



Professor Haydn N. G. Wadley

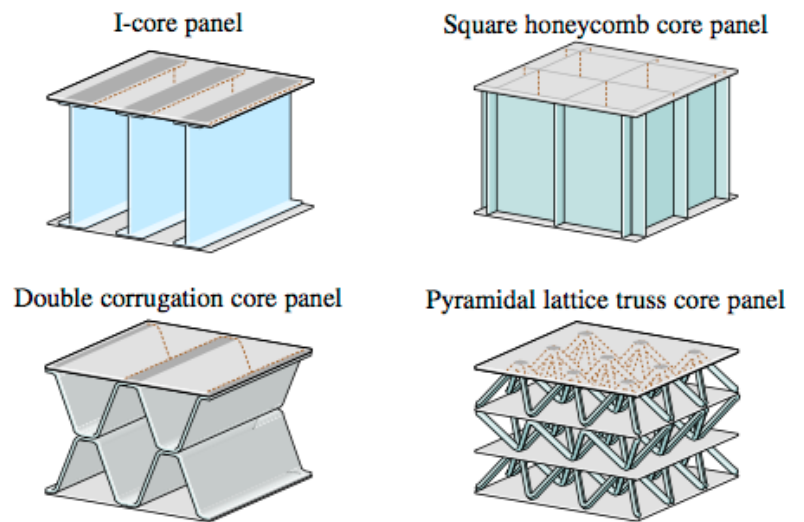


Figure 1. Cellular core topologies.

From: Haydn N. G. Wadley, Kumar P. Dharmasena, Doug T. Queheillalt, Yungchia Chen, Philip Dutt, David Knight, Ken Kiddy, Zhenyu Xue and Ashkan Vaziri, "Dynamic Compression of Square Honeycomb Structures During Underwater Impulsive Loading", Journal of Mechanics of Materials and Structures, Vol. 2, No. 10, 2007

See:

- <http://innovation.virginia.edu/bod/profile/hnw4z>
- <http://65.54.113.26/Author/12850691/haydn-n-g-wadley>
- <http://www.virginia.edu/ms/research/wadley/publications.html>
- <http://www.virginia.edu/ms/research/wadley/inventions.html>
- <http://www.virginia.edu/ms/research/wadley/cellular-materials.html>
- <http://www.virginia.edu/ms/research/wadley/>

Edgar A. Starke Jr. Research Professor of Materials Science and Engineering
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Biography:

Haydn N.G. Wadley, University Professor and Edgar Starke Professor of Materials Science and Engineering joined the Department of Materials Science and Engineering in October 1988. He has very broad interests in materials science. His current research explores high temperature thermal protection systems (thermal barrier

coatings, liquid metal heat plates for hypersonic vehicle leading edges) and new materials for the mitigation of high intensity dynamic loads. Wadley has addressed many fundamental questions associated with the atomic assembly of nanoscopic materials from the vapor phase, the topological structuring of cellular materials and the processing of high performance composites.

These fundamental studies have been used to develop models and numerical simulations that expose the linkages between a materials composition/synthesis and its performance. Some of these models have been coupled with in-situ (ultrasonic and electromagnetic) sensors and nonlinear, feedback control algorithms to implement intelligent process control concepts. He has invented and commercialized several vapor deposition technologies that enable the growth of novel thin films and coatings, and developed numerous multifunctional cellular materials including those that support stress whilst also serving as impact energy absorbers, heat exchange media, electro-chemical power storage systems or shape morphing structures. Wadley has spent many years helping the Department of Defense to identify new technology development opportunities in areas as diverse as the exploitation of space and humanitarian relief operations.

Wadley received his bachelor's degree in Chemical Physics and his PhD in Physics from the University of Reading (UK). Prior to joining the University of Virginia, he was a senior scientist at the National Institute of Standards and Technology and a leader of its advanced sensors group. He began his research career at the Atomic Energy Research Establishment (Harwell) where he worked on the origins of acoustic emission in materials and radiation damage mechanisms in refractory metals. He has published 411 papers, co-authored a book on cellular materials, holds 18 US patents, is a fellow of the American Society for Materials and the recipient of several awards.

Education:

Ph.D., Physics, University of Reading (UK);

B.S., Chemical Physics, University of Reading (UK)

Selected Publications:

M.F. Ashby, A.G. Evans, N.A. Fleck, L.J. Gibson, J.W. Hutchinson, H.N.G. Wadley, "Chapter 10 - Sandwich structures", *Metal Foams, A Design Guide*, 2000, Pages 113-149

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K. P. Dharmasena, D. T. Queheillalt, H. N. G. Wadley, Y. Chen, P. Dudt, D. Knight, Z. Wei, and A. G. Evans, "Dynamic response of a multilayer prismatic structure to impulsive loads incident from water", *Int. J. Impact Eng.* (2007). accepted.

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