



**Professor Sondipon Adhikari**

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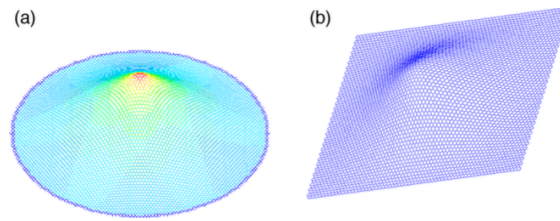
<http://engweb.swan.ac.uk/~adhikaris/>

Chair of Aerospace Engineering  
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### Research Interests, etc:

Professor Adhikari's research areas are multidisciplinary in nature and include uncertainty quantification in computational mechanics, bio & nanomechanics (nanotubes, graphene, cell mechanics, nano-bio sensors), dynamics of complex systems, inverse problems for linear and non-linear dynamics and vibration energy harvesting. He has obtained more than £1.5M of competitive research funding as principal investigator, published 3 books, 233 peer reviewed journal papers (h-index=40) and more than 150 conference papers in these areas. He was the recipient of the Jawaharlal Nehru Memorial Trust (London) scholarship at the Trinity College, Cambridge (1997). In 1999 he won the best student paper prize (John Winbolt Prize) from the Cambridge University for a single-authored paper in the AIAA Journal. In 2001 he won the second prize from the Acoustical Society of America for the best student paper/presentation in the 141st Meeting at Chicago. Later that year he received the junior research fellowship (in science and engineering) from Fitzwilliam College, Cambridge. Professor Adhikari received the EPSRC advanced research fellowship award in 2004.

Professor Adhikari is an associate fellow of American Institute of Aeronautics and Astronautics (AIAA) and a member of Society for Experimental Mechanics (SEM), and The Institute of Nanotechnology (IoN). From 2007 he has been a member of the Stochastic Process and Stochastic Analysis Cluster of the Wales Institute of Mathematical and Computational Sciences (WIMCS). Professor Adhikari has been a member of the editorial board of number of journals such as: Probabilistic Engineering Mechanics (2015-), Nanoscience & Technology (2013-), Modelling and Simulation in Engineering (2010-), International Journal of Mathematics in Engineering, Science and Aerospace (2009-), Journal of Sound and Vibration (2009-), International Journal of Engineering Under Uncertainty: Hazards, Assessment and Mitigation (2009-) and The Open Numerical Methods Journal (2008-). He has been an Associate Editor for the Shock and Vibration Journal between 2006-2011. He is a technical reviewer for over 120 international journals, 20 conferences and 15 funding bodies. He is a member of the American Institute of Aeronautics and Astronautics (AIAA) Non-Deterministic Approaches Technical Committee (NDA-TC) and Uncertainty Quantification and Model Validation (UQMV) technical division of the Society for Experimental Mechanics (SEM). Professor Adhikari is a member of Engineering and Physical



**Figure 1.** Lattice models of circular and rectangular graphene sheets. The figures show a typical pattern of stress and deformation distribution under loading represented by a point force or distributed pressure over a small radius (such as those arising due an AFM tip). (a) Circular lattice plate ( $R = 9.5$  nm) under central loading. Distribution of equivalent membrane stresses. (b) Deformation behaviour of a lattice rectangular SLGS plate ( $a = 15.1$  nm,  $b = 13.03$  nm) under central loading.

From: F. Scarpa, S. Adhikari, A.J. Gil, C. Remillat, The bending of single layer graphene sheets: the lattice versus continuum approach, Nanotechnology 21 (2010) 125702

Sciences Research Council (EPSRC) peer review college. He has been a research grant reviewer for Nuffield foundation, NRF (National Research Foundation), South Africa, US Department of Energy and Science and Technology, book reviewer for Wiley, Elsevier/Butterworth-Heinemann Publishers and Royal Aeronautical Society.

### **Selected Publications:**

- Adhikari, S. and M. I. Friswell (2001). "Eigenderivative Analysis of Asymmetric Non-Conservative Systems". *International Journal for Numerical Methods in Engineering* 51(6), pp. 709–733.
- Tong, F. M., Wang, C. Y. and Adhikari, S., "Axial buckling of multiwall carbon nanotubes with heterogeneous boundaries", *Journal of Applied Physics*, Vol. 105, No. 9, June 2009, pp. 094325-094325-7
- C. Y. Wang, C. F. Li, and S. Adhikari, "Dynamic behaviors of microtubules in cytosol," *Journal of Biomechanics*, vol. 42, no. 9, pp. 1270–1274, 2009
- F. Scarpa, S. Adhikari, A.J. Gil, C. Remillat, The bending of single layer graphene sheets: the lattice versus continuum approach, *Nanotechnology* 21 (2010) 125702.
- E. I. Saavedra Flores, S. Adhikari, M. I. Friswell, F. Scarpa, Hyperelastic finite element model for single wall carbon nanotubes in tension, *Computational Materials Science* 50 (2011) 1083-1087.
- E.I. Saavedra Flores E.I., Adhikari, S., Friswell, M.I. and Scarpa, F., "Hyperelastic axial buckling of single wall carbon nanotubes", *Physica E, Bol.* 44, pp 525-529, 2011
- Saavedra Flores E.I., Adhikari, S., Friswell, M.I. and Scarpa, F., "Hyperelastic modelling of post-buckling response in single wall carbon nanotubes under axial compression", *Procedia Engineering*, Vol. 10, pp 2256-2261, 2011
- E. I. Saavedra Flores, S. Adhikari, M. I. Friswell, F. Scarpa, Lattice hyperelastic finite element approach for axial buckling of single wall carbon nanotubes, Submitted for publication.
- Murmu T, Adhikari S. Nonlocal vibration of bonded double-nanoplate-systems. *Composites Part B* 2011; 42: 1901–1911.
- Murmu T, Sienz J, Adhikari J, Arnold C, Nonlocal buckling behavior of bonded double-nanoplate-systems. *J Appl Phys* 2011; 110: 084316.
- Murmu T, Adhikari S. Axial instability of double-nanobeam-systems. *Phys Lett A* 2011;375:601–8.
- S. Dey, T. Mukhopadhyay, H. Haddad Khodaparast, P. Kerfriden and S. Adhikari, "Rotational and ply-level uncertainty in response of composite shallow conical shells", *Composite Structures*, Vol. 131, pp 594-605, November 2015