



Professor Constantinos Soutis

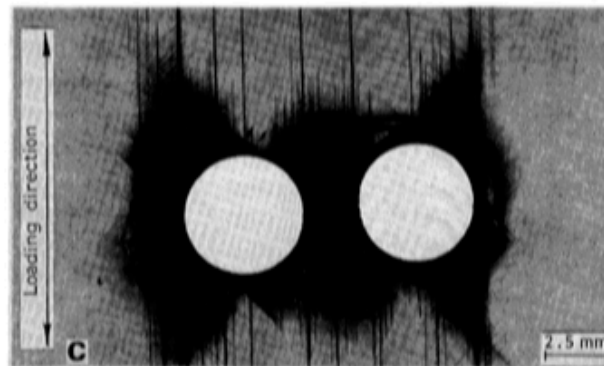
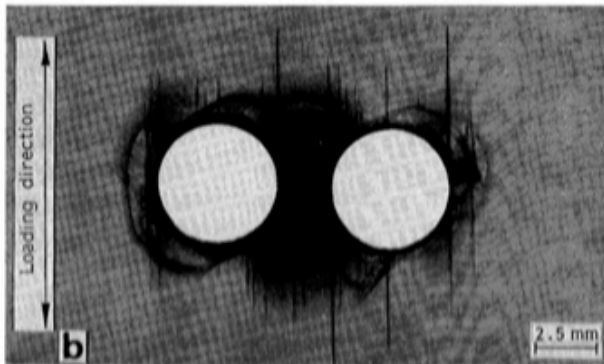
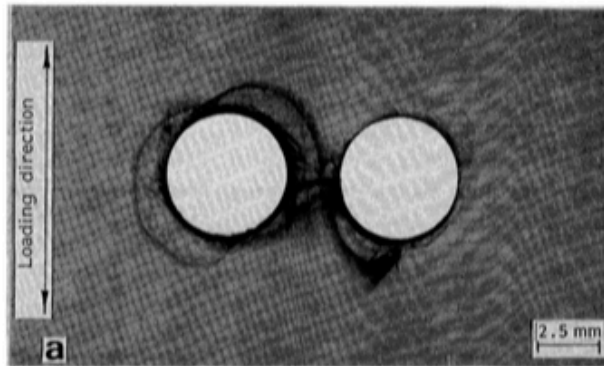


Fig. 9 X-ray radiographs illustrating compression-compression fatigue damage on a specimen with two holes cycled at a stress level of 85% σ_{ult} (=280 MPa). (a) $N = 1$. (b) $N = 10^6$ cycles. (c) Damage after $N = 4 \times 10^6$ cycles. Fibre microbuckling has been arrested by the 0° splits. Hole diameter = 5 mm

From: C. Soutis, N.A. Fleck and P.A. Smith, "Compression fatigue behaviour of notched carbon fibre-epoxy laminates", Int. J. Fatigue, Vol. 13, No. 4, pp 303-312, 1991

See:

<http://www.mace.manchester.ac.uk/people/staff/profile/?ea=constantinos.soutis>

https://www.researchgate.net/profile/Constantinos_Soutis2

<http://www.shef.ac.uk/mecheng/staff/1.129545>

<https://community.dur.ac.uk/supergen.wind/people/CSoutis.html>

http://store.elsevier.com/C-Soutis/ELS_1171265/

Chair in Aerospace Engineering
Director of Aerospace Research Institute
Director of the Northwest Composites Centre/NCCEF
The University of Manchester, Manchester, UK

Biography:

Professor Soutis, is a graduate of the University of London (Queen Mary College and Imperial College London, Aeronautics) and Cambridge University (Department of Engineering, PhD). He has taught and performed research in the areas of mechanics of aerospace composite materials and structures at the University of Cambridge (1986-1991), University of Leicester (1991-1994), Massachusetts Institute of Technology (MIT) in the United States of America (2000-2001 as a Visiting Professor in the Department of Aeronautics & Astronautics), Imperial College London (1994-2002), where he held a personal chair in composite structures in the department of Aeronautics. Professor Soutis was the first Professor of Aerospace Engineering at the University of Sheffield where he served as Head of Aerospace and Head of the Composite Systems Innovation Centre (Founding Director) until September 2012. In October 2012, he was appointed at the University of Manchester as Professor of Aerospace Engineering, Director of the Aerospace Research Institute and Director of the Northwest Composites Centre. His industrial research includes work with the Structural Materials Centre of the Defence Evaluation & Research Agency (visiting research fellow, 1995-2001), QinetiQ (Trusted Expert, 2001-2003), Dowty Propellers, Cytec Engineering Materials, IMMIG -Athens and ABB Research in Baden, Switzerland. Since October 2012, Visiting Professor and Distinguished Scholar, in the School of Engineering and Information Technology of the University of South Carolina, USA, engaged in innovative pedagogy and research of aerospace composite materials and structures.

Research Interests:

Professor Soutis has over 25 years of experience in working with composite structures and has made significant research contributions in modelling the compressive response of composite plates with open or filled holes under uniaxial, bi-axial static and fatigue loading; impact and post-impact compressive strength and crush energy absorption; multi-scale modelling of damage in orthotropic laminates under multi-axial in-plane loading; structural health monitoring using PZT activated Lamb waves and analysis and inspection of bonded patch repairs. Some of the fracture models he developed have been implemented in commercial computer design packages, used successfully by industry and academia.

Publications/PhD Students:

Professor Soutis is the author or co-author of over 350 archived articles, which include more than 180 ISI listed journal papers and made over 100 technical presentations at international conferences, seminars and symposia (with more than 15 Keynote/Plenary lectures in the last 2 years). Over the last five years an estimated £6.5M has been obtained in research grants and external contracts. Some 25 PhD students have qualified under his guidance.

Selected Publications:

Books:

Compressive behavior of composites, by C. Soutis, Report 94, Rapra Review Reports (Expert overviews covering the science and technology of rubber and plastics), Vol. 8, No. 10, 1997, RAPRA Technology, Shawbury, Shrewsbury, Shropshire SY4 4NR, UK, ISSN: 0889-3144
Matthews, F.L., Davies, G.A.O., Hitchings, D., Soutis, C.: Finite element modelling of composite materials and

structures. CRC (2003)

Journal Articles:

- Soutis, C. and Fleck, N. Static compression failure of carbon fibre T800/924C composite plate with a single hole, *J Compos Matls*, 1990, 24, (5), pp 536-558.
- C. Soutis, N.A. Fleck and P.A. Smith, "Compression fatigue behaviour of notched carbon fibre-epoxy laminates", *Int. J. Fatigue*, Vol. 13, No. 4, pp 303-312, 1991
- Soutis C, Curtis P T, and Fleck N A. "Compressive failure of notched carbon fibre composites.". *Proc. Roy. Soc. London. Series A*. 440. 1993. Pp 241-256.
- C. Soutis, "Damage tolerance of open-hole CFRP laminates loaded in compression," *Compos. Eng.*, 4, No. 3, 317–327 (1994).
- C. Soutis and P. Curtis, "Prediction of the post-impact compressive strength of CFRP laminated composites," *Compos. Sci. Techn.*, 56, No. 6, 677–684 (1996).
- Soutis C. "Failure of Notched CFRP Laminated Due to Fibre Microbuckling: a Topical Review." *Journal of the Mechanical Behavior of Materials* 6 (1996): 309-330.
- C. Soutis and I. A. Guz, "On analytical approaches to fracture of composites caused by internal instability under finite deformations," in: *Proc. of EUROMECH Colloquium 400 on Impact and Damage Tolerance Modeling of Composite Materials and Structures (September 27-29), London (1999)*, pp. 51–58
- Berbinau, P., Soutis, C. and Guz, I.A., "Compressive failure of 0° unidirectional carbon-fibre-reinforced plastic (CFRP) laminates by fibre microbuckling." *Composites Science and Technology*, July 1999, Issue 9, Vol. 59, pp. 1451-1455
- C. Soutis and P. Curtis, "A method for predicting the fracture toughness of CFRP laminates failing by fibre microbuckling," *Composites Part A*, vol. 31, no. 7, pp. 733–740, 2000.
- C. Soutis, F. Smith, and F. Matthews, "Predicting the compressive engineering performance of carbon fibre reinforced plastics," *Composites Part A*, vol. 31, pp. 531–536, 2000.
- Y. Zhuk, I. Guz, and C. Soutis, "Compressive behaviour of thin-skin stiffened composite panels with a stress raiser," *Composites Part B*, vol. 32, no. 8, pp. 696–709, 2001.
- Berbinau, P., Filiou, C. and Soutis, C. Stress and failure analysis of composite laminates with an inclusion under multi-axial compression-tension loading, *Appl Compos Mater*, 2001, 8 (5), pp 307-326
- Hawyes, V.J., Curtis, P.T. and Soutis, C. Effect of impact damage on the compressive response of composite laminates, *Composites Part A*, 2001, 32, (9), pp. 1263-1270
- I. A. Guz and C. Soutis, "A 3D stability theory applied to layered rocks undergoing finite deformations in biaxial compression," *Eur. J. Mech., A/Solids*, 20, No. 1, 139–153 (2001).
- I. A. Guz and C. Soutis, "Compressive fracture of non-linear composites undergoing large deformations," *Int. J. Solids Struct.*, 38, No. 21, 3759–3770 (2001)
- Ya. A. Zhuk, C. Soutis and I.A. Guz, "Stiffened Composite Panels with a Stress Concentrator Under in-Plane Compression", *International Applied Mechanics*, Vol. 38, No. 2, pp 240-252, February 2002
- J. Lee and C. Soutis, "Thickness effect on the compressive strength of T800/924C carbon fibre-epoxy laminates", *Composites Part A: Applied Science and Manufacturing*, Vol. 36, No. 2, February 2005, pp. 213-227, Special Issue: 7th International Conference on the Deformation and Fracture of Composites (DFC-7)