Mechanical and Physical Behaviour of Metallic and Ceramic Composites

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Editors

S.I. Andersen  H. Lilholt  O.B. Pedersen
## Invited Papers:

1. **Fibres for metallic and ceramic composites, the scientific aspects and their relation to composite performances**  
   A.R. Bunsell  
   
2. **The mechanical performance of fiber reinforced ceramic matrix composites**  
   A.G. Evans  
   
3. **Fatigue of continuous fibre-reinforced metal matrix composites**  
   V. Gerold  
   
4. **Deformation and annealing mechanisms in discontinuously reinforced metal-matrix composites**  
   F.J. Humphreys  
   
5. **Compromise and attainment of mechanical properties in all brittle systems**  
   A. Kelly  
   
6. **Strengthening and internal stresses in composites under mechanical and thermal loading**  
   H. Lilholt  
   
7. **The maximum strength theoretically attainable from a fiber in a high temperature composite**  
   N.H. Macmillan  
   
8. **Interface chemistry of inorganic composite materials**  
   A. Mortensen  
   
9. **Dislocations and the strength of metallic composites**  
   O.B. Pedersen  
   
10. **Ceramic composites at extremes of performance**  
    D.C. Phillips  
    
11. **Modeling of physical properties of metallic and ceramic composites: generalized Eshelby model**  
    M. Taya  
    
12. **Metal matrix composites for high temperature structural applications**  
    R. Warren
Contributed Papers:

High temperature behaviour of WC-Co hard metal studied by internal friction
J.J. Ammann, D. Mari, R. Schaller and C. Bonjour

Plastic deformation and machining properties of some low volume fraction short-fibre reinforced metal matrix composite materials
C.-H. Andersson, J.-E. Ståhl and M. Andersson

Intrinsic toughness of interfaces between SiC coatings and substrates of Si and carbon fiber
A.S. Argon, V. Gupta, H.S. Landis and J.A. Cornie

The strengthening mechanisms in discontinuous SiC/Al composites
R.J. Arsenault

The growth and tensile properties of the aligned Ag-Cu eutectic
J. Balik and J. Mencl

Aging characteristics of SiC-particle reinforced Al-Si alloys
M.A. Bayoumi, H. Ribes and M. Suéry

Threshold stresses and superplastic behavior of mechanically alloyed aluminium IN90211
T.R. Bieler and A.K. Mukherjee

Creep and creep-fatigue interaction of high-temperature composites
E. Blank

Texture of extruded Al-Cu fibre composites
H.-G. Brokmeier, W. Böcker, M. Dahms and H.J. Bunge

Strength and toughness of fibre reinforced glass composites
R.G. Cooke, B. Harris and B.A. Ford

Temperature dependence of dynamic Young's modulus for metal matrix composites
V.N. Cribb, A. Wolfenden, R.C. Knight and M.A. Boyle

Quantitative texture analysis in multiphase materials with overlapping Bragg reflections
M. Dahms, H.-G. Brokmeier, H. Seute and H.J. Bunge

Micromechanical behaviour of Al/SiC composite materials subjected to plastic deformation: an in situ study
R. Da Silva, D. Caldemaison and T. Bretheau

Monitoring of failure processes in unidirectional Al-SiC composites by acoustic emission
S. De Bondt, L. Froyen and A. Deruyttere

Electrical conductivity of metal matrix composites
S. De Bondt, L. Froyen and A. Deruyttere

Non linearity in thermal expansion of continuous fibre metal matrix composites
X. Dumant, F. Fenot and G. Regazzoni
Yield loci and directionality in squeeze-cast aluminium alloy - alumina fibre composites
   J. Haasum, K. Franzén, S. Savage and W.B. Hutchinson

Microstructure and creep strength of an aluminium composite with silicon carbide fibres
   N. Hansen, D. Juul Jensen and Y.-L. Liu

Influence of heat treatment of the monotonic and fatigue properties of aluminium alloy composites
   S.J. Harris, K. Dinsdale, Y. Gao and B. Noble

The effect of isothermal exposure on the mechanical properties of a continuous fibre reinforced titanium matrix composite
   M.V. Hartley

Fracture strength and toughness due to impact of fibre reinforced glass matrix composites
   D.F. Hasson and S.G. Fishman

Optical and electron metallographic examination of matrix, fiber and interface microstructure in an Al/SiC-composite
   B.R. Henriksen, J. Gjønnes and H. Mathiesen

Fatigue damage criteria: matrix, fibers and interfaces of continuous fiber reinforced metal matrix composites
   W.S. Johnson

Determination of fibre orientations in composites with short fibres
   D. Juul Jensen, H. Lilholt and P.J. Withers

Transmission electron microscope study of the interface region in Al-matrix composites
   D.O. Karlsen, J.B. Borradaile, J. Gjønnes and J. Taftø

Interdiffusional instability in high temperature metal matrix composites
   M.W. Kopp and J.K. Tien

High temperature deformation of WC-Co hard metal
   D. Mari, J.J. Ammann, W. Benoit and C. Bonjour

Theoretical model predicting the effect of thermal residual stresses on deformation of metal matrix composites
   L.N. McCartney and T.A.E. Gorley

Thermal cycle creep of Al/SiC particulate composite
   S.M. Pickard and B. Derby

Transport behaviour of mixed solid solution composite electrolytes
   A.N.D. Rani and P.S.S. Prasad

Mechanical properties of laminated pyrex matrix composites
   A. Seerat un Nabi and B. Derby

Crack arrest by strong short fibers in a composite
   S. Shibata, T. Mori and T. Mura
High temperature stability of the Ni(Cr,Al)-TiC "in situ" composite
G. Smolka, A. Maciejny and A. Dytkowicz

Deformation of fibrous metal matrix composites at temperatures close to the matrix solidus
C.A. Stanford-Beale and T.W. Clyne

Calculation of residual stresses in particle-reinforced metal matrix composites
C. Téodosiu, H. Ribes and M. Suéry

Plastic anisotropy of metal matrix composites with multidirectional elastic fibers
K. Wakashima, T. Mori and H. Tsukamoto

In situ measurements of the mechanical properties of fibers, matrices and interfaces in metal matrix and ceramic matrix composites
T.P. Weihs and W.D. Nix

An examination of diffusional stress relief in metal matrix composites
P.J. Withers, H. Lilholt, D. Juul Jensen and W.M. Stobbs

Damping and dynamic modulus measurements in metal matrix composites with the PUCOT
A. Wolfenden and J.M. Wolla

The influence of pressure on damage evolution and fracture in metal-matrix composites
F. Zok, J.D. Embury, M.F. Ashby and O. Richmond

Characterization of homogeneity and isotropy of composites by optical diffraction and imaging
S. Øvland and K. Kristiansen

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