

BRIEF CURRICULUM VITAE

Name : SUSHANTA CHAKRABORTY
Present Status: : Associate Professor
Department of Civil Engineering
Indian Institute of Technology Kharagpur

Academic Qualifications:

1. Bachelor of Civil Engineering (Honours), 1988, Jadavpur University, Kolkata, India
2. Master of Engineering (Applied Mechanics), 1994, Jadavpur University, Kolkata, India
3. Doctor of Philosophy (PhD), 2000, Ocean Engg. & Naval Arch., Indian Institute of Technology, Kharagpur

Professional Experience:

Assistant Divisional Engineer, Hindustan Steelworks Construction Ltd, Vishakhapatnam Steel Project, Andhra Pradesh, from 23rd January, 1989 to 30th September, 1992

Post Doctoral Research Experiences:

- (1) Junior Project Officer in the Department of Ocean Engineering & Naval Architecture, Indian Institute of Technology, Kharagpur, from 11th January 2000 to 20th September, 2000.
- (2) *Research Associate* in The Department of Mechanical Engineering, The University of Sheffield, United Kingdom, from 30th October, 2000 to 30th September, 2002
- (2) *Research Fellow* in The Department of Civil and Environment Engineering, Nanyang Technological University, Singapore from 2nd June, 2003 to 4th January, 2004
- (3) *Research Associate* in The Department of Civil and Structural Engineering, The University of Sheffield, United Kingdom from 9th February, 2004 to 11th June 2004

Teaching Experiences:

- (1) Assistant Professor- Department of Civil Engineering, BITS, Pilani, Rajasthan- 20th July 2004-13th May, 2005
- (2) Assistant Professor- Department of Civil Engineering, IIT Roorkee, 29th June, 2005 – 29th May, 2007
- (3) Assistant Professor- Department of Civil Engineering, IIT Kharagpur, 1st June, 2007 2 December 2014
- (4) Associate Professor- Department of Civil Engineering, IIT Kharagpur, 30 December 2014 till date

Subjects Taught:

Mechanics (1st Year UG)- 2 Semesters
Structural analysis – 2 Semesters
Engineering Drawing and Computer Graphics (1st Year UG) – 9 Semesters
Surveying Practice (2nd year UG) – 1 Semester
Concrete Laboratory (3rd Year UG) – 8 Semesters
Pre-stressed Concrete (5th Year DD & M. Tech) – 7 Semesters
Structural Lab (M. Tech) – 7 Semesters
Track Engineering – 1 Semester

Administrative Responsibility at IIT Kharagpur:

Vice Chairman (Civil Construction and Maintenance) October 2013- September 2016

Departmental Portfolio:

Coordinator of Engineering Drawing (3 years)
Timetable-in-Charge (4 years)
Structural Lab-in-Charge (4 Years)
Member, Departmental Administrative Committee member (3 Years)
Faculty Advisor (1st Year UG) (1 year)

Current Research Project

Project Title : Size effect in unconfined and weekly confined cylindrical concrete columns (Co-Principal-Investigator), Sponsor : Science and Engineering Research Board; Sanctioned Grant: 35.6 Lakhs, Period: 07-07-2014 to 06-07-2017 (PI: Dr. Arghya Deb)

Important Consultancy Project

Project Name: Assessment of static design of Dobra-Chanti bridge (Co-Principal Investigator), Sponsor: Uttarakhand P.W.D., Sanctioned Grant: 78 Lakhs, Period: 01-10-2011 to 30-06-2012

Recent Publications:

A. International Journals:

- (1) Estimation of Viscous Damping Parameters of Fibre Reinforced Plastic Plates using Finite Element Model Updating by S Mondal and S Chakraborty *International Journal of Acoustics and Vibration*, (2016)
- (2) Inverse Detection of Constituent Level Elastic Parameters of FRP Composite Panels with Elastic Boundaries using Finite Element Model Updating by Asim Kumar Mishra and Sushanta Chakraborty *Ocean Engineering*, 111, 358-368 (2016)
- (3) A New Gradient Based Step Size Controlled Inverse Eigen Sensitivity Algorithm for Identification of Material and Boundary Parameters of Plates by S K Abdul Goni, Subhajit Mondal and Sushanta Chakraborty *Journal of Vibration and Control*, (2015)
- (4) Fibre Bragg Grating based Accelerometer with Extended Bandwidth by N Basumallick, P Biswas, R Chakraborty, S Chakraborty, K Dasgupta, S Bandyopadhyay *Measurement Science and Technology* (Accepted), (2016)
- (5) Determination of Material Parameters of FRP Plates With Rotational Flexibility at Boundaries Using Experimental Modal Testing and Model Updating by Asim Kumar Mishra and S Chakraborty, *Experimental Mechanics*, (2015)
- (6) Development of a Finite Element Model Updating Technique for Estimation of Constituent Level Elastic Parameters of FRP Plates by Asim Kumar Mishra and Sushanta Chakraborty *Applied Mathematics and Computations*, 258, 84-94 (2015)
- (7) An inverse approach for the determination of viscous damping model of fibre reinforced plastic beams using finite element model updating by Subhajit Mondal and Sushanta Chakraborty *International Journal of Acoustics and Vibration* (Accepted), (0)
- (8) Dynamic performance of sandwich composite plates with circular hole/cut-out: a mixed experimental-numerical study by S Mondal, A Patra, S Chakraborty and N Mitra *Composite Structures*, (2015)
- (9) Critical factors influencing the dynamic characteristics of FRP bridges- a parametric study by Althaf M Mohammed and S Chakraborty *Int. Jr. of Reinforced Plastics and Composites*, Vol. 33, 223 – 22 (2013)
- (10) Determination of fracture parameters of FRP composites: a combined experimental and numerical investigation- by Dipak Rakshit and Sushanta Chakraborty, *International Journal of Composite Materials*, 49(2), 231-141 (2015)
- (11) Identification of Non-Proportional Viscous Damping Matrix of Beams by Finite Element Model Updating by S Mondal and S Chakraborty, *Journal of Vibration and Control* (accepted on 12th Oct 2016)
- (12) Estimation of Material Properties of FRP I-Beam from Experimental Modal Testing and Finite Element Model Updating, Asim Kumar Mishra , Althaf Mohammed , Sushanta Chakraborty, *International Journal of Acoustics and Vibration* (Accepted on 2nd March 2017)

B. International Conference, Symposium, Workshop etc:

- (1) "Detection of Damage in Beam from Measured Natural Frequencies Using Support Vector Machine Algorithm, Prashanth Shyamala, SubhajitMondal, S. Chakraborty, International Conference on Advance in Dynamics and Vibration Control- 20.16 (ICADVC-2016), NIT Durgapur, February 25-27, 2016.
- (2) "Identification of Damage in Plates using FRF Curvatures near Resonating Frequencies by Subhajit Mondal, Bidyut Mondal and Sushanta Chakraborty (6th Int. Conf. on Theoretical, Applied, Computational and Experimental Mechanics (December 29, 2014 - December 31, 2014, IIT Kharagpur)
- (3) "Finite Element Model Updating of FRP Plates with Elastic Boundaries" -Asim K Mishra and S. Chakraborty, Proceedings of the 17th Inter. Conference on Composite Structures, Porto, Portugal, 17th-21st June, 2013, pp. 183
- (4) "Identification of in-plane and out-of-plane elastic parameters of orthotropic composite structures"- S. Mondal and S. Chakraborty, 23rd International Congress of Sound and Vibration, Athens, Greece, 10-14 July 2016.
- (5) "Estimation of Elastic Parameters of Sandwich Composite Plates using a Gradient based Finite Element Model Updating Approach"- S. Mondal, S. Chakraborty, N. Mitra, The ASME Conferences on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), September 28-30, 2016, STOWE, Vermont, USA (Paper No: SMASIS2016-9005)

C. National Conference

- (1) “Damage Detection in Beams using Frequency Response Function Curvatures near Resonating Frequencies” by Subhajit Mondal, Bidyut Mondal, Anila Bhutia and Sushanta Chakraborty, *Structural Engineering Convention*, 22nd-24th December 2014, IIT Delhi
- (2) “Identification of material parameters of pultruded FRP composite plates using finite element model updating”, Subhajit Mondal and Sushanta Chakraborty, Proceedings of 58th Congress of ISTAM, BESU Shibpur; West Bengal, India, December 18-21, 2013

Old Publications

A. International Journals:

- (1) “Estimation of In-Plane Elastic Parameters and Stiffener Geometry of Stiffened Isotropic Plates”, by S. Chakraborty and M. Mukhopadhyay, *Journal of Sound and Vibration*, vol. 231, no. 1, 2000, 99-124.
- (2) “Estimation of Layerwise In-Plane Elastic Parameters of Stiffened Composite Plates using Model Updating Techniques”, by S. Chakraborty, M. Mukhopadhyay, *AIAA Journal*, 38(9), 2000, 1716-1724
- (3) “Determination of Physical Parameters of Stiffened Plates using Genetic Algorithm” by S. Chakraborty, M. Mukhopadhyay and O. P. Sha, *ASCE Journal of Computing in Civil Engineering*, vol. 16, no. 3, July 1 2002, pp. 206-221
- (4) “Non-Contact Passive Damping of Structures: an Experimental Investigation using Electromagnetic Concepts” by S. Chakraborty and G. R. Tomlinson, *Journal of Mechanical Engineering Science*, vol. 217, 2003, Part C, pp. 991-999
- (5) “An Initial Experimental Investigation of into the Change in Magnetic Induction of Terfenol-D Rod due to External Stress” by S. Chakraborty and G. R. Tomlinson, *Smart Materials and Structures*, vol. 12, 2003, pp. 763-768
- (6) “Lessons from monitoring the performance of highway bridges” by JMW Brownjohn, P Moyo, P Omenzetter, S Chakraborty, *Structural Control and Health Monitoring* Volume 12, (3-4) 2005. 227-244

B. International Conference, Symposium, Workshop etc:

- (1) “A structural health monitoring paradigm for civil infrastructure” by James MW Brownjohn, Tjin Swee Chuan, Tan Guan Hong, Tan Boon Leong and Sushanta Chakraborty (*1st FIG International Symposium on Engg. Surveys for Construction Works and Structural Engg. Workshop on Measurements and Analysis of Cyclic Deformations and Structural Vibrations*, The Univ. of Nottingham, UK, 28 June – 1 July 2004
- (2) “Interpreting data from bridge performance and health monitoring systems” by JMW Brownjohn, Pilate Moyo, Piotr Omenzetter, Sushanta Chakraborty (*International Workshop on Advanced Sensors, Structural Health Monitoring, and Smart Structures held at Keio University, Japan on 10-11 November 2003*)
- (3) “Determination of material properties of laminated composite plates using correlation between vibration testing and numerical analysis: a survey” by S. Chakraborty and M. Mukhopadhyay (*International Conference on Civil Engineering in the New Millennium: Opportunities and Challenges*, 11-14 Jan, 2007, Kolkata, India)

C. National Conference:

- (1) “Effect of openings in shear walls of multi-storeyed buildings” by K. K. Singh, S. Chakraborty, T.R. Reddy (*National Conference on High-Rise Buildings: Materials and Practices*, 30-31st October, 2006, Le Meridien Hotel in New Delhi, India).

Research Interests

- (1) Finite element modal updating, condition assessment and health monitoring using measured vibration responses, special emphasis on material property identification of FRP type of layered structures and damage detection using Inverse problems.
- (2) Human induced vibration of footbridges

- (3) Modal testing of actual as built civil infrastructure
- (4) Real time earthquake response analysis using six degrees of freedom multi-axes shake table