

CONTENTS

<i>Preface</i>	v
Scala Lecture: Mass production composites (Extended Abstract) A. JARDON (<i>Renault, Rueil-Malmaison, France</i>)	1.1
Plenary Paper: The provision of adequate materials property data F. J. LOCKETT (<i>National Physical Laboratory, Teddington, UK</i>)	1.5
Plenary Paper: Non-destructive evaluation of composite structures—an overview D. E. W. STONE, B. CLARKE (<i>Royal Aircraft Establishment, Farnborough, UK</i>)	1.28

Manufacture

Comparison of dielectric and dynamic mechanical techniques for characterizing polymers R. E. WETTON, M. R. MORTON, A. M. ROWE, G. M. FOSTER (<i>Polymer Laboratories Ltd, Loughborough, UK</i>)	1.60
Dynamic dielectric analysis for nondestructive cure monitoring and process control D. E. KRANBUEHL, S. E. DELOS, M. S. HOFF, M. E. WHITHAM, L. W. WELLER, P. D. HAVERTY, T. FREEMAN (<i>College of William and Mary, Williamsburg, VA, USA</i>)	1.70
Compaction behaviour of graphite/epoxy laminate during cure K. J. YOON, T. W. KIM, W. I. LEE, E. J. JUN (<i>Korea Institute of Machinery and Metals, Changwon, Korea</i>)	1.81
Low temperature moulding prepreg systems for the manufacture of high temperature composites mould tools and components C. RIDGARD (<i>Advanced Composite Engineering Ltd, Derby, UK</i>)	1.87

Tooling and tooling aids for fibre reinforced polymeric composite mouldings (and for combining some of these with honeycomb structured and other reinforcement), with particular reference to large (mainly nickel) electroformed tooling	1.100
P. SPIRO, H. D. ARCHER (<i>London, UK</i>)	
Effects of the processing parameters on pultrusion process	1.110
CHEN-CHI M. MA, JIN-SHUN HWANG, WEN-CHANG SHIH (<i>National Tsing Hua University, Taiwan</i>)	
Design concept of SMC compression moulding to prevent a fault caused by flow state	1.121
T. HIRAI (<i>Doshisha University, Kyoto, Japan</i>)	
Rheology and packing effects in the injection moulding of long fibre reinforced composites	1.131
A. G. GIBSON, A. N. MCCLELLAND (<i>University of Liverpool, UK</i>)	
Multi live-feed moulding for avoidance of microporosity and for the production of specified fibre orientation and distributions in fibre reinforced materials	1.144
P. S. ALLAN, M. J. BEVIS (<i>Brunel University, Uxbridge, UK</i>)	
Non-geodesic winding equations on a general surface of revolution	1.152
XIAN-LI LI, DAO-HAI LIN (<i>Wuhan University of Technology, Wuhan, PR China</i>)	
Computer aided filament winding using non-geodesic trajectories	1.161
G. M. WELLS, K. F. MCANULTY (<i>MDD, Harwell Laboratory, Oxfordshire, UK</i>)	
A simulation of fibre packing in flow-processed composites	1.174
K. E. EVANS, M. D. FERRAR (<i>University of Liverpool, UK</i>)	
Influence of interwoven configuration on mechanical properties of crossed helicoidal filament winding composites	1.183
F. M. BRITO (<i>Laboratorio Nacional de Engenharia Civil, Lisbon, Portugal</i>)	
Machining of fibre reinforced materials with laser beam: cut quality evaluation	1.190
V. TAGLIAFERRI, I. CRIVELLI VISCONTI, A. DI ILIO (<i>University of Naples, Italy</i>)	

Mechanical Characterization

- Special considerations in testing advanced composite materials reinforced with Kevlar aramid fibers 1.199
M. W. WARDLE (*E. I. du Pont de Nemours & Co., Wilmington, DE, USA*), D. A. STEENKAMER (*University of Delaware, Newark, DE, USA*)
- Mechanical properties of polyethylene fibre/carbon fibre hybrid laminates 1.209
A. POURSARTIP, G. RIAHI, E. TEGHTSOONIAN, N. CHINATAMBI, N. MULFORD (*University of British Columbia, Vancouver, Canada*)
- Tensile behaviour of multi-directional glass/carbon hybrid laminates 1.221
G. KRETSIS, F. L. MATTHEWS, J. MORTON, G. A. O. DAVIES (*Imperial College, London, UK*)
- Carbon/glass fiber hybrid and its epoxy composites 1.231
SHEN BI-XIA, HUANG FENG-LAI (*Shanghai GRP Research Institute, Shanghai, PR China*)
- Stiffness of short-fibre-reinforced materials: model and its comparison with experimental data 1.240
A. CERVENKA (*Koninklijke/Shell Laboratorium, Amsterdam, The Netherlands*)
- A simple flow rule for characterizing nonlinear behavior of fiber composites 1.250
C. T. SUN, J. L. CHEN (*Purdue University, West Lafayette, IN, USA*)
- State-of-the-art on mechanical testing of composites 1.260
YU. M. TARNOPOL'SKII, T. KINCIS (*Institute of Polymer Mechanics, Riga, Latvian SSR, USSR*)
- Analysis of kink band formation under compression 1.269
H. T. HAHN (*Pennsylvania State University, University Park, PA, USA*)
- Compression strength of aligned carbon fibre reinforced thermo-plastic laminates 1.278
R. J. LEE (*Harwell Laboratory, Oxfordshire, UK*), A. S. TREVETT (*University of Bath, UK*)
- Specific features of the mechanical behaviour of unidirectionally reinforced plastics under compression 1.288
E. S. ZELENSKI, A. M. KUPERMAN, S. L. BAZHENOV, AL. AL. BERLIN (*Academy of Sciences of the USSR, Moscow, USSR*)

Mechanical performance of semi-crystalline thermoplastic matrix composites for elevated temperature service	1.299
M. DAVIES, D. C. LEACH, D. R. MOORE, R. M. TURNER (<i>ICI plc, New Science Group, Wilton, UK</i>)	

A practical comparison of standard test methods using carbon fibre-reinforced epoxy	1.310
N. R. SOTTOS (<i>University of Delaware, Newark, DE, USA</i>), J. M. HODGKINSON, F. L. MATTHEWS (<i>Imperial College, London, UK</i>)	

Non-destructive Testing

Non-destructive testing by Raman spectroscopy	1.321
J. SUMMERSCALES (<i>Royal Naval Engineering College, Plymouth, UK</i>)	

Nondestructive evaluation of composite materials using a Raman optomechanical strain gauge	1.333
I. M. ROBINSON, R. J. YOUNG (<i>UMIST, Manchester, UK</i>), C. GALIOTIS, D. N. BATCHELDER (<i>Queen Mary College, London, UK</i>)	

Flaw detection in composites using shearography	1.341
S. L. TOH, F. S. CHAU, H. M. SHANG, C. J. TAY (<i>National University of Singapore, Singapore</i>)	

Non-destructive evaluation of carbon fibre reinforced plastics with optically generated thermal waves	1.349
B. RIEF, P. EYERER (<i>IKK, Universität Stuttgart, FR Germany</i>), G. BUSSE (<i>Universität der Bundeswehr München, Neubiberg, FR Germany</i>)	

Monitoring of fatigue induced damage processes in CFRP by means of thermometric methods	1.359
H. NEUBERT, H. HARIG (<i>Universität (GH) Essen, FR Germany</i>), K. SCHULTE (<i>DFVLR, Cologne, FR Germany</i>)	

Use of a medical tomodensitometer in nondestructive testing of composite materials	1.369
C. THIERY (<i>CEA, Bruyères le Chatel, France</i>)	

Effects of three-point bending test controlled by acoustic emission on carbon epoxy laminates	1.375
A. FALCHI (<i>Université de Pau, France</i>), J. GRACIA (<i>Société Elf-Aquitaine, Lacq, France</i>)	

<i>Contents</i>	xi
A study on fracture mechanisms of CFRP by acoustic emission method M. SUZUKI, H. NAKANISHI, M. IWAMOTO, E. JINEN, Z. MAEKAWA, A. MORI, F. SUN (<i>Kyoto Institute of Technology, Kyoto, Japan</i>)	1.385
A study on fracture mechanisms of class-A SMC by acoustic emission method H. NAKANISHI, M. SUZUKI, M. IWAMOTO, E. JINEN, Z. MAEKAWA, K. KOIKE (<i>Kyoto Institute of Technology, Kyoto, Japan</i>)	1.395
Delamination fracture and acoustic emission in carbon, aramid and glass-epoxy composites C. K. H. DHARAN (<i>University of California, Berkeley, CA, USA</i>)	1.405
The non-destructive testing of honeycomb structures by the coin-tap technique P. CAWLEY (<i>Imperial College, London, UK</i>), R. D. ADAMS (<i>University of Bristol, UK</i>)	1.415
The study of acoustic emission from composites by means of multivariate data analysis M. CHERFAOUI, J. ROGET, A. LEMASÇON, M. JEANVILLE (<i>CETIM, Senlis, France</i>)	1.424

Polymer Matrices

Polyarylene sulfide high performance thermoplastic composites J. E. O'CONNOR, T. P. MURTHA, A. SOUTH, M. R. LINDSTROM, A. Y. LOU (<i>Phillips Petroleum Co., Bartlesville, OK, USA</i>)	1.433
Utilization of thermal analysis in determining the amount of polymer in composites and the extent of pre-polymerization S. H. KANDIL, E. OSMAN, A. EL-KADY (<i>University of Alexandria, Egypt</i>)	1.443
Ternary composites polypropylene/elastomer/filler: structure and elastic properties J. KOLAŘÍK, F. LEDNICKÝ (<i>Institute of Macromolecular Chemistry, Prague, Czechoslovakia</i>), B. PUZÁNSZKY (<i>Central Research Institute for Chemistry, Budapest, Hungary</i>)	1.452
Geopolymer poly(sialate)/poly(sialate-siloxo) mineral matrices for composite materials J. DAVIDOVITS, M. DAVIDOVICS (<i>Geopolymer Institute, Saint-Quentin, France</i>)	1.462

Late Submission

Identification of damages in unidirectional carbon fiber–epoxy composites with artificial flaws via acoustic emission techniques . . .	1.471
K. ONO, M. OHTSU, S. JENSEN (<i>University of California, Los Angeles, CA, USA</i>)	