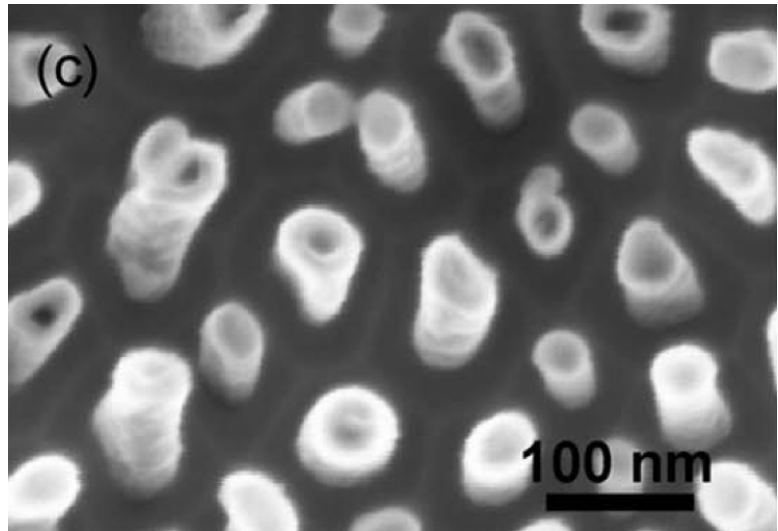




**Professor Pradeep R. Guduru**



From: Waters, J. F., Guduru, P. R., Jouzi, M., Xu, J. M., Hanlon, T. and Suresh, S., "Shell buckling of individual multiwalled carbon nanotubes using nanoindentation", Applied Physics Letters, Vol. 87, No. 10, September 2005

See:

<https://vivo.brown.edu/display/pguduru>

<http://www.brown.edu/Departments/Engineering/Labs/Gudurulab/>

[https://www.researchgate.net/profile/Pradeep\\_Guduru](https://www.researchgate.net/profile/Pradeep_Guduru)

<http://65.54.113.26/Author/18154193/pradeep-r-guduru>

James R. Rice Professor of Engineering  
Experimental Solid Mechanics Laboratory, Division of Engineering  
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#### **Education:**

Ph.D. 2001 California Institute of Technology, Aeronautics with a minor in Materials Science

M.E. 1994 Indian Institute of Science, Aerospace Engineering

B.Tech 1992 Sri Venkateswara University, Mechanical Engineering

#### **Biography:**

Prof. Guduru received Bachelor's degree in Mechanical Engineering from Sri Venkateswara University, India, and Master's degree in Aerospace Engineering from Indian Institute of Science. He earned his Ph.D. in Aeronautics (Minor: Materials Science) from California Institute of Technology in 2001 (with Prof. Ares Rosakis). Following graduation, he joined the Division of Engineering at Brown University as a postdoctoral research associate (with Prof. Ben Freund) and subsequently joined the Solid Mechanics faculty there as an Assistant Professor of Engineering in 2002. He was an Associate Professor of Engineering during 2008, the James R. Rice Associate Professor of Engineering during 2009-2014 and the James R. Rice Professor of Engineering since 2014. Prof. Guduru held a visiting appointment in Mechanical Engineering at University of California, Berkeley during 2008-09. He is currently a Visiting Professor of Mechanical Engineering at Stanford University during 2015-16. Professor Guduru was the recipient of PECASE - Presidential Early Career Award for Scientists and Engineers – in 2007; and the National Science Foundation CAREER award in 2006. He received the William F. Ballhaus prize for outstanding doctoral dissertation in Aeronautics (Caltech, 2001),

the Ernest E. Sechler Memorial Award for the most significant contributions to teaching and research in Aeronautics (Caltech, 1998); Donald W. Douglas fellowship (Caltech, 1994); the Senate Commendation for academic excellence (Indian Institute of Science, 1994); and Jayant Dalal scholarship and Ivaturi prize for academic excellence (Sri Venkateswara University, 1992). Prof. Guduru serves on the Editorial Advisory Boards of the *Journal of the Mechanics and Physics of Solids* and *Acta Mechanica Sinica*. He is an Associate Editor of *Applied Mechanics Reviews*. Prof. Guduru served as the co-Chair of the 50th Annual Technical Meeting of the Society of Engineering Science (which was also the joint Annual Summer Conference of ASME-AMD) in 2013. He also organized multiple workshops (NSF, ARO, DOE).

### **Research Overview:**

Professor Guduru's research focusses on several aspects of Experimental Mechanics, with emphasis on phenomena at micro and nano length scales. The current active areas of research are: biologically inspired contact mechanics, adhesion and friction; developing nanofabrication strategies by means of guided self assembly using electric and magnetic fields; mechanics of carbon nanotubes: experiments and modeling; and mechanical behavior of biological tissues; and mechanics of energy storage materials.

### **Selected Publications:**

Waters, J.F.; Riester, L.; Jouzi, M.; Guduru, P.R.; Xu, J.M. Buckling instabilities in multiwalled carbon nanotubes under uniaxial compression. *Appl. Phys. Lett.* 2004, 85, 1787–1789.

Waters, J. F.; Riester, Laura; Jouzi, M.; Guduru, P. R.; Xu, Jimmy M., “Buckling instabilities in multiwalled carbon nanotubes under uniaxial compression”, *Applied Physics Letters*, Vol. 85, No. 10, pp. 1787-1789, September 2004

Waters, J. F., Guduru, P. R., Jouzi, M., Xu, J. M., Hanlon, T. and Suresh, S., “Shell buckling of individual multiwalled carbon nanotubes using nanoindentation”, *Applied Physics Letters*, Vol. 87, No. 10, September 2005

Xia Z, Guduru PR, Curtin WA (2005) Buckling and load transfer of multi-wall carbon nanotubes with  $sp^3$  intertube bridging. Submitted to *Physical Review*.

J F Waters , P R Guduru , J M Xu, “Nanotube mechanics - Recent progress in shell buckling mechanics and quantum electromechanical coupling”, *Composites Science and Technology* 66 (2006)

P. R. Guduru and Z. Xia, “Shell buckling of imperfect multiwalled carbon nanotubes – experiments and analysis”, *Experimental Mechanics*, Vol. 47, No. 1, pp 153-161, February 2007

Xia, Z.H.; Guduru, P.R.; Curtin, W.A. Enhancing mechanical properties of multiwall carbon nanotubes via  $sp^3$  interwall bridging. *Phys. Rev. Lett.* 2007, 98, 245501.