COMPOSITES PART A: APPLIED SCIENCE AND MANUFACTURING

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DESCRIPTION

Composites Part A: Applied Science and Manufacturing publishes original research papers, review articles, case studies, short communications and letters from a wide variety of sources dealing with all aspects of the science and technology of composite materials, including fibrous and particulate reinforcements in polymeric, metallic and ceramic matrices, and 'natural' composites such as wood and biological materials. The range of applicable topics includes the properties, design and manufacture of reinforcing fibers and particles, novel architectures and concepts, multifunctional composites, advances in fabrication and processing of composite materials and structures, manufacturing science, process modelling, experimental mechanics, microstructural characterization of composites and their constituent phases, interfaces in composites, new approaches to prediction and measurement of mechanical, physical and chemical behaviour, and performance of composites in service. Articles are also welcomed on economic and commercial aspects of the applications of composites, design with composites and case studies. All articles are subject to rigorous peer review to ensure they make an important and novel contribution, and a high standard is set for both content and presentation. The Editors aim to conduct the review procedure with the minimum of delay so that prompt publication ensues.

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INTRODUCTION

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The range of applicable topics includes the properties, design and manufacture of reinforcing fibres and particles, novel architectures and concepts, advances in fabrication and processing of composite materials and structures, manufacturing science, process modelling, experimental mechanics, microstructural characterization of composites and their constituent phases, interfaces in composites, new approaches to prediction and measurement of mechanical, physical and chemical behaviour, and performance of composites in service. Articles are also welcomed on economic and commercial aspects of the applications of composites, design with composites and case studies.

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List of Keywords
The keywords for Composites Parts A and B are separated into five categories:

A. Material
B. Property
C. Analysis
D. Testing
E. Manufacturing / Processing

A. Material
Aramid fibres
Biocomposite
Carbon fibres
Carbon nanotubes and nanofibers
Carbon-carbon composites (CCCs)
Cellulose
Ceramic fibres
Ceramic-matrix composites (CMCs)
Discontinuous reinforcement
Energy materials
Fabrics/textiles
Fibres
Foams
Multifunctional composites
Glass fibres
Glasses
Graphene
Honeycomb
Hybrid
Intermetallics
Lamina/ply
Laminates
Layered structures
Metal-matrix composites (MMCs)
Moulding compounds
Nano-structures
Nanocomposites
Nanoparticles
Natural fibers
Particle-reinforcement
Plates
Polymer (textile) fibres
Polymer-matrix composites (PMCs)
Preform
Prepreg
Recycling
Reinforced cement/plaster
Resins
Sandwich structures
Smart materials
Strand
Tape
Thermoplastic resin
Thermosetting resin
Thin films
Tow
3-Dimensional reinforcement
Wood fibres
Yarn

B. Property
Adhesion
Anisotropy
Buckling
Chemical properties
Compression after impact
Corrosion
Creep
Cure behaviour
Damage tolerance
Debonding
Defects
Delamination
Directional orientation
Elasticity
Electrical properties
Embrittlement
Environmental degradation
Fatigue
Fibre deformation
Fibre/matrix bond
Flame/fire retardancy
Fracture
Fracture toughness
Fragmentation
Hardness
High-temperature properties
Impact behaviour
Interface/interphase
Internal friction/damping
Magnetic properties
Mechanical properties
Microstructures
Optical properties/techniques
Permeability
Physical properties
Plastic deformation
Porosity
Residual/internal stress
Rheological properties
Strength
Stress concentrations
Stress relaxation
Stress transfer
Surface properties
Surface tension
Thermal properties
Thermomechanical
Transverse cracking
Vibration
Viscosity
Wear
Wettability
C. Analysis
Analytical modelling
Cohesive interface modelling
Computational modelling
Damage mechanics
Finite element analysis (FEA)
Laminate mechanics
Micro-mechanics
Numerical analysis
Process Modeling
Process Simulation
Statistical properties/methods
Transport Phenomena analysis

D. Testing
Acoustic emission
CT analysis
Creep
Chemical analysis
Electron microscopy
Fractography
Failure
Mechanical testing
Microstructural analysis
Moisture
Non-destructive testing
Optical microscopy
Physical methods of analysis
Process monitoring
Radiography
Rheology
Surface analysis
Thermal analysis
Ultrasonics

E. Manufacturing / Processing
3-D Printing
Assembly
Autoclave
Automated fibre placement (AFP)
Automation
Braiding
Casting
Chemical vapour deposition (CVD)
Compression moulding
Compression resin transfer moulding
Consolidation
Cure
Cutting
Extrusion
Electrospinning
Fibre conversion processes
Fibre tow infiltration
Filament winding
Foaming
Forging
Forming
Heat treatment
Injection moulding
Isostatic processing
Joints/joining
Knitting
Lay-up (manual/automated)
Liquid composite moulding
Liquid metal infiltration
Machining
Melt-spinning
Moulding compounds
Out of autoclave processing
Powder processing
Preforming
Prepreg processing
Pultrusion
Reaction injection moulding (RIM)
Recycling
Resin film infiltration (RFI)
Resin flow
Resin transfer moulding (RTM)
Sintering
Slip casting
Stitching
Surface treatments
Tape placement
Tooling
Vacuum infusion
Weaving