Partha P. Sarkar

Professor
Associate Chair for Research
Director of WiST Lab
Department of CCEE (Courtesy)

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Education

Ph.D. Civil (Structural) Engineering, The Johns Hopkins University, 1992
M.S. Civil (Structural) Engineering, Washington State University, 1986
B. Tech. Civil Engineering, Indian Institute of Technology (Kanpur), 1985

Academic Appointments

Iowa State University (2000-present)
Department of Aerospace Engineering
Department of Civil, Construction and Env. Engineering (courtesy appointment)

- *Professor*, August 2006-present
- *Associate Chair for Research*, August 2017-present
- *Director of Wind Simulation and Testing Laboratory*, August 2001-present
- *T.A. Wilson and Grace Miller Endowed Chair in Engineering*, August 2000 to May 2008
- *Associate Professor*, August 2000-July 2006

Texas Tech University (1992-2000)
Department of Civil Engineering

- *Associate Professor*, September 1998-July 2000
- *Assistant Professor*, August 1992-August 1998

Awards and Honors

- Fellow, ASCE Structural Engineering Institute (SEI).
- T.A. Wilson and Grace Miller Endowed Chair in Engineering, 2000-2008.
- Guest Professor, Global Center of Excellence on Wind Engg., Tokyo Polytechnic Univ., Atsugi, Japan, 2008-2013.
- Best paper award for a paper at Japanese National Symposium on Wind Engineering, 2010.
- Hawley award for the best paper in the Texas Section ASCE, 1999.

Teaching

UNDERGRAD: AerE 321 Flight Structures Analysis, AerE 422 Vibrations and Aeroelasticity, EM 274 Statics, EM 324 Mechanics of Material.

GRADUATE: AerE/EM 570 Wind Engineering, AerE/WESEP 511 Wind Energy System Design, WESEP 501 Wind Energy Resources (20%), EM543 Intro. to Random Vibrations and Nonlinear Dynamics.

Research

Interest Areas: ▪Wind Engineering/Wind Energy/Fluid-Structure Interaction; ▪Wind tunnel/ computational simulations of ABL and non-synoptic (tornado, downburst, gust) wind and wind loads on civil structures; ▪Aeroelasticity (e.g. flutter) of civil/aero structures – aero load models and system identification (e.g. long-span bridges, tall buildings, high masts, signal light structure, airplane wings/rudder, cables); ▪Wind-induced fatigue; ▪Full-scale measurements; ▪Aerodynamic/dynamic loads/wakes and structural response of wind turbines; ▪Flow-induced energy harvesting.

Sponsored Grants: $16.7M total from 48 grants including 29 federal (NSF (18), NOAA, DOE, NAS, etc.), 6 state, 7 industry and 1 foreign sponsor; Several wind-tunnel service center projects from industry.

Selected Publications (of 200 pubs. including 65 journals, 4 patents, 3 ed. proceedings; h-index (Google): 27)

1. Jafari, M., **Sarkar, P.P.** (2019). Parameter Identification of Wind-induced Buffeting Loads and Onset Criteria for Dry-cable Galloping of Yawed/inclined Cables, *Engineering Structures*, 180, pp. 685-699.
2. Razavi, A., Zhang, W., **Sarkar, P.** (2018). "Effects of Ground Roughness on Near-Surface Flow Field of a Tornado-like Vortex," *Experiments in Fluids*, 59: 170.
3. Razavi, A., **Sarkar, P.** (2018). "Laboratory Study of Topographic Effects on the Near-surface Tornado Flow Field," *Journal of Boundary Layer Meteorology*, Vol. 168, pp. 189-212.
4. Razavi, A., **Sarkar, P.** (2018). "Tornado-induced Wind Loads on a Low-rise Building: Influence of Swirl Ratio, Translation Speed and Building Parameters," *Engineering Structures*, 167, pp. 1-12.
5. Hou, F., **Sarkar, P.** (2018). "A Time-domain Method for Predicting Wind-induced Buffeting Response of Tall Buildings," *Journal of Wind Engineering and Industrial Aerodynamics*, 182, pp. 61-71.
6. Sauder, H., and **Sarkar, P.P.** (2017). "Real-time Prediction of Aeroelastic Loads of Wind Turbine Blades in Gusty and Turbulent Wind using an Improved Load Model," *Engineering Structures*, 147, pp. 103-113.
7. Haan, F.L., **Sarkar, P.P.**, Kopp, G.A., Stedman, D.A. (2017). "Critical Wind Speeds for Tornado-induced Vehicle Movements," *Journal of Wind Engineering and Industrial Aerodynamics*, 168, pp. 1-8.
8. Cao, B. and **Sarkar, P.P.** (2015). "Numerical Simulation of Dynamic Response of a Long-Span Bridge to assess its Vulnerability to Non-Synoptic Wind," E*ngineering Structures*, 84, pp. 67-75.
9. Zhang, Y., **Sarkar, P.** and Hu, H. (2015). "An Experimental Investigation on the Characteristics of Fluid-Structure Interactions of a Wind Turbine Model Sited in Microburst-like Winds," *Journal of Fluids and Structures*, Vol.57, No. 8, pp. 206–218.
10. Zhang, Y., **Sarkar, P. P.** and Hu, H. (2014). "An Experimental Study on Wind Loads acting on a High-rise Building Model induced by Microburst-Like Winds," *Journal of Fluids and Structures*, Vol. 50, pp. 547-564.
11. Zhang, Y., Hu, H. and **Sarkar, P.P.** (2014). "Comparison of Microburst-wind Loads on Low-rise Structures of various Geometric Shapes," *Journal of Wind Engineering and Industrial Aerodynamics*, Vol. 133, pp. 181-190.
12. Case, J., **Sarkar, P.P.** and Sritharan, S. (2014). "Effect of Building Geometry on Tornado Induced Wind Loads," *Journal of Wind Engineering and Industrial Aerodynamics*, Vol. 133, pp. 124-134.
13. Cao, B. and **Sarkar, P.P.** (2013). "Extraction of Rational Functions by Forced Vibration Method for Time-domain Analysis of Long-span Bridges," *International Journal of Wind and Structures*, Vol. 16, No. 6.
14. Cao, B. and **Sarkar, P.P.** (2013). "Time-Domain Aeroelastic Loads and Response of Flexible Bridges in Gusty Wind: Prediction and Experimental Validation," *ASCE, Journal of Engineering Mechanics*, 139 (3), pp. 359-366.
15. Hu, H., Yang, Z. and **Sarkar, P.** (2012). "Dynamic Wind Loads and Wake Characteristics of a Wind Turbine Model in an Atmospheric Boundary Layer Wind", *Experiments in Fluids*, 52: pp. 1277-1294.
16. Thampi, H., Dayal, V. and **Sarkar, P.** (2011). "Finite Element Analysis of Interaction of Tornados with a Low-rise Timber Building," *Journal of Wind Engineering and Industrial Aerodynamics*, Vol. 99, pp. 369-377.
17. Haan, F.L., Balaramudu, V.K., and **Sarkar, P.P.** (2010). "Tornado-Induced Wind Loads on a Low-Rise Building," *Journal of Structural Engineering*, ASCE 136 (1), pp. 106-116.

Thesis Advisor/Co-advisor and Postgraduate-Scholar Sponsor

Postgraduate-Scholar (4): K. Cho, Z. Yang, W. Zhang, Z. Zhao

Doctoral (15): A. Razavi (2018), H. Sauder (2016), M. Khosravi (2016), Y. Zhang (2013), B. Cao (2012), A. Sengupta (2007), B. Chang (2007), A. Chowdhury (2004), J. Garrett (2003), F. Wu (2000), Z. Zhao (1999), G. Thomas (1996), +3.
Masters (14): X. Wu (2017), M. Khosravi (2015), J. Case (2012), K. Crawford (2012), H. Thampi (2010), M. Goliber (2009), K. Sehn (2008), S. Schmidt (2008), J. Stronck (2005), R. Kardell (2004), A. Sengupta (2000), T. Gardner (1999), H. Gupta (1995), M. Kose (1995).

Professional and Outreach Activities

- American Association for Wind Engineering (AAWE): President (2011-2012), Secretary/Treasurer (1998-2002), Member-Board of Directors (2004-2007);
- American Society of Civil Engineers (ASCE/SEI/EMI): Member (1992-present), Member/Vice-Chair – Wind Engineering Division Executive Committee (2017-present), Member - Standards Cmtee. on Estimating Wind Speeds in Tornadoes (2015-present), Wind Effects Cmtee. (1993-99, 2002-06), Aerodynamics Cmtee. (1998-2008), Standards Cmtee. on Wind Tunnel Testing of Bldgs. & Other Structures (1994-2004);
- Members of ASEE (1992-present), AIAA (2001-2010), Sigma Xi (1995-2004);
- Scientific Committees of Conferences: International (5), National (4);
- Organized and Chaired/Co-chaired 4 US-Japan, 1 AAWE and 1 Intl. Workshops on Wind Eng.;
- Session Chairs at Structures/Wind Conferences (13);
- Editorial Board Member of 3 Journals on Wind Eng. including Journal of Wind Engg. And Industrial Aerodynamics
- Reviewer (9 Journals, NSF);
- Media: Participation in National and Intl. TV/Radio/Exhibit (18 times including CNN, National Geographic, BBC World News, NHK Japan, Chicago Museum, etc.).