CURRICULUM VITAE
OF
[Arindam Gan Chowdhury, Dept. of Civil and Environment Engineering, Florida International University (FIU)]

EDUCATION (List most recent degree first)

Degree	Institution	Field	Dates
Doctor of Philosophy	Iowa State University, Ames, IA 50011, USA	Engineering Mechanics	2000-2004
Master of Technology	Indian Institute of Technology, Mumbai 400076, India	Structural Engineering	1993-1995
Bachelor of Engineering	Jadavpur University, Kolkata 70019, India	Civil Engineering	1988-1992

FULL-TIME ACADEMIC EXPERIENCE (List most recent first)

Institution	Rank	Field	Dates
Florida International University, FL 33174, USA	Assistant Professor (Dept. of Civil & Environ. Engineering, CEE; International Hurricane Research Center, IHRC)	Civil/Structural Engineering	June 2006-present
	Director, Laboratory for Wind Engineering Research (IHRC)	Wind Engineering	July 2007-present

PART-TIME ACADEMIC EXPERIENCE (List most recent first)

Institution	Rank	Field	Dates
N/A			

NON-ACADEMIC EXPERIENCE

Institution	Rank	Field	Dates
Thornton Tomasetti Fort Lauderdale, FL, USA	Project Director	Structural Engineering	Nov 2005-June 2006
Lear Corporation Iowa City, IA, USA	Tool Engineer	Automotive Engineering	Nov 2003-Oct 2005

Iowa Department of Natural Resources, Des Moines, IA, USA	Pollution Prevention Intern	Energy Efficiency and Pollution Prevention	May 2002-Aug 2002
M/s. Shapers, Kolkata, India	Partner and Project Engineer	Structural Engineering	Jan 1998-July 2000
Development Consultants Limited, Kolkata, India	Structural Engineer	Structural Engineering	March 1995 -Dec 1997
Simplex Concrete Piles Limited, Kolkata, India	Student Engineer	Structural Engineering	Sep 1992-June 1993

EMPLOYMENT RECORD AT FIU

Rank	**Dates**
Assistant Professor (CEE, IHRC)	June 2006-present
Director, Laboratory for Wind Engineering Research (IHRC)	July 2007-present

PUBLICATIONS IN DISCIPLINE

Peer Reviewed Journal Publications (published /in press/ accepted)

1. Aly, A.M., **Gan Chowdhury, A.**, Bitsuamlak, G. "Wind Profile Management and Blockage Assessment for a New 12-Fan Wall of Wind Facility at FIU." Accepted for publication, Wind and Structures.

2. Canbek, C., Mirmiran, A., **Gan Chowdhury, A.**, Suksawang, N. "Development of a Fiber Reinforced Polymer (FRP) Roof-To-Wall Connection." Accepted for publication, ASCE Journal of Composites for Construction.

3. Canino. I., **Gan Chowdhury, A.**, Mirmiran, A., Suksawang, N. "Tri-Axial Load Testing of Metal and FRP Roof-To-Wall Connectors." In Press, ASCE Journal of Architectural Engineering.

4. **Gan Chowdhury, A.**, Bitsuamlak, G., Fu, T-C., Kawade, P. "A Study on Roof Vents Subjected to Simulated Hurricane Effects." In Press, ASCE Natural Hazards Review Journal.

5. Simiu, E., Bitsuamlak, G., **Gan Chowdhury, A.**, Li, R., Tecle, A., Yeo, DH. "Testing of Residential Homes under Wind Loads." In Press, ASCE Natural Hazards Review Journal.

6. Ahmed, S.S., Canino, I., **Gan Chowdhury, A.**, Mirmiran, A., Suksawang, N. (2011). "A Study into the Capability of Multiple Mechanical Fasteners in Roof-To-Wall Connections of

Timber Residential Buildings." ASCE Practice Periodical on Structural Design and Construction, 16(1), pp. 2-9.

7. **Gan Chowdhury, A.**, Bitsuamlak, G., Simiu, E. (2010). "Aerodynamic, Hydro-aerodynamic, and Destructive Testing." ICE Structures and Buildings Journal, 163 (SB2), pp. 137-147.

8. Dagnew, A., Bitsuamlak, G., **Gan Chowdhury, A.** (2010). "Computational Blockage and Wind Simulator Proximity Effects Assessment for a New Full-Scale Testing Facility." Wind and Structures, 13 (1), pp. 21-36.

9. **Gan Chowdhury, A.**, Simiu, E., Leatherman, S.P. (2009). "Destructive Testing under Simulated Hurricane Effects to Promote Hazard Mitigation." ASCE Natural Hazards Review Journal, 10 (1), pp. 1-10.

10. Yu, B., **Gan Chowdhury, A.** (2009). "Gust Factors and Turbulence Intensities for the Tropical Cyclone Environment." Journal of Applied Meteorology and Climatology, 48 (3), pp. 534–552.

11. **Gan Chowdhury, A.**, Huang, P., Erwin, J. (2009). "Aerodynamic Testing Application of a Full-Scale Facility for Mitigating Hurricane-Induced Coastal Disasters." Far East Journal of Ocean Research, 2 (1), pp. 1-27.

12. Huang, P., **Gan Chowdhury, A.**, Bitsuamlak, G., Liu, R. (2009). "Development of Devices and Methods for Simulation of Hurricane Winds in a Full-Scale Testing Facility", Wind and Structures, 12 (2), pp. 151-177.

13. Huang, P., Mirmiran, A., **Gan Chowdhury, A.**, Abishdid, C., Wang, T.L. (2009). "Performance of Roof Tiles under Simulated Hurricane Impact." ASCE Journal of Architectural Engineering, 15 (1), pp. 26-34.

14. Bitsuamlak, G., **Gan Chowdhury, A.**, Sambare, D. (2009). "Application of a Full-Scale Testing Facility for Assessing Wind-Driven-Rain Intrusion." Building and Environment, 44 (12), pp. 2430-2441.

15. Blessing, C., **Gan Chowdhury, A.**, Lin, J., Huang, P. (2009). "Full-Scale Validation of Vortex Suppression Techniques for Mitigation of Roof Uplift." Engineering Structures, 31 (12), pp. 2936-2946.

16. Yu, B., **Gan Chowdhury, A.**, Masters, F.J. (2008). "Hurricane Power Spectra, Co-Spectra, and Integral Length Scales." Boundary Layer Meteorology, 129, pp. 411-430.

17. **Gan Chowdhury, A.**, Huang, P., Bitsuamlak, G. (2008). "Wind Flow Simulation and Testing for Mitigating Coastal Disaster under Hurricanes." Disaster Advances Journal, 1 (4), pp. 9-19.

18. Leatherman, S.P., **Gan Chowdhury, A.**, Robertson, C. J. (2007). "Wall of Wind Full-Scale, Destructive Testing of Coastal Houses and Hurricane Damage Mitigation." Journal of Coastal Research, 23 (5), pp. 1211-1217.

19. **Gan Chowdhury, A.**, Sarkar, P.P. (2005). "Experimental Identification of Rational Function Coefficients for Time-Domain Flutter Analysis." Engineering Structures, 27 (9), pp. 1349-1364.

20. Sarkar, P.P., **Gan Chowdhury, A.**, Gardner, T. B. (2004). "A Novel Elastic Suspension System for Wind Tunnel Section Model Studies." Journal of Wind Engineering and Industrial Aerodynamics, 92 (1), pp. 23-40.

21. **Gan Chowdhury, A.**, Sarkar, P.P. (2004). "Identification of Eighteen Flutter Derivatives of an Airfoil and a Bridge Deck." Wind and Structures, 7 (3), pp. 187-202.

22. **Gan Chowdhury, A.**, Sarkar, P.P. (2003). "A New Technique for Identification of Eighteen Flutter Derivatives using Three-Degree-of-Freedom Section Model." Engineering Structures, 25 (14), pp. 1763-1772.

Books
N/A

Articles

1. **Gan Chowdhury, A.**, Leatherman, S.P. (2007). "Innovative Testing Facility to Mitigate Hurricane-Induced Losses," EOS, Transactions, American Geophysical Union, 88 (25), pp. 262.

2. **Gan Chowdhury, A.**, Simiu, E., Lin, J., Leatherman, S.P. "Wall of Wind FIU." The Wind Engineer, Newsletter of American Association for Wind Engineering (AAWE), October 2007.
   Available Online: http://www.aawe.org/docs/newsletters/NewsletterAAWE(2007)-10.pdf

3. **Gan Chowdhury, A.** "Wall of Wind Hurricane Research at Florida International University." Applied Insurance Research (AIR), AIR Currents, August 2007.
   Available Online: http://www.air-worldwide.com/_public/html/air_currentsitem.asp?ID=1281

4. **Gan Chowdhury, A.** "The Wall of Wind: Florida International University Creates a Wall of Wind to Test Roof Systems," Professional Roofing Magazine, National Roofing Contractors Association (NRCA), June 2008.
   Available Online: http://www.professionalroofing.net/article.aspx?id=1299

Proceedings

1. Erwin, J., **Gan Chowdhury, A.**, Bitsuamlak, G., Guerra, C. (2011). "Wind Effects on Photovoltaic Panels Mounted on Residential Roofs." Proceedings of the 13th International Conference on Wind Engineering (13ICWE) (Amsterdam, Netherlands), (CD-ROM).

2. Aly, A.M., Bitsuamlak, G., **Gan Chowdhury, A.** (2011). "Florida International University's "Wall of Wind: A Tool for Improving Construction Materials and Methods For Hurricane-Prone Regions." International Conference on Vulnerability and Risk Analysis and Management (ICVRAM)/Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011) (Hyattsville, Maryland, USA) (CD-ROM).

3. Fu, T-C., Aly, A.M., Bitsuamlak, G., **Gan Chowdhury, A.**, Simiu, E. (2010). "Flow Simulation in 12-Fan Wall of Wind Testing Facility." Proceedings of the 2nd Workshop of the American Association for Wind Engineering (AAWE) (Marco Island, Florida, USA), (CD-ROM).

4. **Gan Chowdhury, A.**, Aly, A.M., Bitsuamlak, G. (2010). "Full- and Large-Scale Testing to Promote Wind Disaster Mitigation." Proceedings of the Fifth U.S.-Japan Workshop on Wind Engineering (Chicago, Illinois, USA), (CD-ROM).

5. **Gan Chowdhury, A.**, Bitsuamlak, G., Kawade, P., Fu, T-C., Tecle, A. (2010). "Water Intrusion Study through Roof and Wall Vents." Proceedings of the International Conference on Building Envelope Systems and Technologies (Vancouver, Canada), Vol. 2 of 2, pp. 207-212.

6. Tecle, A., Bitsuamlak, G., **Gan Chowdhury, A.** (2010). "Wind-Induced Internal Pressure Measurements in Large-Scale Low-Rise Building Models." Proceedings of the International Conference on Building Envelope Systems and Technologies (Vancouver, Canada), Vol. 1 of 2, pp. 57-59.

7. Huang, P., Gu, M., Mirmiran, A., **Gan Chowdhury, A.** (2009). "FEM Analysis of Tile Roofs under Simulated Typhoon Impact." Proceedings of the Seventh Asia-Pacific Conference on Wind Engineering (Taipei, Taiwan) (CD-ROM).

8. **Gan Chowdhury, A.**, Bitsuamlak, G., Simu, E. (2009). "Wall of Wind: Full-Scale Hurricane Wind and Wind-Driven Rain Testing Facility." Proceedings of the 11th Americas Conference on Wind Engineering (San Juan, Puerto Rico) (CD-ROM).

9. Huang, P., Liu, R., **Gan Chowdhury, A.**, Bitsuamlak, G., Erwin, J., Ahmed, S.S. (2008)." Turbulence Simulation of Small-Scale Wall of Wind Flows." Proceedings of the 4th International Conference on Advances in Wind and Structures (Jeju, Korea), pp. 1559-1578, (CD-ROM).

10. Bitsuamlak, G., **Gan Chowdhury, A.**, Dagnew, A. (2008). "Computational Blockage Assessment for a New Full-Scale Testing Facility." Proceedings of the 4th International Conference on Advances in Wind and Structures (Jeju, Korea), pp. 1547-1558, (CD-ROM).

11. Sarkar M., Selvam R.P., **Gan Chowdhury, A.** (2008). "CFD Modeling and Flow Analysis to Improve Contraction Design of Wind Tunnel." Proceedings of the 4th International Conference on Advances in Wind and Structures (Jeju, Korea), pp. 239-249 (CD-ROM).

12. **Gan Chowdhury, A.**, Erwin, J.W. (2008). "Rooftop Equipment Wind Load and Mitigation Techniques." Proceedings of the 1st Workshop of the American Association for Wind Engineering (AAWE) (Vail, Colorado, USA), (CD-ROM).

13. Leatherman, S.P., Robertson, C., **Gan Chowdhury, A.**, Simiu, E., Bitsuamlak, G., Huang, P. (2008). "Full-Scale Destructive Testing of Houses to Hurricane-Force Wind and Rain." Proceedings of Solutions to Coastal Disasters Conference (Oahu, Hawaii, USA), pp. 818-824.

14. **Gan Chowdhury, A.**, Simiu, E., Leatherman, S.P. (2007). "Hurricane Damage Mitigation of Coastal Houses." Proceedings of the 12th International Conference on Wind Engineering (12ICWE) (Cairns, Australia), pp. 1975-1982.

15. **Gan Chowdhury, A.**, Sarkar P.P. (2004). "Extraction of Rational Function Coefficients for Flutter Analysis from Wind Tunnel Model Tests." Proceedings of the Second Indian National Conference on Wind Engineering, Nagpur, India, Feb. 12-15, 2004.

16. **Gan Chowdhury, A.**, Sarkar, P.P. (2003). "Identification of Eighteen Flutter Derivatives." Proceedings of the 11th International Conference on Wind Engineering (11ICWE) (Lubbock, Texas, USA). pp. 365-372.

17. Ganguly, K.K., **Gan Chowdhury, A.** (1996). "Concept of Ductility in Bridge Pier Design". Proceedings of the Symposium of Earthquake Effects on Structures (New Delhi, India). pp. V3.1-V3.13.

Chapters in Books
Dr. Chowdhury contributed a significant number of calculations related to Standard ASCE/SEI 7-10[1] wind load examples in Part A of the book titled "Design of Buildings for Wind" (Wiley, 2011) authored by Dr. Emil Simiu.

Government Reports or Monographs
N/A

Book Reviews
Dr. Chowdhury reviewed and checked the calculations in Part A of the book titled "Design of Buildings for Wind" (Wiley, 2011) authored by Dr. Emil Simiu.

OTHER PUBLICATIONS

An article named '***Meeting the Challenge***' was published in March/April 2003 issue of '***Iowa Conservationist***' Magazine. The article describes Arindam Gan Chowdhury's various accomplishment regarding product/process improvements using aerodynamic and other solutions at **Lear Corporation** during summer of 2002. Accomplishments include- a) Implemented cost reduction: $467,000/year, b) Additional projected cost reduction: $1.66 million/year.

PRESENTED PAPERS AND LECTURES

Presentations at Major International and National Conferences and Workshops in the Field:

1. "Wind Effects on Photovoltaic Panels Mounted on Residential Roofs." 13th International Conference on Wind Engineering (13ICWE), Amsterdam, Netherlands, July 2011 (due date).

[1] American Society of Civil Engineers (ASCE) Minimum Design Loads for Buildings and Other Structures

2. “Flow Simulation in 12-Fan Wall of Wind Testing Facility.” 2nd Workshop of the American Association for Wind Engineering (AAWE), Marco Island, Florida, USA, August 2010.

3. “Wall of Wind: A New Tool for Coastal Hazards Mitigation.” Engineering Mechanics Institute Conference (EMI 2010), Los Angeles, California, USA, August 2010.

4. “Full- and Large-Scale Testing to Promote Wind Disaster Mitigation.” The Fifth U.S.-Japan Workshop on Wind Engineering, Chicago, Illinois, USA, July 2010.

5. “Aerodynamic Load and Multi-Axial Performance Testing on Fiber-Reinforced Polymer Connections and Metal Fasteners.” IV European Conference on Computational Mechanics (ECCM 2010), Paris, France, Europe, May 2010.

6. “Turbulence Simulation of Small-Scale Wall of Wind Flows.” 4th International Conference on Advances in Wind and Structures, Jeju, Korea, May 2008.

7. “Full-Scale Wind Testing.” American Society of Civil Engineers (ASCE) National Conference, Symposium on Hurricanes and Insurance, Orlando, Florida, USA, November 2007.

8. “Hurricane Damage Mitigation of Coastal Houses.” 12th International Conference on Wind Engineering (12ICWE), Cairns, Australia, July 2007.

9. “Identification of Eighteen Flutter Derivatives.” 11th International Conference on Wind Engineering (11ICWE), Lubbock, Texas, USA, June 2003.

List of Other Invited Talks and Presentations in the Field:

1. “FSGCP Funded Wall of Wind Research -- Partnering, Engagement and Impacts.” Tile Florida Sea Grant College Program’s (FSGCP) Five Year Review Meeting, Gainesville, Florida, USA, September 2010.

2. “Innovative Wall of Wind Research Facility at FIU.” Computer Science Colloquium Series, School of Computing and Information Sciences, Florida International University, Miami, Florida, USA, September 2010.

3. “Reducing the Dangers of Hurricanes through Advancement in Science and Technology.” MiamiBusiness.com B2B Groups Meeting, Miami, Florida, April 2010.

4. “Wall of Wind: Full-Scale Hurricane Wind and Wind-Driven Rain Testing Facility.” Tile Roofing Institute (TRI) Fall Forum, Orlando, Florida, USA, November 2009.

5. “Large-Scale Wall of Wind Testing for Hurricane Risk Mitigation.” Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado, USA, March 2009.

6. "State-of-the-Art Full- & Large-Scale Testing for Wind to Enhance Infrastructure Resiliency and Develop Energy-Efficient Buildings," Wall of Wind Workshop (attended by National Science Foundation, Florida Sea Grant College Program, Colorado State University, Louisiana State University, Texas Tech University, Miami Dade Building Code Compliance Office, and several industry representatives), Florida International University, Miami, Florida, USA, January 2009.

7. "FIU Wall of Wind Project," as ***Keynote Speaker*** in the Tile Roofing Institute (TRI) Fall Forum, Orlando, Florida, USA, November 2008.

8. "RenaissanceRe Wall of Wind (WoW) Research -- Moving Innovations from Theory to Applications," Delegation from U.S.-Japan Cooperative Program in Natural Resources (UJNR), Engineering Center, Florida International University, Miami, Florida, USA, May 2008.

9. "Wall of Wind Research." Delegation from University of Science and Technology of China, Engineering Center, Florida International University, Miami, Florida, USA, March 2008.

10. "Wall of Wind Full Scale Testing." Building Officials Meeting, Building Code Compliance Office (BCCO), Miami-Dade County, Florida, USA, March 2008.

11. "Wall of Wind Research -- Moving Innovations from Theory to Applications." Hurricane Risk Mitigation Leadership Forum, Orlando, Florida, USA, February 2008.

12. "Wall of Wind." Florida Coastal Ocean Observing Systems Consortium Caucus 12, Southeast Environmental Research Center and International Hurricane Research Center, Miami, Florida, USA, November 2007.

13. "Building a Stronger Tomorrow." Delegation from Tsinghua University of China, International Hurricane Research Center at Florida International University, Miami, Florida, USA, November 2007.

14. "Wall of Wind Hurricane Damage Mitigation." The Roofing Industry Alliance for Progress Meeting, Washington, D.C., USA, October 2007.

15. "Wall of Wind Testing Approach." South Florida Structural Engineers Association (FSEA) Meeting, Miami, Florida, USA, October 2007.

16. "Wall of Wind Innovative Testing." Florida Building Commission -- Hurricane Research Advisory Committee Meeting, Tampa, Florida, USA, August 2007.

17. "RenaissanceRe Wall of Wind Facility." Florida Concrete Association Meeting, Miami, Florida, USA, April 2007.

18. "Wall of Wind Hurricane Simulation and Testing." Workshop on Full-Scale Wind Testing and Measurements, Attended by NSF, U.S. and Canada Universities and Industries,

International Hurricane Research Center at Florida International University, Miami, Florida, USA, March 2007.

19. "Lessons Learned from Hurricanes in Florida and Related Issues." Center for Innovative Grouting Materials and Technology (CIGMAT), University of Houston, Houston, Texas, , USA, March 2007.

20. "Wall of Wind Innovative Testing." Department of Civil and Environmental Engineering, Texas Tech University, Lubbock, Texas, USA, November 2006.

CREATIVE WORK

1. *October 2007-present*: Dr. Chowdhury is leading the development of the first-of-its-kind experimental facility -- 12-fan Wall of Wind -- that will perform controlled and repeatable full- and large-scale testing in flows that replicate atmospheric boundary layer (ABL) winds of up to 65 m/s (145 mph), with wind-driven rain and wind-borne debris. *Responsibilities*: Development of the ***12-Fan Electric Wall of Wind*** (WoW) Large Scale Hurricane Simulation and Testing Facility; Design of the 12-fan WoW, fan specification, variable frequency drive (VFD) specification ($2.2M expansion project funded by the State of Florida and the Roofing Industry Alliance for Progress); Development of active and passive control techniques for the generation of ABL profiles and turbulence characteristics, and pressure field validation on low-rise building models using a 1:15 scale model of the 12-fan WoW; Guidance on the computation fluid dynamics (CFD) wind field simulation research by RWDI (consultant for 12-fan WoW); Development of the data acquisition and instrumentation strategies with the help of PrimeTest (consultant for data acquisition).

   The main focus of WoW research was mitigation of damage to residential buildings. However, Dr. Chowdhury envisioned WoW testing of tall buildings, bridges, and other infrastructural elements at large Reynolds numbers, and of the thermal performance of full-scale envelopes in turbulent flows. He developed a proposal and received funding (~$430K) from National Science Foundation Major Research Instrumentation (NSF MRI) program to purchase instrumentation for performing the above mentioned full- and large scale testing. The MRI project will achieve a unique, transformative testing capability by acquiring the necessary instrumentation. The new capabilities will allow realistic large-scale testing of buildings through reproduction of aerodynamically essential architectural details (e.g., railings, balconies, vortex suppression devices); holistic testing on full-scale traffic and electrical infrastructure elements with real materials/connections, and on real photovoltaic panels, on which no tests in turbulent flow have been performed to date; full-scale thermal testing in turbulent flow of one-floor building envelopes; and *interdisciplinary* aerodynamics/structural failure/thermal research.

   Dr. Chowdhury is developing WoW testing protocols and enhanced capabilities that will lead to major improvements in the performance of infrastructure and life-line elements, including electrical utility and power distribution systems, safer nuclear power plants in hurricane-prone regions, and increased community resilience under Category 3 and 4 hurricanes. In addition, by virtue of its unprecedented capabilities to simulate natural, turbulent winds, the WoW facility will test innovative building envelopes capable of massively reducing energy consumption in buildings, reducing greenhouse gas emissions

(GHGs), and improving indoor environment quality (IEQ). In 2010, the Congress appropriated $1M for the proposal developed by Dr. Chowdhury titled "State of the Art Large-Scale Testing for Wind to Enhance Infrastructure Resiliency and Develop Energy-Efficient Buildings." This $1M funding was received through the Department of Energy (DOE).

2. *June 2006-August 2008*: Dr. Chowdhury was the pioneer for developing the ***RenaissanceRe 6-Fan Wall of Wind*** (WoW) and simulating realistic hurricane wind field characteristics. *Responsibilities*: Development of the *RenaissanceRe* 6-fan WoW Large Scale Hurricane Simulation and Testing Facility (http://www.eng.fiu.edu/cee/wow/); Development of flow management devices by active and passive controls, wind field calibration, simulation of hurricane and tropical cyclone wind characteristics, testing of full- and large-scale models; Development of hurricane damage mitigation techniques; Presentation of 6-fan WoW research at major international and national conferences in the field; Presentation of 6-fan WoW research during several invited talks at various universities, agencies, industries, building code committees, etc.; Publication of peer-reviewed journal papers based on tropical cyclone wind research and Wall of Wind hurricane simulation and testing.

   In the field of hurricane wind analysis, simulation, and testing, he has 18 peer reviewed journal publications (published/in press/accepted). As a Principal Investigator (PI), he has received about $3M in research funding from various agencies and the industry regarding the WoW project.

   Dr. Chowdhury was instrumental in developing the proposal for the 'Center of Excellence in Hurricane Damage Mitigation and Product Development' (September 2007). This proposal was rated #1 among 41 proposal submitted throughout the universities in Florida. Funding of $7.5 million has been awarded to FIU.

3. *August 2000-October 2003*: Dr. Chowdhury's doctoral research focused on flutter instability, an aeroelastic self-excited oscillation that can occur mainly in suspension or cable-stayed long-span bridges. The accomplishment of Dr. Chowdhury's creative research work can be categorized under three major areas as follows: Development of a Novel Three Degree-of-Freedom (DOF) Suspension System for the Wind-Tunnel Section Model Testing; Development of a New Technique for Identification of Eighteen Flutter Derivatives Using a Three-Degree-of-Freedom Section Model; Experimental Identification of Rational Function Coefficients for Time-Domain Flutter Analysis. This research has important potential applications in the development of future elements of the national transportation infrastructure. He was the recipient of the Iowa State University Research Excellence Award in recognition of outstanding research accomplishments and based on his Ph.D. research published 4 papers in peer-reviewed journals.

WORKS IN PROGRESS

Peer Reviewed Journal Publications (in progress)

1. **Gan Chowdhury, A.**, Canino, I., Mirmiran, A., Suksawang, N., Baheru, T. "Tri-Axial Aerodynamic Loading on Roof-to-Wall Connections." Under Review, Wind and Structures.

2. Erwin, J.W., **Gan Chowdhury, A.**, Bitsuamlak, G. "Evaluation and Mitigation of Wind Loads on Rooftop Equipment: A Full-Scale Testing Approach." Under Review, Indian Society for Wind Engineering's (ISWE) Journal of Wind and Engineering.

3. Tecle, A., Bitsuamlak, G., **Gan Chowdhury, A.** "Opening and Compartmentalization Effects on Internal Pressure in Low-Rise Buildings with Gable and Hip Roofs." Under Review, ASCE Journal of Architectural Engineering.

4. Bitsuamlak, G., Aly, A.M., **Gan Chowdhury, A**. "Full-Scale Aerodynamic Testing of a Loose Concrete Roof Paver System." Under Review, Engineering Structures.

5. Yu, B., **Gan Chowdhury, A.**, Masters, F.J. "Performance of Methods for Estimating Surface Roughness Lengths over Coastal Areas during Hurricane Passages." Under Review, Journal of Boundary Layer Meteorology.

6. Fu, T-C., Aly, A.M., **Gan Chowdhury, A.**, Bitsuamlak, G., Yeo, D., Simiu, E. "A Proposed Technique for Determining Aerodynamic Pressures on Residential Homes." Under Review, Wind and Structures.

7. Balderrama1, J.A., Masters, F.J., Gurley, K.R., Prevatt, D.O., Aponte-Bermúdez, L.D., Reinhold, T.A., Pinelli, J.-P., Subramanian, C.S., Schiff, S.D., **Gan Chowdhury, A.** "The Florida Coastal Monitoring Program (FCMP): A Review." Under Review, Journal of Wind Engineering and Industrial Aerodynamics.

Grant Proposals (pending)

N/A

FUNDED RESEARCH (current)

1. **National Science Foundation (NSF) Award** (NSF Award No. CMMI-0923365; FIU Account No. 800000012)

   PI: Arindam Gan Chowdhury; Co-PIs: Amir Mirmiran, Girma T. Bitsuamlak, Yong X. Tao

   Project Title: MRI: Acquisition of Instrumentation to Create a Transformative Large- and Full-Scale Wind Testing Capability in Support of Sustainable Windstorm-Resilient, Energy-Efficient Communities

   Award Amount: $ 429,593 ($300,715 from NSF + $128,878 in cost sharing)

   Award Duration: 08/01/2009 to 07/31/2012

2. **National Science Foundation (NSF) Award** (NSF Award No. CMMI-0928740; FIU Account No. 800000070)

   PI: Arindam Gan Chowdhury; Faculty Associate: Emil Simiu

Project Title: Development of Effective Approaches to the Large-Scale Aerodynamic Testing of Low-Rise Buildings

Award Amount: $ 150,000

Award Duration: 09/01/2009 to 08/31/2012

3. **Florida Sea Grant College Program Award** (Sea Grant Award No. R/C-D-19; FIU Account No. 800000388)

   PI: Arindam Gan Chowdhury, Co-PIs: Emil Simiu, Pallab Mozumder, Jean-Paul Pinelli

   Project Title: Development of Test-Based Data on Hurricane-Induced Building Interior, Utility, and Contents Damage for Improved Risk Prediction and Mapping

   Award Amount: $ 300,000

   Award Duration: 02/01/2010 – 01/31/2012

4. **Florida Division of Emergency Management** (FIU Account No: 800000749)

   PI: Arindam Gan Chowdhury

   Project Title: Hurricane Loss Reduction (RCMP): Building Envelope Performance under Hurricane Conditions and Mitigation Methods to Promote Sustainable Buildings

   Award Amount: $ 125,676

   Award Duration: 02/01/2011 – 06/30/2011

5. **Center of Excellence in Hurricane Damage Mitigation and Product Development Subproject** (FIU Account No: 120000198)

   PI: Arindam Gan Chowdhury, Co-PIs: Amir Mirmiran, Nakin Suksawang, Girma Bitsuamlak

   Project Title: Phase1: 6-fan WoW Based Development of New High-Tech Building Materials and High-Performance Building Envelope Systems

   Award Amount: $ 245,935

   Award Duration: 11/01/2010 – 06/30/2011

RESEARCH FUNDING APPROPRIATION

The Congressional direction accompanying the FY 2010 Omnibus Bill for the Energy and Water Appropriations included $1,000,000 for the proposal developed by Dr. Chowdhury titled “State of the Art Large-Scale Testing for Wind to Enhance Infrastructure Resiliency and Develop Energy-Efficient Buildings.” The net project funding is $972,000 after mandatory SBIR/STTR and other applicable mandatory rescission reductions. The funding would transform the Wall of Wind to a

multi-scale experimental facility for testing a wide variety of types of structure to promote significant mitigation of the vast losses due to hurricanes and contribute massively to improving infrastructure resiliency, enhancing energy performance of buildings, and reducing greenhouse gas emissions (GHGs).

FUNDED RESEARCH (completed)

1. **Renaissance Reinsurance Holdings Ltd. (RenaissanceRe) Award** (FIU Account No: 120000589)

   PI: Arindam Gan Chowdhury

   Project Title: Full-Scale Wind Load Testing Using the Wall of Wind

   Award Amount: $ 377,485.00

   Project Completion Date: Completed in May 2007

2. **Florida Department of Community Affairs Award** (FIU Account No: 120001507)

   PI: Arindam Gan Chowdhury

   Project Title: Hurricane Loss Reduction for Housing in Florida 06-07--Vortex Suppression Techniques for Alleviating Uplift Forces on Roofs, Roof Top Equipment Wind Load and its Mitigation for Buildings in Hurricane Prone Regions (Phase I), Development of Effective Roof to Wall Connection for Low-Rise Buildings to withstand Hurricane Wind Load (Phase I).

   Award Amount: $ 213,942.00

   Project Completion Date: Completed in June 2007

3. **Florida Division of Emergency Management** (FIU Account No: 212201516)

   PI: Arindam Gan Chowdhury

   Project Title: Hurricane Loss Reduction (RCMP): Development of Effective Roof to Wall Connection for Low-Rise Buildings to withstand Hurricane Wind Loads (Phase II) & Roof Top Equipment Wind Load and its Mitigation for Buildings in Hurricane Prone Regions (Phase II)

   Award Amount: $ 150,736.00

   Project Completion Date: Completed in August 2008

4. **Florida Department of Community Affairs Award** (FIU Account No: 212201514)

   PI: Amir Mirmiran, Co-PIs: Nakin Suksawang, Arindam Gan Chowdhury, Ton-Lo Wang, Caesar Abi

Project Title: Performance of Gable End Wall Bracing Retrofit for Hurricane Protection

Award Amount: $ 55,000.00

Project Completion Date: Completed in August 2008

5. **Florida Division of Emergency Management** (FIU Account No: 212201545)

   PI: Arindam Gan Chowdhury

   Project Title: Hurricane Loss Reduction (RCMP): Roof and Wall Vents Study under Simulated Hurricane Winds

   Award Amount: $ 174,454.00

   Project Completion Date: Completed in August 2009

6. **Department of Commerce / National Oceanic & Atmospheric Administration (NOAA) Award** (FIU Account No: 120000594)

   PI: Arindam Gan Chowdhury

   Project Title: Florida Hurricane Alliance - Round 2

   Award Amount: $ 142,333.00

   Project Completion Date: Completed in May 2010

7. **Department of Commerce / National Oceanic & Atmospheric Administration (NOAA) Award** (FIU Account No: 120001506)

   PI: Arindam Gan Chowdhury

   Project Title: Florida Hurricane Alliance Round 3 - Surface Wind

   Award Amount: $ 76,969.00

   Project Completion Date: Completed in May 2010

8. **Florida Division of Emergency Management** (FIU Account No: 800 000 311)

   PI: Arindam Gan Chowdhury

   Project Title: Hurricane Loss Reduction (RCMP): Wind Effects on Photovoltaic Panels Mounted on Residential Roofs

   Award Amount: $ 138,603.00

Project Completion Date: Completed in August 2010

9. **National Science Foundation (NSF) Award** (NSF Award No. 0727871; FIU Account No. 212201502)

   PI: Arindam Gan Chowdhury; Co-PI: Amir Mirmiran; Faculty Associate: Emil Simiu

   Project Title: Hurricane Wind Simulation and Testing to Develop Damage Mitigation Techniques

   Award Amount: $ 149,997.00

   Project Completion Date: Completed in August 2010

10. **National Science Foundation (NSF) Award** (NSF Award No. 0727871; FIU Account No. 212201549)

    PI: Arindam Gan Chowdhury; Co-PI: Amir Mirmiran; Faculty Associate: Emil Simiu

    Project Title: REU Supplement

    Award Amount: $ 6,000.00

    Project Completion Date: Completed in August 2010

11. **National Science Foundation (NSF) Award** (NSF Award No. 0727871; FIU Account No. 212201557)

    PI: Arindam Gan Chowdhury; Co-PI: Amir Mirmiran; Faculty Associate: Emil Simiu

    Project Title: RET Supplement

    Award Amount: $ 10,000.00

    Project Completion Date: Completed in August 2010

12. **Gulf of Mexico Regional Sea Grant Program Award** (Sea Grant Award No. GOM/RP-1; FIU Account No. 212201523)

    PI: Arindam Gan Chowdhury (FIU); Co-PIs: Amir Mirmiran (FIU), Emil Simiu (FIU), Steve Cai (LSU)

    Project Title: Development of Innovative Load Transfer Mechanism to Reduce Hurricane-Induced Failures in New and Existing Residential Construction

    Award Amount: $ 300,000.00

    Project Completion Date: Completed in September 2010

13. **Florida Sea Grant College Program Award** (Sea Grant Award No. R/C-D-18; FIU Account No. 212201524)

PI: Arindam Gan Chowdhury, Co-PIs: Amir Mirmiran, Emil Simiu

Project Title: Full-Scale Simulation of Hurricane Effects on Residential Building Envelopes to Reduce Hurricane-Induced Losses

Award Amount: $ 240,000.00

Project Completion Date: Completed in September 2010

FUNDING FROM INDUSTRY

Agency	Donation	State Match
• Applied Insurance Research (AIR) Worldwide	$50,000	$50,000
• Florida Power & Light (FPL)	$9,800	$9,800
• Arch Aluminum and Glass	$10,000	$10,000
• Concrecel USA	$7,500	$7,500
• The Roofing Industry Alliance for Progress	$100,000	$100,000
• WeatherPredict Consulting Inc.	$3,750	--
• WeatherPredict Consulting Inc.	$5,000	--
• WeatherPredict Consulting Inc.	$7,200	--
• TriCord Hurricane Products	$7,500	--
Total:	**$200,750**	**$177,300**

RESEARCH IMPACTS

Dr. Chowdhury's "Wall of Wind" (WoW) based research projects made significant impact on hurricane damage mitigation.

(a) *Improving Building Codes, Policy, Regulation, and Construction Practices:* Recommendations for changing the Florida Building Code (FBC) based on the WoW research were unanimously approved at the Florida Building Commission meeting on December 8, 2010 in Melbourne, Florida. The code modifications will be reflected in FBC 2010 and will influence wind loading on roof top equipments (RTE) not only for the High Velocity Hurricane Zones (HVHZ) (Dade and Broward counties in Florida) but also for the entire State of Florida. 2004-2005 hurricanes showed that RTE were most vulnerable causing roof damage and generating flying debris.

(b) *Innovative Hurricane Mitigation Product Development/Validation:* Research projects helped in full-scale validation of innovative mitigation devices "AeroEdge" (patented by FIU's private industry partner WPC) to reduce hurricane induced roof damage. It is estimated that Aeroedge could prevent about $5 billion in insured losses for an event similar to Hurricane Wilma of 2005.

PATENT DISCLOSURES, APPLICATIONS, AND AWARDS

Received ***Iowa State University Research Excellence Award*** for Spring 2004 in recognition of outstanding research accomplishments in the field of *Wind Structure Interaction*. Dr. Chowdhury's research accomplishments comprise a significant addition to the knowledge base in the discipline.

Patent application submitted for *Fiber Reinforced Polymer Non-Intrusive Roof-to-Wall Connection Systems* based on the NSF Project Titled: Hurricane Wind Simulation and Testing to Develop Damage Mitigation Techniques (Drs. Mirmiran and Chowdhury).

PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS

Dr. Chowdhury will be honored at the annual ***Faculty Scholarship Recognition Reception*** hosted by President Maidique at Reagan House on March 31, 2009. The event honors faculty for their achievements and outstanding efforts at FIU.

OFFICES HELD IN PROFESSIONAL SOCIETIES

Editorial Board Membership for Peer Reviewed International Journal

In June 2008, Dr. Chowdhury was appointed as member of editorial board of the peer reviewed international journal "Disaster Advances" (www.managein.org).

Committee Membership in Professional Organizations

1. Committee Member of *Experimental Analysis and Instrumentation*, Engineering Mechanics Institute (EMI), American Society of Civil Engineers (ASCE) (since August 2009)
   (Purpose: To foster the development and use of experimental methods, novel instrumentation and the utilization of new experimental techniques in civil engineering applications.)

2. Committee Member of *ASCE 7 Subcommittee on Wind Loads* (since December 2010)
   (Purpose: To develop proposed revisions on Section 6, Wind Loads of ASCE 7-88 including revision of wind speed maps.)

3. Committee Member of *ASCE 7 Subcommittee on Wind-Driven Effects* (since February 2011)
   (Purpose: To develop serviceability requirements for wind-driven rain penetration resistance of buildings in high wind areas to prevent business interruption, damage to building contents and the displacement of occupants during repairs.)

4. Committee Member of ASCE Technical Council on Wind Engineering's *Structural Wind Engineering Committee* (*SWEC*) (since March 2011)
   (Purpose: To re-examine, improve and disseminate present knowledge, and to enlighten the engineering profession on the subject of wind forces on structures, and the response of structures to those wind forces; to attempt to clarify, coordinate and unify wind design provisions on national and local building codes. Information will be disseminated through ASCE Journal papers and conferences.)

Membership in Professional Organizations

1. Faculty Member of Chi Epsilon, the National Civil Engineering Honor Society -- currently, there are 123 active chapters at major engineering universities throughout the United States.

2. Member of American Society of Civil Engineers (ASCE)

3. Member of American Association for Wind Engineering (AAWE)

4. Member of Florida Structural Engineers Association (FSEA)

OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

(A) Reviewer of Manuscripts for Journals

1. ASCE Journal Natural Hazards Review (NHR)

2. Proceedings of ICE Journal – Structures and Buildings

3. Coastal Management Journal

4. Wind and Structures

5. ASCE Journal of Architectural Engineering

6. Canadian Journal of Civil Engineering

7. ASCE Journal of Bridge Engineering

(B) Participation in Proposal Review Panel

Wind Engineering Panel - P090439, December 12, 2008
Structural Systems and Hazard Mitigation
Division of Civil, Mechanical and Manufacturing Innovation
National Science Foundation, Arlington, VA

(C) Session-Chair/Organizer/Advisory-Committee-Member in Major International and National Conferences and Forums in the Field

1. Symposium Organizer at the ***Engineering Mechanics Institute Conference*** (EMI 2011) (June 2011, Boston, Massachusetts, USA); Symposium #7 Title: "Workshop on State of the Art Experimental Approaches for Wind Engineering and Wind Energy."

2. Session Chair at the ***IV European Conference on Computational Mechanics*** (ECCM 2010), (16-21 May 2010, Paris, France, Europe); Session Title: "Database-Assisted Design: Basics, Data Compression, Applications to Tall Buildings;" Presented talk titled "Aerodynamic Load and Multi-Axial Performance Testing on Fiber-Reinforced Polymer Connections and Metal Fasteners."

3. Session Chair at the ***4th International Conference on Advances in Wind and Structures*** (AWAS'08) (May 2008, Jeju, Korea); Organized an Invited Session titled "Experimental and Probabilistic Tools for Developing Risk-Based and Performance-Based Design Criteria" containing 7 papers on wind engineering; Member of the ***International Advisory Committee*** for AWAS'08; Presented talk titled "Turbulence Simulation of Small-Scale Wall of Wind Flows."

Panelist in Major National Conference or Forum:

1. Panelist at the ***2009 Federal Alliance for Safe Homes, Inc. – FLASH® Annual Meeting*** (Orlando, Florida, October 2009).
    a. Panel Title: Academic/Research Problem Solvers
    b. Panel Theme: Disaster Safety Leadership, Building Codes, Building Products and Testing, Integration of Energy and Green Building, How Incentives Fit into Disaster Safety

2. Panelist at the ***Hurricane Risk Mitigation Leadership Forum*** (Orlando, Florida, February 2008).
    a. Panel Title: Moving the Latest Innovations from Theory to Market
    b. Panel Theme: Understanding the physics of failure is crucial to creating economical loss mitigation techniques. This panel will include the foremost academics who are actively working to understand the forces on structures from high winds and what can be done to mitigate these forces.

3. Panelist at the ***12th CIGMAT Annual Conference*** on "Construction, Geotechnical and Flooding Issues Related to Houston & Other Major Cities" (Houston, Texas, March 2007)
    a. Panel Title: Hurricane and Geotechnical Issues

(D) Services at FIU

1. Served on a Committee (Dr. Yong Tao (MME), Dr. Tony McGoron (BME), Dr. Arindam Chowdhury (CEE) as members) to prepare a report on status of FIU College of Engineering and Computing instruction laboratories in view of the impending accreditation visit in Fall 2008. The Committee visited all labs that are part of the ABET accredited baccalaureate programs - BME, CE, EE, Comp Eng, ISE, ME as well as Environ. Eng. that went for accreditation in Fall 2008. The Committee visited all the labs, observed the above items, took notes, and prepared a detailed report based on the observations and submitted to the Dean of the College of Engineering on November 20, 2006.

2. Served on a two-member Committee (Dr. Abi and Dr. Arindam Chowdhury) to Co-Edit the CEE Fall 2006 Newsletter. The Newsletter was published with CTQP and Wall of Wind articles.

3. Coordinated with US and Canadian universities and industry to form the Technical Advisory Committee (TAC) for the Wall of Wind (WoW) in Spring 2007. The networking has developed a 10 member TAC for advising the WoW. A White Paper on

Full-Scale Testing and Measurements was developed with the contributions from all members. Such networking with the academia and industry participants has brought significant attention and visibility for FIU WoW.

4. Participated in ABET mock review session in Spring 2008; Interacted and shared improvement concepts with the visiting personnel for the ABET mock review; Prepared a detailed document for "evidence of outcome achievement" based on course materials of CES3100 Structural Analysis and described detailed evidences by course materials (i.e., theories, methods, equations, computer software, exam problems, homework problems, projects, sample student work, experiment procedure, data analysis …etc.) for attaining Outcome 3a in this course (Outcome 3a: Our students will have ability to apply knowledge of mathematics, science, and engineering to solve civil engineering problems).

5. *Spring 2008-present*: Served on a Strategic Planning Committee (SPC) (other members Drs. Fuentes, Gan, Suksawang); Researched RATING SYSTEM for programs; Participated and contributed in monthly meetings for developing a SPC report.

6. *Fall 2009*: Participated in the Induction to the Profession Ceremony; Distributed the certificates on the platform.

7. *Spring 2010-present*: Faculty Advisor for Graduate Student Organization, Department of Civil and Environmental Engineering; Organized the first event of Graduate Orientation and Reception on February 25, 2010, Attended the Faculty Advisor training in September 2010.

8. Actively participated to develop and submit the Engineering Research Center (ERC) Proposal; Title: NSF Engineering Research Center for a Hurricane Resilient Community System (HuRCS), Funding Agency: National Science Foundation; Date of Submission: Feb 2010.

9. *Spring 2010*: Department of Civil and Environmental Engineering representative to the FIU College Faculty Council for the College of Engineering and Computing.

10. *Spring 2010*: Participated in the Induction to the Profession Ceremony; Distributed the certificates on the platform.

11. *Summer 2010*: Contributed as a guest speaker to the students of the GEAR UP 2010 Pre-College Program, FIU Center for Diversity in Engineering and Computing.

12. *Spring 2011*: Served on the committee for brainstorming and developing the *Dept. of Civil and Environ. Engineering (CEE) Conceptual Proposal for College of Engineering (CEC) Research Cluster*; Contributed in writing the proposal titled "Green and Sustainable Infrastructure for Climatically Vulnerable Coastal Environments and Communities – South Florida as Test-Bed."