

## **Nasim Uddin, PhD, PE, F.ASCE**

Professor of Civil, Construction, and Environmental Engineering  
Graduate Program Director of Civil, Construction, and Environmental Engineering  
Research Director, UAB Sustainable Smart City Research Center  
Principal-In Charge (BD) of Miyamoto International  
President, Islamic Center of Birmingham  
Editor-In-Chief, ASCE Natural Hazards Review Journal



Professor Uddin's research program focuses on high performance resilient and sustainable infrastructure, natural hazard analyses and disaster risk reduction, and structural safety of bridge and building structure. Dr. Uddin is a leading researcher in the field of panelized construction for flood, earthquake and hurricane resistant design, and implementation of advanced composites and sensors for hazard resistant structures against earthquake, blast, flood and hurricane loading.

His diverse network of national and international partnerships include Georgia Institute of Technology, University of California, University of Maryland, University of Florida, University of Central Florida, Florida International University, Ireland University College Dublin, Queen University in England to conduct multi-year and multi-million dollar interdisciplinary collaborative research. His current National Science Foundation (NSF) funded research projects include Mobile Automated Rovers Fly-By (MARS-FLY) for Bridge Network Resiliency (NSF-CNS-1645863); Aerodynamic Intelligent Morphing System (A-IMS) for Autonomous Smart Utility Safety and Productivity in Severe Environments (NSF-S&AS-1849264) and High Data Density Short Range Wireless Telemetry", (NSF-IIS- 1813949). He is currently leading a DOT project Fly-By Image Processing for Real Time Congestion Mitigation. He led over 45 research projects, and his major research sponsors include NSF, FHWA, US DOT, ALDOT, and UTCA. He has served as principal or co-principal investigator on research projects whose cumulative funding exceeds \$10.0 million, and directed about 50 Doctoral and Master's theses based on the sponsored research projects.

Dr. Uddin is the graduate program director of the department of civil, construction and environmental engineering, and has been actively involved in all aspects of the department including ABET Assessment and Senior Design Projects. Dr. Uddin is the author/co-author of 7 books, over 250 papers, and received NSF Grants to organize 1st international workshop on wind storm and Storm Surge Mitigation Construction, in Dhaka, Bangladesh. He is a Faculty Fulbright Scholar, a fellow of ASCE, and served as the Chair of the Executive Committee of the ASCE Council on Disaster Reduction Management (CDRM). He is the Editor-in-Chief of the ASCE Natural Hazards Review Journal, Associate Editor of the ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, and associated with the leadership of the ASCE Infrastructure Resilience Division (IRD) and UAB Sustainable Smart City Research Center (SSCRC). Dr. Uddin established Study Abroad Program with Ireland University College Dublin. He is the Chair of School of Engineering Tenure and Promotion Committee, Engineering Member on the UAB conflict of interest review board, Principal-In Charge (BD) of Miyamoto International, Chairman and President of the Islamic Center of Birmingham, and serves as Friday Jumah Khateeb for Birmingham Area Mosques.

## Curriculum Vitae

August 1, 2019

### NASIM UDDIN, Ph.D., P.E., F.ASCE

Professor and Graduate Program Director  
Department of Civil and Environmental Engineering  
The University of Alabama at Birmingham  
Phone: 205-934-8432, Fax: 205-934-9855; e-mail: [nuddin@uab.edu](mailto:nuddin@uab.edu)

#### EDUCATION

- State University of New York at Buffalo 1992 Ph.D. Civil Engineering
- University of Oklahoma 1989 MS Civil Engineering
- Bangladesh University of Engineering & Technology 1986 BS Civil Engineering

#### POSITIONS HELD

- 2018-Present: Professor and Graduate Program Director, Department of Civil and Environmental Engineering, University of Alabama at Birmingham, Birmingham, Alabama
- 2010-Present: Professor, Department of Civil and Environmental Engineering, University of Alabama at Birmingham, Birmingham, Alabama
- 2004-2010: Associate Professor and Undergraduate Program Director, Department of Civil and Environmental Engineering, University of Alabama at Birmingham, Birmingham, Alabama
- 2001-2004: Assistant Professor and ABET Assessment Coordinator, Department of Civil and Environmental Engineering, University of Alabama at Birmingham, Birmingham, Alabama
- 1997-2001: Assistant Professor of Civil Engineering, University of Evansville (UE), Indiana
- 1992-1997: Project Engineer, Acres International Corporation, New York
- 1996-1997: Adjunct Faculty, State University of New York (SUNY) at Buffalo, New York
- 1986-1988: Assistant Professor of Civil Engineering, Bangladesh University of Engineering & Technology, Dhaka, Bangladesh

#### SELECTED HONORS, AWARDS, & RECOGNITIONS

- President's Excellence in Teaching Award, Nominated (2018)
- UAB Dean's Excellence in Mentorship Award (2017)
- Supervisor of 2<sup>nd</sup> place winners of UAB Graduate School 3MT Doctoral and Master's competitions (*Ahmed Hattab and Heba Elsisy respectively*) (2017)
- President's Excellence in Teaching Award, Nominated (2016)
- J William Fulbright Scholar (2007)
- Fulbright Scholar Award (2007)
- President's Excellence in Teaching Award, Nominated (2006)
- Fellow of ASCE (2006)
- College of Engineering and Computer Science Dean's Teaching Award, (2001)
- UE's 33<sup>rd</sup> "Outstanding Faculty of the Year Award" (2001)
- REDCROSS Recognition Award, (2001), Southwestern Indiana Chapter
- FEMA Project Impact Best Community Award, (2000)
- MUPEC Conference Award, (1998), Faculty Advisor
- International Concrete Repair Institute "Project of the Year" Award (1997)

- Australian Government Scholarship in Bangladesh, (1987-88).
- Colombo Plan Scholar Award (1986)
- Dean's List, (1982-1986)
- National Merit Scholarship, (1980) in Bangladesh
- National Merit Scholarship, (1978) in Bangladesh
- Listed in the Marquis Who's Who:
  - Who's Who in the World, since 2017
  - Who's Who in Science and Engineering, since 2015

## PROFESSIONAL SERVICE & EXPERIENCES

### Editorial Boards

Editor-in-Chief	<i>ASCE Journal of Natural Hazards Review</i>
Associate Editor	<i>ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems</i>
Editorial Board	<i>International Journal of Building</i>

### Societies

American Society of Civil Engineers (ASCE)  
 American Society of Mechanical Engineers (ASME)  
 American Composite Materials Association (ACMA)

### National Committees

Team Leader	Task Committee to develop webinar/short course on quantitative risk assessment (QRA) for natural hazards (2008-2012).
Member	Task Committee to develop pre-standard/guideline for Multihazard Risk assessment (2007-2013).
Member	NSF-NEES Advisory Board for the Tsunami Resistant Structural Design: Guide and Code Development (2005-2009).
Member	The National Earthquake Hazards Reduction Program (NEHRP) Stakeholder Community (2008-present).
Member	National Science Foundation Network for Earthquake Engineering Simulation (NSF NEES) (2006-2012).
Team Leader	Led a US team of natural hazards experts to China to survey damage, participated in a world forum for China reconstruction, and overview of risk management activities of Wenchuan earthquake
Delegate	Team for Quantitative Risk Assessment (QRA) of Multihazards at International Civil Engineering Conference, Taipei, Taiwan, June 27-30, 2007.
Delegate	OXFORD ROUND TABLE: Global Warming and Sustainable Development: Governing a Crisis in the University of Oxford, Oxford, England (2007).
Delegate	NOAA (National Oceanic Atmospheric Administration) delegate for IATF panel on Mainstreaming Natural Disasters in Sustainable Development – Infrastructure Vulnerability Assessment workshop sponsored by OAS/UDSE/World Bank and NOAA Coastal Service Center, March 20-24, NOAA/CSC in Charleston, South Carolina, 2000.

Delegate                      Global Facility for Disaster Reduction and Recovery (World Bank) and World Congress on Urban Infrastructure in Developing Countries, New Delhi, India, November 12-16, 2007.

### **University Committee Services**

#### **Departmental: UAB**

Graduate Program Director, 2018-Present

Undergraduate Program Director, 2004-2010

ABET Visit Coordinator, Primary author of the CE Program ABET Self Study Report, 2006

SACS re-accreditation, 2005

#### **School/University: UAB**

Chair, University of Alabama at Birmingham (UAB) Curriculum and Research Committee (2006-2008)

Chair, School of Engineering Tenure & Promotion Committee (2014-Present)

Engineering Member, UAB conflict of interest review board (2017-Present)

### **Reviewer for Selected Proposals and Journal Papers**

National Science Foundation (NSF) CMMI, NEES, NEHI and SBIR (2003-2015)

The US Civilian Research & Development Foundation (2005)

The United Nation Development Program (2005, 2006)

The United States AID Program (2004)

Federal Emergency Management Agency (FEMA) (2000)

International Journal of Natural Hazards

Architectural Science Review (ASR)

ACI Structural Journal

ACI Materials Journal

Journal for Composite Structures

Journal of Reinforced Composite Plastics

Journal of Engineering Structures

International Journal of Natural Hazards

Canadian Geotechnical Engineering Journal

International Journal of Civil engineering Research and Practice

International Journal of Construction & Building Materials

ASCE Journal of Natural Hazards

ASCE Journal of Composite for Construction

ASCE Journal of Bridge Engineering

ASCE Journal of Materials in Civil Engineering

ASCE Journal of Structural Engineering

ASCE Journal of Aerospace Engineering

ASCE Journal of Management in Engineering

ASCE Periodical of Leadership in Civil Engineering

ASCE SEI conference papers and ASEE conference papers

International Conference on *Earthquake Engineering*

IEEE Journal

### **TEACHING**

#### **Courses Developed at UAB**

Number	Title	Credit Hours
CE 650/750:	Advanced Steel Structure	3
CE 568/468:	Wind and Seismic Load	3
CE 567/467:	Bridge Engineering	3
CE 664	Plate & Shells	3
CE 665	Structural Stability	3
CE 499:	Senior Design Project	3
CE 450:	Structural Steel Design	3
CE 360:	Structural Analysis	3
CE 220:	Mechanics of Solids	3

## GRADUATE RESEARCH

Supervised and sponsored four (4) Post Docs and over fifty (50) graduate students in their MS/PhD research as a major advisor. Seven (7) of my Post Doc/Ph.D. students are now faculty members, two are scientists at research laboratories and all of the others are employed in the industrial sector.

### Post Doc Supervised and Sponsored

Dr. Lei Li, Assistant Professor, College of civil engineering, Zhengzhou University of Aeronautics, Zhengzhou, Henan, P.R. China

Dr. Hua Zhao; Assistant Professor, Department of Structural Engineering, Hunan University, China

Dr. Leslaw Kwasniewski, Assistant Professor, Department of Civil Engineering, University of Poland, Poland

Dr. Wenfeng Du, Professor of Structural engineering, Henan University, China

Dr. Amol Vaidya, Global Innovation Leader at Owens Corning - Owens Corning, Ohio

### Graduate Students Supervision as a Major Advisor

#### Ph.D.

Amol Vaidya (PhD, '09), Multifunctional Composite for Panelized Construction; won UAB student of the year 2009, won "Academic Excellence Award in Doctoral Category"

Hua Zhao (PhD, '10), Innovative Bridge Weigh-In-Motion (BWIM) System Testing and Evaluation for Highway Bridges (graduated in the Spring 2010).

Mohammed Mousa (PhD, '11), Novel Structural Composite Panels for Disaster Resistant Construction;

Mohammed Shohel (PhD Candidate, '12): Experimental Evaluation and Numerical Modeling of VARTM for Repairing and Strengthening of Concrete Structures

Zhisong Zhao (PhD, '12): Simulation of Bridge Weigh-in-Motion System Integrated with Bridge Safety

Luis Ramos (PhD, '13): Development of Vacuum Assisted Resin Transfer Molding (VARTM) Method for the Repairing and Strengthening of Concrete Structures

Li Dong (PhD Candidate, '13): Next-Generation Wireless Bridge Weigh-in-Motion System

Incorporated with Nondestructive Evaluation Capability for Transportation Infrastructure Safety

Adel A Elfayoumy (PhD, '14): Impact and solution for doubling heavy vehicles

Rahul Kalyanker (PhD, '15): Simulation of Bridge responses to Heavy Vehicles  
Marwan Mostafa (PhD, '15): Sustainable Construction with Green Compressed Earth Block  
(GCEB)  
Ahmed Hattab (PhD '17): Drive-by Bridge Monitoring and Damage Identification; Won UAB  
student of the year 2017, won SOE best student 2017 and CCEE Best Student 2017 Awards  
Erik G Winardi (PhD Candidate, '15): Simulation of Dynamic Interaction of Bridge with Wind and vehicle  
Yahya Mohamed Abd el Razek (PhD '19): Bridge Safety against Multihazard Extreme Events  
Chengjun Tan (PhD Candidate, '17): MARS-Rover Fly for Infrastructure Resiliency  
Zhenhua Shi (PhD Candidate, '19): Multihazard Bridge Connections  
AbdelAziz I. AbdelLatef (PhD Candidate, '18): Integrated Structural Health Monitoring Techniques Using  
Community of Sensors  
Emad Badiie (PhD Student, New): New Bridge Rail Design Procedure

## **MS**

Rushikesh Surendra Chavan (MS 2019) Independent and Interrelated Multi-Hazard Performance  
Nainish Rajendra Munot (MS 2019) Mutihazard Damage Detection Framework for Earthquake and  
Windstorm  
Nathan Boswell (MS 2019) Issues and Challenges of AL Bridges  
Heba Elsis (MS 2018) Seismically Damaged Structure Performance Under subsequent Wind Event  
Amin Pahlevannejad (MS 2017) Testing and Simulation of Reinforced Concrete Beams under Impact  
Loading.  
Chris Arias (MS 2016): Assessment of Long-time Behavior for Bridge Girders Retrofitted with  
Fiber Reinforced Polymer (FRP) Using Accelerated-time Concepts  
Yahya Mohamed Abd el Razek (MS, 2016): Cyber-Physical System for Monitoring and Controlling Loads  
Ahmed Hattab (MS, '15): Drive-By Bridge Damage Detection  
Adel Badiie (MS 2015): Nonlinear FE model for bridge dynamic impact  
Emad Badiie (MS 2014): Bridge Rail Design Procedure  
Hisham Merhebi (MS 2014): Impact and Feasibility Study of Solutions for Doubling Heavy  
Vehicles  
Mohamed Hindam (MS 2014): The Construction Workers in Gulf Cooperation Council  
Countries  
Shadrack Mboya (MS 2013): Wireless NDE Integrated BWIM System  
Malcolm Parrish (MS 2013): Innovative Processing for Bridge Repair  
Martin K Waruinge (MS 2013): Specifications and design guidelines for VARTM Repairing and

Strengthening of Concrete Structures.

- Li Dong (MS 2012): Wind Storm Resistance of Composite Structural Insulated Panels (CSIPs)
- Elton D’Silva (MS 2011): Flood Protected Home for Hurricane Hazard Mitigation
- Amber Greer (MS 2010): LRFR Bridge Rating using WIM Data
- Tonga Nguyen (MS 2009): Design method for Repairing of Bridge Girders using Innovative VARTM Processing
- Rahul Kalyanker (MS 2009): Green Composites for Panelized Construction
- Swapnil P Konde Deshmukh (MS 2009): Cost effectiveness of Thermoplastic Bridge Structures
- Anand Patel (MS 2009): Reliability Analyses for the Housing for Wind Storm and Storm Surge mitigation construction.
- Stephen Cauthen (MS 2008): Design method for Repairing of Bridge Girders using Innovative VARTM Processing
- Mohammed Mousa (MS 2007): Novel Multifunctional Panels for Panelized Construction
- Casey Brown (MS 2007): Thermoplastic Bridge Superstructure for Military Applications
- Kedar Sehler (MS 2006): A Novel Sandwich Panel for Panelized Construction
- Abdul Moeed (MS 2006): Anacostia River Trail Bridge Project
- Nitin Futin (MS 2006): Post-Fire Behavior of Fiber Reinforced Polymer Wrapped Columns
- John D. Purdue (MS 2005): Ballistic Impact Performance Evaluation of Thermoplastic Reinforced Concrete Panels and Piers
- Amol K. Vaidya (MS 2004): Performance Evaluation of 3D and Multifunctional Composite Structure for Infrastructure Application
- Nadim S. Forhat (MS 2003): Vulnerability Reduction of Bridge Piers Using Glass Reinforced Polypropylene
- Amol A. Khotpal (MS 2003): Structural Characterization of Hybrid FRP-Autoclave Aerated Concrete Panel for Disaster Mitigation Construction
- Tim A Maurer (MS 2002): Innovative Seismic Retrofitting for School Structures

**RECENT RESEARCH FUNDING**

<b>Project/Date/Funding</b>	<b>Source</b>
1. PI, “CPS: Breakthrough: Mobile Automated Rovers Fly-By (MARS-FLY) for Bridge Network Resiliency (Internationally collaborative research project with matching funds from Ireland SFI and UK national research agency INI) (NSF-CNS-1645863); Period of Support: 04/17- 05/22 \$600,000 (NSF), \$1,200,000 (Total)	NSF

2. **PI**, "High Data Density Short Range Wireless Telemetry for Next Generation IoT Applications (Co-PI) (NSF-CSSR- 1813949); Period of Support: 08/18- 08/21 \$500,000 NSF
3. **Co-PI**, "S&AS:INT:COLLAB: Aerodynamic Intelligent Morphing System (A-IMS) for Autonomous Smart Utility Truck Safety and Productivity in Severe Environments", (NSF-S&AS-1849264); Period of Support: 10/19-10/23; \$1,000,000 NSF
4. **PI**, "Developing Bridge Weigh-in-Motion (B-WIM) Health Monitoring Systems for Bridge Infrastructure Safety (Internationally collaborative research project with matching funds from Ireland SFI and UK national research agency INI) (NSF-CMMI-1100742); Period of Support: 04/11- 05/15 \$350,000 (NSF), \$1,300,000 (Total) NSF
5. **PI**, "Structural Panels for Natural Hazard Resistant Structures," (NSF-CMMI-825938); Period of Support: 10/08-10/13 (Co-PI: Fouad, Salama) \$550,900 NSF
6. **PI**, "Multifunctional Composite for Panelized Construction," (NSF-CMMI-533306); Period of Support: 10/05-10/12 (Co-PI: Fouad, Vaidya) \$289,900 NSF
7. **PI**, "International Research for Manufacturing and Design Feasibility of Jute Fibers in Composite Construction," (NSF-CMMI-635422); Period of Support: 10/06-12/08 \$30,000 NSF
8. **PI** "Novel Building Materials for Panelized Construction," (NSF-CMS-229631); Period of Support: 01/03-10/06 (Co-PI: Fouad, Vaidya), \$180,400 NSF
9. **PI**, "NSF International Workshop on Disaster Mitigation Construction"(NSF-CMS-4198931) Period of Support: 10/05-10/06 \$40,000 NSF
10. **PI**, "Research Experience for Undergraduates Students on Disaster Mitigation Construction", (NSF -CMS-0329213) Period of Support: 01/03 – 10/06 NSF



\$18,000

11. **PI**, “Research Experience for Undergraduates Students on Panelized Construction”, (NSF - CMS-0634573) NSF  
Period of Support: 01/06 – 12/08  
\$18,000
12. **PI**, “Fly-By Image Processing for Real Time Congestion Mitigation”; USDOT  
(UTC STRIDE 2012-0365);  
Period of Support: 11/18- 11/21  
National Transportation Center Collaborative Project  
With University of Florida; US DOT  
\$240,000
13. **PI**, “Cost-Effective VARTM Technology for Repair and Strengthening-Phase III,” Alabama DOT/FHWA 930-607B ALDOT/  
FHWA  
Period of Support: 10/09-1/12  
(Co-PI: Vaidya); \$150,250
14. **PI**, Fulbright Scholarship, “Catalyzing US-Bangladesh Collaboration to Advance Green Building Technologies for Windstorm and Storm Surge Mitigation” US Department of State  
Period of Support: 01/08-12/09  
\$50,000 (Exp. Incurred)
15. **PI**: Bridge Rail Design Procedures USDOT  
USDOT NCTSPM 2013-046  
Period of Support: 01/14- 01/17; US DOT;  
National Transportation Center Collaborative Project  
With Georgia Institute of Technology  
\$300,000;
16. **PI**: Field Validation of a Drive-By Bridge Inspection System with Wireless BWIM +NDE Devices USDOT NCTSPM 2013-010 USDOT  
Period of Support: 01/14- 01/17; US DOT;  
National Transportation Center Collaborative Project  
With Georgia Institute of Technology;  
\$600,000
17. **PI**, Impact and Feasibility Study of Solutions for Doubling Heavy Vehicles; (USDOT NCTSPM 2012-60); USDOT  
Period of Support: 04/12- 01/16;  
National Transportation Center Collaborative Project  
With Georgia Institute of Technology  
\$443,648
18. **PI**, Next-Generation Wireless Bridge Weigh-in-Motion (WIM) System Incorporated with Nondestructive Evaluation (NDE) Capability USDOT

for Transportation Infrastructure Safety (USDOT NCTSPM 2012-007);  
 Period of Support: 04/12- 01/16; US DOT;  
 National Transportation Center Collaborative Project  
 With Georgia Institute of Technology  
 \$797,554

18. **PI**, Consequence Based Route Selection for Hazardous Material Cargo: GIS-Based Time Progression of Environmental Impact Radius of Accidental Spills”; USDOT  
 Period of Support: 04/12- 01/16 (UTC STRIDE 2012-0365);  
 National Transportation Center Collaborative Project  
 With University of Florida; US DOT  
 \$220,000

19. **PI**, “Assessment of Long-time Behavior for Bridge Girders Retrofitted with Fiber Reinforced Polymer (FRP) Using Accelerated-time Concepts” Alabama DOT/FHWA 930-773R ALDOT/  
 Period of Support: 1/1/12 – 12/1/13 FHWA  
 \$175,000

20. **PI**, “Cost-Effective VARTM Technology for Repair and Strengthening-Phase II,” Alabama DOT/FHWA 930-607A ALDOT/  
 Period of Support: 04/06-04/09 FHWA  
 (Co-PI: Vaidya)  
 \$140,611

21. **PI**, “Cost-Effective VARTM Technology for Repair and Strengthening-Phase I,” Alabama DOT/FHWA 930-607 ALDOT/  
 Period of Support: (05/05-11/06) FHWA  
 (Co-PI: Vaidya)  
 \$139,380

22. **PI**, “Demonstration of Cost-effective VARTM Technology for Repair and Strengthening- A Case Study with I-565 Highway Bridge,” ALDOT/FHWA 930-549 ALDOT/  
 Period of Support: 03/03-02/05 FHWA  
 (Co-PI: Vaidya)  
 \$143,611

23. **PI**, “Anacostia River Park Pedestrian Bridge Project-Novel Technology Demonstration,” Washington DC DOT/  
 Period of Support: 06/05 - 08/06 FHWA  
 (Co-PI: Vaidya, Husman)  
 \$1,000,000 (UAB \$200,000)

24. **PI**, “Use of WIM Data for Site-specific LRFR Bridge Rating” UTCA/  
 UTCA 10204, Period of Support: (01/10-12/10) DOT  
 (Co-PI: Waldron)

\$65,000

25. **PI**, "VARTM Technology for Repair and Strengthening," UTCA-3405; UTCA/  
DOT  
Period of Support: 04/03-01/05  
(Co-PI: Vaidya)  
\$120,611 (\$50k Matching)
26. **(Co-PI)** "Bridge Weigh-In-Motion (BWIM) System Testing and Evaluation," UTCA/  
DOT  
UTCA 07212;  
Period of Support: 03/07-06/08  
(PI: Hitchcock; co-PI: Sisiopiku, Salama, Kirby, Anderson, Toutanji)  
\$350,000 (with ALDOT Purchase of \$200,000 Equipment)
27. **(Co-PI)** "Expanding Portable BWIM Technology," UTCA 08204; UTCA/  
DOT  
Period of Support: 07/08-06/09  
(PI: Hitchcock; co-PI: Sisiopiku, Salama, Kirby, Anderson, Toutangi),  
\$150,000
28. **Co-PI**, "Vestavia School Pedestrian Bridge Project-Novel Technology Demonstration," FHWA/  
IBRC  
Period of Support: 10/11 - 12/11  
(PI: Jackson, Co-PIs: Fouad, Andrew, Vaidya)  
\$200,000
29. **Co-PI**, "Multidisciplinary Commercial Motor Vehicle Safety Research Program"; Federal Motor Vehicle Safety DOT  
Period of Support: 9/03-9/06  
(PI: Fouad; Co-PIs: Sisiopiku, Peters)  
\$275,000
30. **Co-PI** "GATE Center at UAB for advanced Lightweight Materials Technologies," DOE  
Period of Support: 03/06-03/12  
(PI: Vaidya, Co-PI: Shih, Eberhardt)  
\$600,500
31. **PI**, "Low cost Composite Wrap to Enhance the Dynamic Damage Resistance of Bridges," UTCA-4210 UTCA/  
DOT  
Period of Support: 07/03-01/05  
(Co-PI: Vaidya)  
\$100,000 (\$50k Matching)
32. **PI**, "Vulnerability Reduction of Bridge Structure," UTCA/  
DOT  
UTCA-3229;  
Period of Support: 06/04-12/05

(Co-PI: Vaidya),  
\$100,000 (\$50k Matching)

33. **PI**, "Cost-Effective Thermoplastic Technology  
for Vehicular Bridge Superstructure," UTCA- 5228,  
Period of Support: 06/05-12/06  
(Co-PI: Vaidya)  
\$100,000 (\$50k Matching) UTCA/  
DOT

34. **Co-PI**, "Sustainable Green Construction",  
Period of Support: (2009)  
(PI: Robert Peters, Co-PI: Kirby, Watts)  
\$4,000 STERN GRANT

35. **PI**, "Homeland Security-Critical Infrastructure Protection",  
Period of Support: 2004  
(Co-PI: Robert Peters)  
\$3,000 STERN GRANT

36. **PI**, "Advanced Sensor Technology for Infrastructure Protection"  
Period of Support: 2004  
(Co-PI: Robert Peters)  
\$3,000 STERN GRANT

37. **PI**, "Advanced FRP Composite for Infrastructure"  
Period of Support: 2005  
(Co-PI: Rizk, Vaidya),  
\$2,500 STERN GRANT

38. **PI**, "Natural Hazard Mitigation"  
Period of Support: 2006  
\$2,500 STERN GRANT

39. **PI**, "Anacostia River Trail Park Bridge Design-Preliminary  
Study"  
Period of Support: 01/04 - 12/05  
(Co-PI: Fouad, Vaidya)  
\$40,000 Washington DC DOT/  
DOT

40. **PI**, Anacostia River Trail Park Bridge Design-Final Design,  
Period of Support: 01/05 - 12/06  
(Co-PI: Fouad, Vaidya)  
\$160,000 Washington DC DOT/  
DOT

41. **PI**, UAB Bus Study, Parking and Transportation  
Services;  
Period of Support: 01/03-12/03  
(Co-PI: Jones) UAB

\$40,000

42. <b>PI</b> , “Seismic Design for Concrete-Face Rockfill Dams” Period of Support: 1999 \$50,000	Faculty Development Grant
43. <b>PI</b> , “Multimedia application in the Structural Design” Period of Support: 1999 \$30,000	EXCEL FIIG
44. <b>PI</b> , “GPS Surveying Equipment for the HAZUS Center” Period of Support: 2000 \$10,000	FEMA
45. <b>PI</b> , “Multimedia Application in the Structural Design” Period of Support: 2000 \$30,000	EXCEL FIIG
46. <b>PI</b> , “Modification of Ground Motion due to Underground Mining” Period of Support: 2000 \$17,500	ARSAF
47. <b>Co-PI</b> , “Develop DMS System for SW Indiana” Period of Support: 1999-2001 (City of Evansville, IN). \$658,000	Sandia National Laboratories, NM
48. <b>PI</b> , “Assessing Seismic Vulnerability of Transmission Structures” Period of Support: 2000 \$4000	EPRI /DRC

## PUBLICATIONS

### RECENT BOOKS

1. Seismic Hazard Design Issues in the Central United States (ed. Uddin), (New York: ASCE, 2013); ASCE Council for Disaster Risk Management (CDRM) Publication (2013).
2. Developments in Fiber Reinforced Polymer (FRP) Composites for Civil Engineering (London: Woodhead Publishing, 2013), (ed. Uddin); ASCE Council for Disaster Risk Management (CDRM) Publication: ISBN 0 85709 234 0; May 2013; 560 pages 234 x 156mm hardback; £170.00 / US\$290.00 / €205.00
3. Blast Protection of Infrastructures and Vehicles Using Composites (ed. Uddin), (London: Woodhead Publishing, 2010): ISBN 1 84569 399 X; ISBN-13: 978 1 84569 399 2 March 2010 448 pages.
4. Disaster Risk Assessment and Mitigation, (ed. Uddin with Ang), (New York:ASCE, 2008) ISBN 9 78078 4410127, December 2008 paperback, 110 pages.
5. Wind storm and Storm Surge Mitigation Construction (ed. Uddin), (New York: ASCE, 2010) ISBN 978-0-7844-1081-3, 2010, 164 pp.

6. Quantitative Risk Assessment for Natural Hazards (ed. Uddin with Ang), (New York: ASCE, 2010) SBN 978-078441153-7, June 2011, Paperback 88 pages.
7. Models and Metrics for Sustainability and Resilience of Systems (ed. Uddin), (New York: ASCE 2017), ASCE-ASME Journal of Risk and Uncertainty special collection.

#### SELECTED PEER-REVIEWED JOURNAL ARTICLES (\*GRADUATE STUDENTS)

1. Elhatab, A., Uddin, N., and OBrien, E., (2019) "Extraction of Bridge Fundamental Frequencies Utilizing a Smartphone MEMS Accelerometer"; Journal Sensors; 2019, 19(14), 3143; <https://doi.org/10.3390/s19143143>
2. Tan, Chengjun, Nasim Uddin, Eugene J. Obrien, Patrick J McGetrick, and Chul-Woo Kim (2019). "Extraction of Bridge Modal Parameters Using a Passing Vehicle Response." Journal of Bridge Engineering (ASCE); Volume 24 Issue 9 - September 2019
3. Mohammed, Y., and Uddin, N. (2019) "Acceleration-Based Bridge Weigh-in-Motion"; Journal of Bridge Structures 14(4): 131-138.
4. Mohammed, Y., and Uddin, N. (2019) "Moving Force Identification for Real-Time Bridge Weigh-In-Motion"; Journal of Bridge Structures; 14(4): 139-145.
5. Qi Liu, Wenfeng DU, Uddin, N. and Zhi-yong Zhou (2019) "Experimental investigation of innovative composite folded thin cylindrical concrete shell structures"; Journal of Thin-Walled Structures, Accepted for publication.
6. Sharath, P., Rajeev, A., Uddin, A., Shleke, A., and Uddin, N. (2018) "Probabilistic Contact Force Model for Low Velocity Impact on Honeycomb Structure Sustainable and Resilient Infrastructure", Journal of Sustainable and Resilient Infrastructure, vol.4, issue 2, pg 51-65; DOI: 10.1080/23789689.2018.1469359
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## BOOK CHAPTERS AND REVIEWS

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99. Tan, Chengjun, Nasim Uddin., and Ahmed Elhattab, "Utilizing Hilbert Transform to Assess the Bridge Health Condition Proceedings of the joint ICVRAM ISUMA UNCERTAINTIES conference. Florianopolis, SC, Brazil, April 8-11, 2018
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132. Uddin, N.: Impact and feasibility solution for of doubling heavy vehicles; CATSS-UTC Symposium, Orlando, FL, Feb 14-15, 2013
133. Elfayoumy, A., and Uddin, N. "Characterization of prestressed concrete and steel bridge girders against heavy truck loading" Transportation Research Board (TRB), 94th Annual meeting, Jan 2015, (Poster presentation)
134. Elfayoumy, A., and Uddin, N. "The effect of increasing heavy vehicle loads on a bridge life span", Transportation Research Board (TRB), 94th Annual meeting, Jan 2015, (Poster presentation)
135. Elfayoumy, A., and Uddin, N. Impact and Feasibility Study of Solutions for Doubling Heavy Vehicles, University Transportation Center (UTC) Conference for the Southeastern Region, Atlanta, GA, Mar 2014.
136. Elfayoumy, A., and Uddin, N. I Impact of doubling heavy vehicles on bridge, CATSS-UTC Symposium,

University of Central Florida, Orlando, FL, Feb. 2013

137. Yang, W. and Uddin, N. "Next-Generation Wireless Bridge Weigh-in-Motion (WIM) System Integrated with Nondestructive Evaluation (NDE) Capability for Transportation Infrastructure Safety"; University Transportation Centers Conference for the Southeastern Region; Orlando, FL, April 4, 2013
138. Taylor, C.E., Uddin, N., Graf, W., Liu, F. and Lee, L. 2014, "Robust Simulation: Why and When Needed and What Should be Qualified", Second International Conference on Vulnerability and Risk Analysis and Management (ICVRAM2014), Liverpool, UK.
139. Uddin, N. 2014, "Advances in Measurement Science to Enhance the Resilience of Infrastructure to Natural and Manmade hazards", NIST - ASCE Workshop on Measurement Science for Sustainable Construction and Manufacturing; ASCE, Reston, Virginia, 7/2014
140. Zhao, H. and Uddin, N. 2014, "Field-calibrated influence line for the application of BWIM technology on wide bridge", 7th International Conference on Bridge Maintenance, Safety and Management (IABMAS), 2014; Shanghai, China, 07/2014
141. Zhao, H. and Uddin, N. 2014, "Dynamic Simulation Analysis for Vehicle-Bridge Interaction on A Simply Supported Multi-T-girder Bridge", 7th International Conference on Bridge Maintenance, Safety and Management (IABMAS), Shanghai, China, 07/2014
142. Zhao, H. and Uddin, N. 2014, "Wavelet domain analysis for identification of vehicle axles in the application of BWIM technology " 7th International Conference on Bridge Maintenance, Safety and Management (IABMAS), Shanghai, China, 07/2014
143. Uddin, N. 2014, "Next-Generation Wireless Bridge Weigh-in-Motion (WIM) System Integrated with Nondestructive Evaluation (NDE) Capability for Transportation Infrastructure Safety" CATSS-UTC Symposium; Orlando, Florida, 4/2014
144. Uddin, N. 2014, "Impact and feasibility solution for of doubling heavy vehicles" CATSS-UTC Symposium; Orlando, Florida, 4/2104. Uddin, N., Zhao, H., and Obrien, E., 2011 "Use of Weigh-In-Motion (WIM) Data for Site-Specific LRFR Bridge Rating," Proceedings of the 6th International Conference on Weigh-In-Motion ICWIM6, Dallas, Texas (April 4-7, 2012).
145. Uddin, N., Dowling, J., Zhao, H., Gonzalez, A, and Obrien, E., 2011 "Field Verification of a Filtered Measured Influence Line Approach to the Bridge Weigh-in-Motion Algorithm," Proceedings of the 6th International Conference on Weigh-In-Motion ICWIM6, Dallas, Texas (April 4-7, 2012).
146. Zhao, H and Uddin, N. "Axle weights identification with moving force identification theory", 18th International Association for Bridge and Structural Engineering (IABSE) Congress on Innovative Infrastructures toward Human Urbanism, Seoul, Korea, September 19-21, 2012
147. Zhao, H and Uddin, N. "Weigh-in-Motion (WIM) Data for Site-Specific LRFR Live Load Factor Calibration", 18th International Association for Bridge and Structural Engineering (IABSE) Congress on Innovative Infrastructures toward Human Urbanism, Seoul, Korea, September 19-21, 2012
148. Uddin, N., Obrien, E., and Taylor, S. 2011 "New Generation B-WIM Health Monitoring Systems for Bridge Infrastructure Safety," Proceedings of the 6th International Conference on Weigh-In-Motion ICWIM6, Dallas, Texas (April 4-7, 2012).
149. Zhao, H and Uddin, N. "Innovative bridge weigh-in-motion system for enforcement application", International Association for Bridge and Structural Engineering (IABSE-IASS) Symposium London 2011, London, Sept., pp.581
150. Zhao, H and Uddin, N. "Influence line calculation of existing bridges in BWIM system", International Association for Bridge and Structural Engineering (IABSE-IASS) Symposium London 2011, London,

Sept., 2011, pp. 572

151. Zhao, H and Uddin, N. "Algorithm to identify axle weights for an innovative BWIM system- Part I", *Advances in Bridge Engineering-II*, 8-10 August, 2010, Dhaka, Bangladesh, pp.527-536
152. Zhao, H and Uddin, N. "Algorithm to identify axle weights for an innovative BWIM system- Part II", *Advances in Bridge Engineering-II*, 8-10 August, 2010, Dhaka, Bangladesh, pp.537-546.
153. Hitchcock, W., Uddin, N., Zhao, H., and Salama, T., 2011 "Early Experience with a Commercial BWIM System for Enforcement," *Proceedings of the 6th International Conference on Weigh-In-Motion ICWIM6*, Dallas, Texas (April 4-7, 2012).
154. Robinson, D., O'Brien, E., Uddin, Taylor, S., Hajializade, D., and Shells, E. "Strategies for Axle Detection in Bridge Weigh-in-Motion Systems," *Proceedings of the 6th International Conference on Weigh-In-Motion ICWIM6*, Dallas, Texas (April 4-7, 2012).
155. Uddin, Nasim, and Mousa, Mohammed (2011) "Use of Quantitative Risk Assessment in Structural Design" *International Conference on Vulnerability and Risk Analysis and Management (ICVRAM)/Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011)*, April-2011, Hyattsville, Maryland.
156. Uddin, Nasim., Mousa, Mohammed., (2011) "Design of Composite Structural Insulated Panels (CSIPs) for Penalized Construction" *Proceedings of NSF Engineering Research and Innovation Conference*, Atlanta, Georgia.
157. Uddin, Nasim., Mousa, Mohammed (2010) "Life-Cycle Cost (LCC) Analysis of Thermoplastic Composites for Panelized Construction", *Proceedings of CECAR 5 + ASEC 2010 Conference*, 8 - 12 August (2010), Sydney.
158. Mousa, Mohammed., Uddin, Nasim (2010) "Experimental and Analytical Study of Composite Structural Insulated Floor Panels" *Earth and Space 2010: Engineering, Science, Construction, and Operations in Challenging Environments*, *Proceedings of the 12th International Conference on Engineering*, ASCE, Honolulu, Hawaii.
159. Uddin, Nasim., Mousa, Mohammed (2009) "Composite Structural Insulated Panels (CSIPs) for Hazards Resistant Structures" *Proceedings of NSF Engineering Research and Innovation Conference*, Honolulu, Hawaii.
160. M. Mousa, N. Uddin (2010) "Design of Composite Structural Insulated Panels (CSIPs) for Panelized Construction" *COMPOSITES 2011 (ACMA) Conference*, February 2-4, 2011, FT. Lauderdale, FL.
161. N. Uddin, M. Mousa, "Composite Structural Insulated Panels (CSIPs) for Hazards Resistant Structures" *Proceedings of 2009 NSF Engineering Research and Innovation Conference*, Honolulu, Hawaii.
162. M. Mousa, N. Uddin (2010) "Experimental and Analytical Study of Composite Structural Insulated Floor Panels" *Proceedings of Earth & Space 2010 Conference*, March 14 – 17, 2010 in Honolulu, Hawaii.
163. M. Mousa, N. Uddin (2010) "Global Buckling of Composite Structural Insulated Wall Panels", *ASCE Engineering Mechanics Institute 2010 Conference*, Los Angeles, CA, August 8-11, 2010. Abstract was accepted.
164. Zhao, H., Uddin, N., Hitchcock, W.A., Salama, T, and Ahmed, A. 2008 "Innovative Bridge Weigh-in-Motion System for Enforcement and Bridge Maintenance: A Case Study with Bridge on Highway I-59," *Proceedings of the 10th International Bridge and Structure Management Conference*, Buffalo, New York, (October 4-6).

165. Zhao, H., Uddin, N., Hitchcock, W.A., Salama, T, and Ahmed, A. 2008 "Innovative Bridge Weigh-in-Motion System for Bridge Repair and Maintenance: A Case Study with Bridge on Highway I-59," Proceedings of the Structural Faults & Repair-2008, Edinburgh, UK, (June 13-18) .
166. Toutanji, H., Sisiopiku, V. P. , Hitchcock, W.A., Uddin, N. Salama, T, Kirby, J., and Richardson, J.A. 2008 "Bridge Weigh-In-Motion Technology," Proceedings of the International Conference on Heavy Vehicles, Paris, France, (May 19-22).
167. Sisiopiku, V. P., Chemmannur, J., Zhao, H., Toutanji, H., Hitchcock, W.A., Uddin, N. Salama, T, Kirby, J., and Richardson, J.A. 2008 "The U.S. Experience With New Generation Weigh-In-Motion Systems," Proceedings of the International Conference on Heavy Vehicles, 10th International Conference on Application of Advanced Technologies in Transportation, May 27- 31, Athens, Greece.
168. \*Uddin, N, Vaidya, A., Vaidya, U., and Fouad, H. 2008 "Innovative Multifunctional Structural Panels for Cost-effective Panelized Construction," Proceedings of the National Science Foundation (NSF) Civil, Mechanical and Manufacturing Innovation (CMMI) Engineering Research and Innovation Conference, 16 pages, Knoxville, TN, (January 7-11).
169. \*Uddin, N, Vaidya, A. and Vaidya, U. 2007 "Natural Fiber Reinforced Structural Insulated Panels for Cost-Effective Panelized Construction," Proceedings of the National Science Foundation (NSF) Grantee Conference on International Research and Education in Engineering, Purdue University, 10 pages, West Lafayette, IN, (October 30-November 2).
170. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 "Structural Characterization of Multifunctional Composites for Panelized Construction," Proceedings of the International Conference on Mechanical Engineering, 2007 Conference, 10 pages, Dhaka, Bangladesh, (December 27-31).
171. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 "Impact Characteristics of Composite Structural Insulated Panels (CSIPs) For Panelized Construction," Proceedings of the Materials Science and Engineering Technology 2007 Conference, 8 pages, Detroit, Michigan, (October 11-17).
172. \* Vaidya, A., Uddin, N, and Vaidya, U. 2007 "Manufacturing and Structural Characterization of Innovative Open Core Sandwich Composites", Proceedings of the Fourth International Conference on FRP Composites in Civil Engineering (CICE 2007),6 pages, Hong Kong, China, (December 23-25).
173. Uddin, N. 2007 "Quantitative Risk Analysis for Wind Hazards," Proceedings of the 4th Civil Engineering Conference in the Asian Region, 10 pages, Taipei, Taiwan, (June 25-27).
174. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 "Thermoplastic Composite Structural Insulated Panels (CSIPs) for Panelized Construction", Proceedings of the SAMPE Conference, 8 pages, Long Beach, California, (August 11-17).
175. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 "Composite Structural Insulated Panels (CSIPs) For Flood and Storm Resistant Building Construction", Proceedings of the CDRM Symposium, ASCE Annual Conference, 10 pages, Chicago, Illinois, (October 8-11).
176. \*Uddin, N., Purdue, J., and Vaidya, U. 2006 "Feasibility of Low Cost Thermoplastic Composite for bridge pier protection", Proceedings of the Third International Conference on FRP Composites in Civil Engineering (CICE 2006),4 pages, Miami, Florida, USA, (December 13-15).
177. \*Uddin, N, Purdue, J., and Vaidya, U. 2006 "Concrete Columns Strengthened with Prefabricated Polypropylene Wrap under Low Velocity Impact", Proceedings of the ASCE SEI Conference, 8 pages, St. Louis, MO, (November 11-14).
178. \*Uddin, N, Shohel, M., Vaidya, U., and Serrano, J. 2006 "Bridge Retrofitting using Vacuum Assisted Resin Transfer Molding (VARTM) Process," Proceedings of the Structural Fault and Repair



- Conference-2006, 10 pages, Edinburgh, England, (June 13 - 15).
179. \*Uddin, N, Abro, A. M., Kos, E., Husman, G., Vaidya, U., and Serrano, J. 2006 "Design and Manufacturing of Low Cost Thermoplastic Composite Bridge Superstructures- A Case Study", Proceedings of the Structural Fault and Repair Conference-2006, 10 pages, Edinburgh, England, (June 13- 15).
  180. \*Uddin, N, Abro, A. M., and Vaidya, U. 2006 "Design and Manufacturing of Low Cost Thermoplastic Composite Bridge Girder", Proceedings of the Third International Conference on FRP Composites in Civil Engineering (CICE 2006), 6 pages, Miami, Florida, USA, (December 13-15).
  181. \*Uddin, N, Purdue, J., and Vaidya, U. 2006 "Concrete Columns Strengthened with Prefabricated Polypropylene Wrap under Low Velocity Impact", Proceedings of the ASCE SEI Conference, 8 pages, St. Louis, MO, (November 11-14).
  182. \*Uddin, N, Sehler, K., and Fouad, F. 2005 "Impact Response of Hybrid Autoclave Aerated Concrete/FRP Sandwich Structures, Proceedings of the International AAC Conference, 10 pages, London, UK, (November 18-21).
  183. \*Vaidya, A., Uddin, N., and Vaidya, U. 2005 "Vibration Response of Multifunctional Sandwich Composites Applicable in Commercial Motor Vehicles"; Proceedings of the SAMPE Conference, 10 pages, Long Beach, California, (August 3-11).
  184. \*Uddin, N, Farhat, N., and Vaidya, U. 2005 "Low Cost Thermoplastic Technology for Vulnerability Reduction of Bridge Structures"; Proceedings of the ACI Annual Conference, 10 pages, Kansas City, MO, (November 17-21).
  185. \*Uddin, N., and Maurer, T. 2005 "Seismic Retrofitting of Typical Building Systems"; Proceedings of the First Bangladesh Earthquake Symposium, 12 pages, Dhaka, Bangladesh, (December 14-15).
  186. \*Uddin, N. 2005 Key Note Speaker Presentation: "Disaster Reduction Strategy on Coasts of the Indian Ocean"; Proceedings of the 1st NSF International Workshop on Innovation on Wind Storm and Storm Surge Mitigation, 10 pages, Dhaka, Bangladesh, (December 19-21).
  187. \*Uddin, N., and Vaidya, U. 2004. "Potential Application of Nanoclay Relevant to Infrastructure Application". Proceedings for NASA Nano-Technology Conference. ASCE/SEI 2004 Structures Congress, 12 pages, Nashville, TN, (March 4-7).
  188. \*Vaidya, A., Uddin, N., and Vaidya, U. 2004. "Multifunctional Sandwich Materials for Mass Transit Applications", Proceedings of the Conference on Intelligent Transit, 10 pages, Miami, FL, (March 20-23).
  189. \*Vaidya, U., and Uddin, N. 2004. "Performance Evaluation of Fiber Reinforced Polymer (FRP)-AAC Sandwich Beams". Proceedings of the Developments in Theoretical and Applied Mechanics. Vol XXII, 5 pages, Center for Advanced Materials (T-CAM) Tuskegee University, AL, (November 11-12).
  190. \*Vaidya, U., and Uddin, N. 2004. "Hybrid Fiber Reinforced Polymer (FRP) – Autoclave Aerated Concrete (AAC)" Proceedings of the ASC/ASTM-D30 Joint 19th Annual Technical Conference, 8 pages, Atlanta, GA, (October 21-23).
  191. \*Uddin, N., Fouad, Vaidya, A., and Khotpal, A. 2004. "Novel Hybrid Panels for Panelized Building Construction", Proceedings of the NSAMPE Conference, 10 pages, Long Beach, California, (August 7-10).
  192. \*Uddin, N., Fouad, F., Vaidya, A. and Nadim, F. 2003. "Vulnerability Reduction for Bridge Structures Using Glass Reinforced Polypropylene Composite Wrap". Proceedings of the NSF Workshop, 10 pages, Cairo, Egypt, (December 13-19).

193. \*Vaidya, U., Uddin, N., and Vaidya, A. 2004. "Multifunctional Sandwich Materials for Mass Transit Applications", Proceedings of the Conference on Intelligent Transit, 10 pages, Miami, FL, (March 20-23).
194. \*Uddin, N., Fouad, Vaidya, A., and Khotpal, A. 2003. "Structural Characterization of Hybrid Fiber reinforced Polymer (FRP) – Autoclave Aerated Concrete (AAC) Panels". Proceedings of the NSF Workshop, 10 pages, Cairo, Egypt, (December 13-19).
195. \*Vaidya, U., Uddin, N., Serrano-Perez, S.C., and Shohel, M. 2003. "In-plane De-bond Response of Vacuum Resisted Resin Transfer Molded Carbon Fiber Sheet on Concrete Substrata", 8 pages, Proceedings of the International Composite Materials Conference, London, UK,(May 2-8).
196. Uddin, N., 2003. "Disaster Management System for Protecting Critical Infrastructure Against Natural Hazards". Proceedings of the 4th Joint Symposium on IT in Civil Engineering, 10 pages, Nashville, (July 13-14).
197. Uddin, N., 2003. "Advanced Composite Solution for Shore line Facilities", Proceedings of the Third International Coastal Structures Conference, 8 pages, Portland, OR, (December 16-18).
198. Uddin, N., Fouad, F., and Davidson, J., 2003. "Outcome Assessment of Engineering Education: Role of Industrial Advisory Board". Accepted for publication in the Proceedings of the ASEE (American Society of Engineering Education) '03 National Conference at Nashville, 10 pages, Tennessee, (May 21-23).
199. Uddin, N., and Vaidya, U. 2003. "Cost-effective VARTM Processing for Bridge Retrofitting". Proceedings of the Composite Structures for Repairing Conference", 8 pages, Los Angeles, California, (October 23-24).
200. Uddin, N., and Vaidya, U. 2003. "Potential Application of Nanoclay Relevant to Infrastructure Application". Proceedings of the NASA Nano-Technology Conference". ASCE/SEI 2004 Structures Congress, 10 pages, Nashville, TN, (June 14-15).
201. Uddin, N. 2002. "Survivability of Composite Structures for the Shore Facilities". Proceedings of the ASCE Technical Conference on Shore Engineering, 10 pages, Los Angeles, California (July 11-13).
202. Uddin, N. 2002. "Seismic Retrofitting of School System in the Mid West USA". Proceedings of the ASCE Technical Conference on Architectural Engineering Institute Annual Conference, 6 pages, Austin, TX (September 2-4).
203. Uddin, N. 2002. "Infrastructure Modeling for the Disaster Management System". Proceedings of the ASCE Technical Conference on Life Line Earthquake Engineering, 10 pages, Seattle, WA, (October 3-5).
204. Uddin, N. 2002. "Vulnerability and Survivability of Composite Structures". Proceedings of the Middle East International Composite Conference, 11 pages, Cairo, Egypt, (December 17-19).
205. Uddin, N. 2001. "Vulnerability and Survivability of Affordably Produced Infrastructure-Relevant Composite Structures". Proceedings of the Structural Engineering Congress, 8 pages, Tokyo, Japan, (May 16-19).
206. Uddin, N. 2001. "Affordably Produced Composite Materials for the Emergency Shelters and Safe Houses". Proceedings of the ASME-IMECE Conference, 10 pages, New Orleans, LA, (February 15-18).
207. Uddin, N. 2001. "Seismic Evaluation of Embankment Dam". Proceedings of the ASCE International Conference on Geotechnical Earthquake Engineering, 10 pages, San Diego, California, (March 10-17).
208. Uddin, N. 200. "Earthquake Deformation of Earth and Rockfill Dams". Proceedings of the

- International Conference on Structural Dynamics, 8 pages, Los Angeles, California, (February 4-7).
209. Uddin, N. 2001. "Seismic Evaluation and Remediation of Webber Dam." Proceedings of the International Conference on Soil Dynamics, 6 pages, Philadelphia, PA, (August 10-13).
210. Uddin, N. 2000. "Deep Excavation in Shale for Hydroelectric Power Facility". Proceedings of the ISCES International Conference on Computational Engineering and Sciences. UCLA, 8 pages, Los Angeles, California, (August 10-13).
211. Uddin, N. 2000. "Analysis of Underground Powerhouse Cavern against High Pressure Brine Water". Proceedings of the ISCES International Conference on Computational Engineering and Sciences. UCLA, Los Angeles, California, (August 10-13).
212. Uddin, N. 2000. "Design of Large Underground Plugs". Proceedings of the 14th ASCE EMD (Engineering Mechanics Division) Conference. University of Texas at Austin, 4 pages, Austin, Texas, (May 7-9).
213. Uddin, N. 2000. "Reliability-Based Concrete Plug Design for Mine Closure". Proceedings of the Eighth ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, University of Notre Dame, 8 pages, Notre Dame, Indiana, (July 24-26).
214. Uddin, N. 1999. "Seismic Evaluation and Remediation of Croton Dam". Proceedings of the ASCE International Conference on Hydropower WATERPOWER 99, 10 pages, Las Vegas, NM, (August 10-12).
215. Uddin, N. 1999. "Design of Concrete Face Slab for the Concrete-Face Rockfill Dams for the Strong Earthquakes". Proceedings of the International Conference on Dam Engineering, 12 pages, London, UK, (March 21-28).
216. Uddin, N. 1999. "Seismic Analysis of Concrete-face Rockfill Dams during Strong Earthquakes". Proceedings of the 11th Nonlinear Finite Element Analysis and ADINA conference, 8 pages, MIT, Cambridge, MA, (June 11-14).
217. Uddin, N. 1999. "Earthquake Forces in Slab of Concrete-Face Rockfill Dams". Proceedings of the ICOLD/USCOLD Fifth International Benchmark Workshop on Numerical Analysis of Dams, 10 pages, Denver, CO, (June 2-5).
218. Uddin, N. 1999. "Numerical Analysis of the Powerhouse Cavern Setting for a Pumped Storage Project". Proceedings of the Geo-engineering for Underground Facilities. ASCE Special Conference, 8 pages, Urbana, IL, (March 2-5).
219. Uddin, N. 1999. "An analytical Solution to Design Face Slab for Concrete-Face Rockfill Dams". Proceedings of the 13th ASCE EMD (Engineering Mechanics Division) Conference, 4 pages, John Hopkins University, Baltimore, MD, (June 7-9).
220. Uddin, N. 1998. "Southwestern Indiana HAZUS demonstration Project". Proceedings of the CUSEC (Central United States Earthquake Consortium) Conference. 6 pages, Louisville, KY, (June 14-16).
221. Uddin, N. 1998. "Teaching Structures using MATHCAD: Incorporation of Design Education and Practice". Proceedings of the ASEE (American Society of Engineering Education) '98 Conference at Carbondale, 10 pages, Illinois, (March 8-11).
222. Uddin, N. 1998. "Integration of Design in a junior level STRUCTURES course using MATHCAD". Proceedings of the ASEE (American Society of Engineering Education) '98 Central Conference at Detroit, 10 pages, Michigan, (April 21-23).
223. Uddin, N. 1998. "Lessons from the Failure of the Lower Saranac Dams. "Filter and Drainage.

- Proceedings of the ASCE Annual Conference, 6 pages, Boston, MA, (October 2-5).
224. Uddin, N. 1998. "Stabilization and Mine Closure Design of Salt Mine". Grout and Grouting. Proceedings of the ASCE Annual Conference, 6 pages, Boston, MA, (October 2-5).
225. Uddin, N. 1997. "A Single-Step Procedure for Estimating Seismically Induced Permanent Displacement in Earth Structures". Proceedings of the 10th Nonlinear Finite Element Analysis and ADINA conference, MIT, 8 pages, Cambridge, MA, (June 18-20).
226. Uddin, N. 1997. "Dynamic Nonlinear Finite Element Analysis for Earth Dams". Proceedings of the 10th Nonlinear Finite Element Analysis and ADINA conference, MIT, Cambridge, MA, (June 18-20).
227. Uddin, N., and Bond, N. 1997. "Deep Excavation for Hudson Falls Hydroelectric Power Facility". Proceedings of the 36th U.S. Rock Mechanics Symposium / ISRM International Symposium, 10 pages, New York, New York, (June 29-July 2).
228. Bond, N., and Uddin, N. 1997. "Detroit Salt Mine Closure Design". Proceedings of the 36th U.S. Rock Mechanics Symposium / ISRM International Symposium, 10 pages, New York, New York, (June 29-July 2).

#### **SELECTED INVITED TALKS, PANELS AND KEY NOTE SPEECHES**

1. Invited for the National Science Foundation (NSF) Infrastructure and Smart Cities panel, June 19-20, 2017 at the National Science Foundation in Arlington, Virginia
2. Key Note Paper Presentation "Dynamic Resiliency Index (R) Utilizing SHM Technique" at 2017 Resilience Colloquium, Albuquerque, NM
3. Key Note Paper Presentation "Risk management framework based on monitoring and assessment of infrastructures" at 2018 ICVRAM-ISUMA-Uncertainties - 3rd International Conference on Vulnerability and risk analysis and management, 7th International Symposium on Uncertainty Modeling and Analysis, 4th International Symposium on Uncertainty Quantification and Stochastic Modeling Conference, Florianopolis, Brazil
4. Invited for the National Windstorm Impact Reduction Program (NWIRP) Strategic Planning Stakeholders Workshop, Friday June 17-18, 2016 at the National Science Foundation in Arlington, Virginia
5. Distinguished Speaker, 1st International Conference on Advances in Civil Infrastructure and Construction Materials, Dhaka, Bangladesh jointly organized by Military Institute of Science & Technology (MIST), The University of British Columbia (UBC) and Canadian Society for Civil Engineering (CSCE), 14 - 15 Dec 2015
6. The World Bank publication of story on Dr. Uddin's research on page 302 of Chapter 7: "Accelerating innovation and technology diffusion" in World Development Report 2010: Development and Climate Change.
7. Invited as "Resource Person" by for International Jute Study Group Research Strategy Workshop (2013)
8. Invited as key note speaker and panelists for a general session on Earthquake and Tsunami in Japan - Disaster Response for 2011 ASCE National Conference, Memphis, TN.
9. Organizing committee member of a joint ASCE-ASME Symposium 'Risk of Extreme Storms Due to a Changing Climate'; April 25, 2013, Washington, DC.

10. Program Committee member of ASCE Symposium on Resilience Engineering, March 23, 2013; University of Delaware, DE.
11. Invited to organized and chair panel discussion on “The 2011 Earthquake and Tsunami in Japan: Risk Analysis and Management Perspectives” at International Conference on Vulnerability and Risk Analysis and Management (ICVRAM)/Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011), April 11-13, 2011, Hyattsville, Maryland.
12. Invited and elected by ASCE to speak at the Global Facility for Disaster Reduction and Recovery (World Bank) and World Congress on Urban Infrastructure in Developing Countries, November 12-16, 2007
13. Presented invited seminar presentation on “Way Ahead: High Performance Infrastructures” in the Department of Civil and Environmental Engineering at Syracuse University, August 24, 2009.
14. Presented invited lecture in World Forum on Wenchuan Earthquake and Post-quake Reconstruction, October 10-11, 2008 at Tongji University, Shanghai, China.
15. Presented theme lecture on “US Experience with Bridge Weigh in Motion system” at International Workshop on BWIM, UAB, 2008.
16. Presented invited seminar presentation on “FRP Composites for High Performance Infrastructures” in the Department of Civil and Environmental Engineering at Northeastern University (2007).
17. Presented invited key note speech on risk assessment for wind hazards at the 4th International Civil Engineering Conference in the Asian Region, June 25-27, 2007, Taipei International Convention Center (TICC), Taipei, Taiwan.
18. Presented Invited lecture in Guest Lecture Series at Birmingham Southern College on Post-Katrina Recovery, Birmingham, Alabama, January 30, 2006.
19. Presented Invited lead-off paper at 1st Bangladesh Seismological Society Symposium on "International Symposium on Seismic Solution for Bangladesh", held in Dhaka, Bangladesh, on December 17-22, 2005.
20. Presented invited seminar presentation on “Natural Hazards: Structural Design and Construction with FRPs” in the Department of Civil and Environmental Engineering at University of Wisconsin, April 18, 2004.
21. Presented invited seminar presentation on “Seismic Retrofitting of Structures” in the Department of Civil and Environmental Engineering, Texas Tech University, Lubbock, Texas, February 18, 2001.
22. Presented invited seminar presentation on “Seismic Analysis of Dams” in the Department of Civil and Environmental Engineering, University of South Carolina, Columbia, South Carolina, January 21, 2001.
23. Presented invited seminar presentation on “Seismic Response of Structures and Natural Soil Masses” in the Department of Civil and Environmental Engineering, University of Utah, Salt Lake City, Utah, December 10, 2000.
24. Served as invited speaker and participant at the NOAA (National Oceanic Atmospheric Administration) IATF panel on “Mainstreaming Natural Disasters in Sustainable Development – Infrastructure Vulnerability Assessment Workshop” sponsored by OAS/UDSE/World Bank and NOAA Coastal Service Center, NOAA/CSC in Charleston, South Carolina, March 20-24, 2000.
25. Invited and conducted a 2-day training session on “Strategic Natural Hazard Mitigation” in the FEMA

(Federal Emergency Management Agency) at the National Conference Project Impact Summit '99, December 12-16, Washington, D.C., 1999.

26. Presented invited speech on "Simulation and GIS based Computer Modeling for the Natural Hazards Mitigation" in the Conference on Earthquake Hazard for the Wabash Valley Seismic Zone, Vincennes, Indiana, September 2-3, 1999.
27. Presented invited speech on "Potential for Application of HAZUS at Dhaka, Capital City of Bangladesh," University of Engineering and Technology, July 24, 1998, Bangladesh.
28. Presented invited speech on "Southwestern Indiana HAZUS demonstration Project" at the CUSEC (Central United States Earthquake Consortium) Conference, Louisville, Kentucky, June 14-16, 1998.
29. Presented invited speech on "Dynamic Nonlinear Finite Element Analysis for Dams" in the 11th Nonlinear Finite Element Analysis and ADINA conference, June 18-20, MIT, Cambridge, 1997.

### **PROGRAM DEVELOPMENT, IMPLEMENTATION, AND MANAGEMENT**

1. Organized and chaired ASCE Infrastructure Resilience Division Research Forum 2017 Disaster June 11-13, 2018 at Reston, Virginia
2. Organizing committee member of a joint ASCE-ASME Symposium "Risk of Extreme Storms Due to a Changing Climate"; April 25, 2013, Washington, DC.
3. Program Committee member of ASCE Symposium on Resilience Engineering, March 23, 2013; University of Delaware, DE.
4. Under his leadership CDRM organized First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM) April 11-13, 2011 at Hyattsville, Maryland (including key note address by ASCE President Andrew W. Herrmann)
5. Organized and moderated panel discussion on "The 2011 Earthquake and Tsunami in Japan: Risk Analysis and Management Perspectives"
6. Served on the program committee, Moderated 3 sessions (TRACK: Risk methodologies and management; session multi-hazard analysis and risk assessment (also presented paper in the session); TRACK: Infrastructure Risk, management and protection; session on infrastructure systems);
7. Received NSF Grants to organize 1st international Workshop on Wind Storm and Storm Surge Mitigation Construction, in Dhaka, Bangladesh, December 18-23, 2005.
8. Organized and moderated a 2-day Symposium on Disaster Risk Management at ASCE 2005 National Conference, Los Angeles, CA following Hurricane Katrina, October 25-27, 2005.
9. Provided a 1-day discussion meeting on ABET assessment and CQI for CEE faculty at University of Alabama at Birmingham, January 2, 2003.
10. Provided a 2-day training session on Strategic Natural Hazard Mitigation in the FEMA National Conference Project Impact Summit '99, December 24-28, Washington, D.C., 2000.
11. Provided a 1-day training on Machine Foundation and Vibration for the staff engineers of the Berry Plastic Corporation, Evansville, Indiana, 1999.
12. Provided a 2-day training session on Strategic Natural Hazard Mitigation in the FEMA National Conference Project Impact Summit '99, December 12-16, Washington, D.C., 1999.
13. Hosted FEMA/CUSEC sponsored training session on hazard mitigation at UE, Evansville, Indiana, April 12-14, 1999.
14. Hosted a workshop for local architects and civil engineers on seismic safety and design, Evansville,

Indiana, March 27, 1998.

## **COLLABORATIVE EXPERIENCES, PRESS, MEDIA**

Professor Uddin's teaching and research interests emphasizes national and international collaborative partnership to address problems by synthesizing scientific information and contextual understanding and create actionable knowledge. To facilitate and bolster his interdisciplinary research agenda, he has developed collaborative partnerships with the faculty, students, practitioners, and industrial partners from a wide range of institutions including:

### **Universities**

Bangladesh University of Engineering and Technology  
BRAC University, Bangladesh  
Columbia University  
Dhaka University  
Georgia Institute of Technology  
Harvard University  
Indian Institute of Technology, India  
National Oceanic and Atmospheric Administration  
Purdue University  
Princeton University  
Stanford University  
United States Geological Survey  
University of Maryland  
University Of Michigan  
University of California, LA  
University of California, San Diego  
University of Florida  
University of Center Florida  
University of Tokyo  
World Bank

### **Industry and National/International Laboratory partners participated in the research projects:**

Dynetics, Inc., <https://www.dynetics.com/>; 1002 Explorer Blvd : Huntsville, AL 35806  
SYNTELLI Solutions, [www.syntelli.com](http://www.syntelli.com), 13925 Ballantyne Corporate Place, Suite 260, Charlotte, NC 28277  
Atomic Energy Commission, Dhaka, Bangladesh  
Argonne National Laboratory, Argonne, Illinois  
CRS, Builders Inc. at Alabama  
Coosa Composites, Alabama  
Idaho National Laboratory, Idaho Falls, Idaho  
KINGSPAN Group, London, UK  
National Composite Center, Dayton, Ohio  
National Science Laboratories, Dhaka, Bangladesh  
MPG, Composites Inc. at Alabama  
National Institute of Standard and Technology (NIST) Gaithersburg, MD  
Newport Ventures, Inc., Buffalo, NY  
Portage Casting and Mold, Portage, Wisconsin  
Sandia National Laboratory

### Visits from Industry & Venture Capitalist

KINGSPAN Group, North Yorkshire, YO17 8PQ, UK

[Mr. Brendan Murtagh and Dr. Malcolm Rochefort of Kingspan group]

Newport Ventures, Inc., Schenectady, NY 12305

[CEO Dr. Steven Shrader]

David Bryson, Chairman/CEO, ThermaDesigns, LLC, 1301 Co Rd 803, Wedowee, AL 36278

Randy Avery, CEO, Dome International, MS.

Gill Mike, MFG Alabama, Montgomery, AL.

Mike Ray, CEO, The Housing Group, Atlanta, GA.

Willard Brann, Attorney from Atlanta involved with the rebuilding in New Orleans.

Anthony Dwyer of COMPANEL

John Daniel of BALVAC, Buffalo, NY

Nadeem Quderi of GRG, Inc. of Montgomery, AL

Jay Kelley of the JayBlock, Birmingham, AL

Herb Margolis, CEO of InnoVida US Operations, and others.

### SELECTED POPULAR PRESS COVERAGE AND TV INTERVIEWS:

#### TV

NBC-13, lead news and interview reported (by Jon Paepcke) at Katrina Anniversary 2007 on hurricane resistant construction research, August 29, 2007.

FOX affiliated WKTV-7 of Evansville; report on Disaster Resistant Community Initiatives, March 24, 2000.

NBC affiliated WKTV-14 of Evansville, report on Project Impact Award, January 3, 2000.

PBS affiliated WNIN-9 of Evansville, interview and report on Wabash Valley Earthquake, September 8, 2000.

CBS affiliated WKTV- 44 of Evansville; report on Project Impact Project, September 23, 1999.

FOX affiliated WKTV-7 of Evansville, news on interviews on the seismic retrofitting of Red Cross Building, January 11, 1999.

ABC affiliated WRTV-6 of Indianapolis, lead news and interview reported (by Jack Rinehart, Senior Reporter), on disaster risk management research, September 14, 1998.

NBC affiliated WKTV-14 of Evansville, news and interviews on seismic preparedness for the City of Evansville, June 13, 1998

#### Media/Press Samples

<https://www.youtube.com/watch?v=LFU3wI2mY0>

<https://www.uab.edu/plan/grand-challenge>

<https://www.uab.edu/reporter/know-more/research/item/8665-uab-team-wants-to-build-a-more-equitable-birmingham-through-sensors-and-sensitivity>

UAB Reporter: Cover Story "UAB Overseas Study Green Homes That Withstand Hurricanes", Vol. 38, No. 36, pp: 1-2, December, 2008, <http://main.uab.edu/Sites/MediaRelations/articles/55613/>)

Birmingham News: "UAB Professor Working on Hurricane Proof Housing", December 8, 2008, (<http://www.al.com/news/birminghamnews/metro.ssf?/base/news/1228727745274480.xml&coll=2>)

UAB Reporter: Cover Story "Researcher Develop Material to Withstand the Elements"

UAB Reporter, Vol. 31, No. 24, pp: 1-2, September, 2007.



Mississippi Daily News: "Hurricane Katrina and Disaster Resistant Construction Research", Interview with the Reporter, August 12, 2006.

Birmingham News: "UAB Senior Design Project Focuses on Tarrant High School", Section N, pp: 3-4, June 10, 2006.

UAB Reporter: Cover Story "Stronger Material Combat Hurricane Winds", UAB Reporter, Vol. 29, No. 47, pp: 1-2, October, 2005.

Scholar: "Changing the Infrastructure: A Preemptive Strike", Vol. 9, NO. 3, pp: 3-5, February 2000.

Evansville Courier & Press: "UE Project Focuses on Red Cross Building", Section A, pp:1-2, April 19, 2000.

Evansville Courier & Press: "Computer Estimates Quake Would Kill Thousands", Section A, pp: 3-4, November 11, 1999.

Evansville Courier & Press: "UE Students, Prof to Help Make Area Nation's First Showcase Community", Section A, pp: 4, March 6, 1998.

### **PROJECTS: SELECTED CONSULTING ACTIVITIES**

1. Design of Tornado Shelter for the FEMA approval, Green Safe Inc., Montgomery, Alabama.
2. Served as consultant for Birmingham Water Works for repairing water tank using innovative FRP technology.
3. Served as consultant for Streamline Automation, Huntsville, AL for Union Station Turbine Plant project at Little Rock, AR.
4. Seismic Retrofitting for Fire Stations and Public School for the Office of Building Commission at the City of Evansville.
5. Campus Industries Building, Inc at Buffalo, New York. Structural assessment of industrial/manufacturing buildings and retrofitting design for the Westvaco property building and Dorothy complex.
6. New York State Department of Transportation, Buffalo, New York. Analysis and design of bridge abutments, bridge piers, permanent retaining wall, temporary retaining wall (includes raking walls, sheet pile walls with soil anchor, rock anchor and tie back wall) and cofferdams for the excavation to build the Rt. 16 bridge over Buffalo River.
7. New York State Electric & Gas Corporation (NYSEG). Conceptual and detailed structural analysis including 3D finite element analysis for design of Hornell and Perry Service Centers microwave antenna support and mounting brackets.
8. Crystal Mines Inc., Detroit Salt Mine, Detroit, MI. Structural Analysis and detailed design of a steel head frame (space truss) and large concrete shaft plugs which included thermal control measures (pre-cooling and post-cooling the 6 plugs of 23 ft diameter and 30 ft deep) and stabilizing the existing mine pillars along with detailed mine investigations.
9. Finch, Pryun and Company, Inc., Glens Falls, NY. Performed 3D finite element analysis of the head wall structure to determine criteria for remedial design against deterioration.

10. South Glens Falls hydroelectric project, Glens Falls, NY. Performed 3D finite element analysis of the 15-ft dia steel penstocks to determine critical stress locations.
11. Webber dam hydroelectric project, Lyons, Michigan. Rehabilitation of concrete dam which included stability analysis of spillway, tainter gate piers and bear trap piers during demolition, reconstruction and final conditions. Also included conceptual design and structural analysis of abutment retaining walls, structural analysis and design of trunnion pins to support tainter gate piers, and structural analysis and design of new spillway slab beam.
12. Croton dam hydroelectric project, Rapid town, Michigan. Rehabilitation of concrete dam which included stability analysis of spillway, tainter gate piers and bear trap piers during demolition, reconstruction and final conditions. Also included conceptual and detailed structural design of a new counterfort wall (40 ft deep) to increase sliding stability of the spillway, trunnion pins to support tainter gate piers, new spillway slab beam, and finite element analysis of spillway foundation using a software MATS.
13. Finch, Pruyn and Company Inc., Glens Falls, NY. Analysis and design of a concrete masonry wall, rock anchors, and fish passage structure; stability analysis of south forebay wall, structural design of concrete overlays, structural design of fish passage and trashrack structure for, including preparation of design guidelines and construction specifications.
14. Summit Underground Pumped Storage Project (1,500 MW), Norton, Ohio. Development of design criteria for powerhouse caverns and pressure tunnels, finite- and boundary-element analyses of powerhouse caverns and pressure tunnels, design of preliminary rock supports for underground rock chambers, and stability analysis of powerhouse against 1400 psi gaseous brine pressure and developed test grouting program. Performed field and analytical study for characterization of insitu rock engineering properties by Hydraulic Fracturing and Dilatometer testing methods at 2200 ft level of existing mine.
15. AKZO salt mine, Retsof, NY. Field and analytical study for characterization of in-situ rock engineering properties by Hydraulic Fracturing Method at 2000 ft below ground and set up GIS.
16. Chulabhorn Pumped Storage Project (800 MW), Chulabhorn, Thailand. Development of design criteria for powerhouse caverns and pressure tunnels, finite- and boundary-element analyses of powerhouse caverns and pressure tunnels, design of preliminary rock supports for underground rock chambers, tailrace tunnels and power tunnels.
17. Adirondack Hydro Development Corporation, NY. Developed and coded a computer program for "Beta Testing" the Adirondack Hydro Dev. Corp., NY (AHDC) - Finch, Pryun & Co., NY (FP) information management systems. This Fortran 77 program reads USGS data and simulates downstream gage, the penstocks, the intake channel flow and communication between two PC's (AHDC - FP). Output includes tables for FOXPRO.
18. Alto Cachapoal hydroelectric power project, Chile. Established seismic design criteria for the seismic design of dams, embankments, power house, and designed field monitoring instrumentation.
19. Lower Saranac hydro project, Plattsburg, New York. Field inspection and repair of embankment dam failure including stress analysis of penstocks, flow net analysis of the embankment dam, and design

for repair of embankment dam failure at hydraulic intake structure and along the full length of twin 10 ft dia buried steel penstocks.

20. Sivaco Treatment Plant, Buffalo, New York. Slope failure which includes evaluation of geotechnical testing report, data, and development of geotechnical design parameters and criteria, slope stability analysis and remedial design, and construction planning and cost estimating.
21. Orleans County, New York for NY State Department of Transportation. Analysis and design of soldier pile cantilever retaining wall to support roadway embankment adjacent to Marsh Creek.
22. Toronto Transit Commission, Toronto, Canada. Analysis and remedial design of landfill including selection of geotechnical design parameters and development of design criteria and slope stability analysis of landfill.
23. Aleltu hydroelectric project, Aleltu, Ethiopia. Feasibility study including preliminary analysis and design of 65m Rikicha-Gamoro dam, preliminary analysis and design of 40m Chacha dam (main), and sensitivity analysis of geotechnical design parameters.
24. Kents Falls hydro project, Clinton county, NY. Rehabilitation of gate bulkhead structure and intake structure including stability analysis of gate bulkhead and intake structure, rock anchor design and detailing for gate bulkhead and intake structure. Performed analysis and design of a braced cofferdam to reconstruct the gate bulkhead structure.
25. South Glens Falls hydroelectric project, Glens Falls, NY. Evaluation of geotechnical testing, data and development of geotechnical design parameters and criteria, evaluation and analysis of geologic mapping data using DIPS software and stereographic plots. Also included determination of possible rock slope failure mechanisms and design of safe excavation slopes for excavation cuts up to 60 ft in height, embankment cofferdam stability analysis and design for multi phases construction, and design of stone protection (riprap) for embankment cofferdam.
26. Hudson Falls hydroelectric project, Hudson Falls, NY. Analysis and design including rock anchor and rock bolt design for 100-ft deep cut in shale powerhouse, tailrace and intake structure excavation, design of rock reinforcement utilizing DIPS software for analyzing geologic mapping data and determining possible rock slope failure mechanisms from stereographic projections, analysis and design of embankment cofferdam, cellular cofferdam, and analysis and design of closure structure.
27. Tejas gas storage project, Tioga, PA. Induced Seismicity study and 3D geologic characterization of salt deposits for a and ridge province from geophysical logs of oil and gas exploration wells. Characterization included depicting the location of various geologic strata and probable fault.
28. Aleltu hydroelectric project, Aleltu, Ethiopia. Liquefaction and seismic deformation analysis for 65 m Kicha-Gamoro Dam, and 40 m Chacha Dam.
29. Consumers Power Inc., Michigan. Dynamic analyses to evaluate seismic stability of the Webber hydroelectric power project dams and designed remedial measures for Webber Dam at Rapid Town.
30. Consumers Power Inc., Michigan. Dynamic analyses to evaluate seismic stability of the Croton hydroelectric power project dams and designed remedial measures for Croton Dam at Lansing,

Michigan.

31. Tejas gas storage project, Tioga, PA. Preliminary analysis and design for the foundations of process facilities including machine foundation design for a large gas compressor and high capacity pumps.