



Figure 3. Additively manufactured sheet material. Hexagonal honeycomb (left), auxetic sheet (center), random porous structure (right).

Professor Atul Bhaskar

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See:

<https://www.southampton.ac.uk/engineering/about/staff/ab13.page>

https://www.researchgate.net/scientific-contributions/76332063_Atul_Bhaskar

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Biography:

Atul Bhaskar graduated from IIT Kanpur in Mechanical Engineering. Following this, he obtained his master's degree in Applied Mechanics (IIT Delhi) and a PhD (University of Cambridge). Before joining Southampton in 1999, he taught at IISc Bangalore and IIT Delhi. He has also worked in the industry in the mechanical design and aerospace sectors prior to joining the academia. His current research interests are in the areas of computational and theoretical solid mechanics applied to structures & materials where he has published extensively in the leading journals and international journals, in addition to being awarded several patents. His previous and current research has been supported by EPSRC, BBSRC, EU, industry, Royal Academy of Engineering, Leverhulme Trust, etc. He has been a recipient of several awards and honours such as the George Stevenson Prize and Medal of the IMechE and the Leverhulme Senior Research Fellowship of the Royal Academy of Engineering. He leads a team of over ten researchers working on problems in the aerospace, automotive, marine and biomedical sectors, with current research funding over £2M.

Research Interests:

Dynamics and Vibrations: Linear vibrations of discrete and continuous systems, wave propagation, experimental modal analysis, nonlinear vibrations of composite plates; damping in vibrations: analytical, numerical and experimental aspects; random vibrations, crashworthiness, dynamics of gyroelastic continua.

Selected Publications:

Dumir, P.C., Bhaskar, A.: Nonlinear static analysis of rectangular plates on elastic foundations by the orthogonal point collocation method. *Comput. Methods Appl. Mech. Eng.* 67, 111–124 (1988)

Mamadou T. Bah, Prasanth B. Nair, Atul Bhaskar and Andrew J. Keane, “Efficient prediction of the forced response statistics of mistuned bladed discs, Publisher not identified in the pdf file (AIAA?), 2003

Bhaskar, A., 2009, “Elastic Waves in Timoshenko Beams: The ‘Lost and Found’ of an Eigenmode,” *Proc. R. Soc. A*, 465(2101), pp. 239–255.

Athanasios Makrodimopoulos, Atul Bhaskar and Andy J. Keane, “A formulation of thickness optimization for plane stress”, 17th UK Conference on Computational Mechanics (ACME-UK), 6-8 April 2009, Nottingham, UK

Athanasios Makrodimopoulos, Atul Bhaskar and Andy J. Keane, “Second-order cone programming formulations for a class of problems in structural optimization”, *Structural and Multidisciplinary Optimization*, 2010

Jie Zhou, Atul Bhaskar and Xin Zhang, “Bi-objective optimization for the vibro-acoustic performance of a double-wall panel”, *The Journal of the Acoustical Society of America*, April 2012

Zhou, J., Bhaskar, A., Zhang, X. (2013). Sound transmission through a double-panel construction lined with poroelastic material in the presence of mean flow. *Journal of Sound and Vibration* 332: 3724-3734.

J. Zhou, A. Bhaskar, A, and X. Zhang, “The effect of external mean flow on sound transmission through double-walled cylindrical shells lined with poroelastic material,” *J. Sound Vib.*, vol. 333, no. 7, pp. 1972–1990, 2014.

Jie Zhou, Atul Bhaskar and Xin Zhang, “Sound transmission through double cylindrical shells lined with porous material under turbulent boundary layer excitation”, *Journal of Sound and Vibration*, Vol. 357, pp 253-268, November 2015

A. Bonfanti, A. Bhaskar and M.F. Ashby, “Plastic deformation of cellular materials”, *Materials Science and Materials Engineering*, December 2016

Atul Bhaskar, Enrique Cuan-Urquizo, Alessandra Bonfanti, Hayk Vasilyan, Tigran Saghatelian, Loris Domenicale, S.J.A. Rizvi and Naresh Bhatnagar, “Porous and lattice materials: Mechanics and Manufacture, *International Journal of Engineering*, Vol. 16, No. 2, May 2018

D. Ghazaryan, V. N. Burlayenko, A. Avetisyan and A. Bhaskar, Free vibration analysis of functionally graded beams with non-uniform cross-section using the differential transform method, *J. Eng. Math.* 110 (1) (2018) 97–121.

Tetyana Shmatko and Atul Bhaskar, “R-functions theory applied to investigation of nonlinear free vibrations of functionally graded shallow shells”, *Nonlinear Dynamics*, Vol. 93, No. 1, pp 189-204, July 2018

Alessandra Bonfanti and Atul Bhaskar, “Elastic stabilization of wrinkles in thin films by auxetic microstructure”, *Extreme Mechanics Letters*, Vol. 33, Article 100556, November 2019