delft), Pattent Lawyer, Darmstadt Germany (1)

# SUMMARY OF ACADEMIC ACTIVITIES

## **PUBLICATIONS:**

- 1 Honorary Book by former students
- 3 Books/Monographs co-authored,
- 6 Book chapters,
- 156 Reviewed papers in Archival Journals;
- 61 Reviewed papers in Edited Books;
  - 2 Sections in Codes and Standards;
  - 3 Computer software international distribution;
- 199 Papers in Conference Proceedings;
- 72 (N)MCEER Reports;
- 116 Miscellaneous Technical Reports

#### **PRESENTATIONS:**

- >100 Invited Lectures;
- 166 Conference Lectures with Proceedings;
- 31 Seminars and Conference Lectures w/o Proceedings;
- 40 Chaired Sessions in Conferences and Workshops

## **GRANTS:**

60 Research and Other Competitive Grants,	\$15,413,012
3 Special Equipment Grants (NEES),	\$17,914,175
1 Group Organization Grants,	\$106,848,913
2 Major Capital Equipment & Service Grants,	\$9,297,824
6 International Travel Grants,	\$13,910

## **COURSES TAUGHT:**

- 9 Graduate
- 11 Undergraduate

#### **SUPERVISION:**

- 28 Post Doctoral Fellows and Visiting Scholars,
- 24 (40) Ph.D and 35 MS completed; (in parentheses incl. co-advised)
- 75+ Ph.D. Committees / Outside Reader

## **CITATIONS ANALYSIS:**

>14,000 times cited according to Google Scholar (h-index 58)