

INVITED LECTURES AND AD HOC SESSIONS

(i) HOMOGENISATION AND COMPOSITES

Courses

O A OLEINIK	Homogenisation problems in elasticity
G C PAPANICOLAOU	Random Media
L TARTER	Appearance of oscillations in optimization problems

Single Lectures

D J BERGMANN	Randomly diluted inhomogeneous elastic networks near the percolation threshold
G A FRANCFORT/ F MURAT	Homogenisation of mixtures of two anisotropic conducting media in two dimensions
R KOHN	Effective viscosity of mixtures of two Stokes fluids
G W MILTON	Elasticity bounds for anisotropic composites by variational principles
J-F RODRIGUES	Homogenisation of free boundaries
J RUBINSTEIN	The point interaction approximation and its application to flow through random porous media
E SANCHEZ-PALENCIA	Singularities and stress concentrations in composite solids

Informal Sessions

(1) J R WILLIS	Bounds in nonlinear elastic composites
(2) L TARTAR/A E GREEN	Theory of mixtures

(ii) PHASE-TRANSITIONS

Course

I MULLER	(i) Extended thermodynamics (ii) A model for shape memory
----------	--

Single Lectures

I FONSECA	Stability of elastic crystals
-----------	-------------------------------

R JAMES	Fine phase mixtures as minimizers of energy
G A MAUGIN	Solitons in elastic solids exhibiting phase transitions
G P PARRY	Coexistent phases in unloaded crystals
M SLEMROD	Recent results in dynamics of first order phase transitions
A J M SPREKELS	Existence for a mathematical model for the structural phase transitions in shape memory alloys

(iii) CONSERVATION LAWS

Course

P J OLVER	Symmetry and conservation laws
-----------	--------------------------------

(iv) ILL-POSED PROBLEMS

Course

L E PAYNE	Continuous dependence on geometry for some classes of ill-posed problems
-----------	--

Informal Session

R J KNOPS/L E PAYNE	Saint-Venant's Principle
---------------------	--------------------------

(v) APPLICATIONS

Single lectures

(a) Liquid Crystals

M G CLARKE	Continuum theory of liquid crystals and its application
F M LESLIE	Some flow problems in continuum theory of liquid crystals

(b) Plasticity

E H LEE	The structure of constitutive equations for finite deformation of elastic-plastic materials with strain-induced memory
G STRANG	On optimal design and the constrained least gradient problem

Informal sessions

E H LEE/L ANAND	Constitutive equations for finite deformation elasto-plasticity and viscoplasticity of metals
-----------------	---

(c) Granular materials

S C COWIN A continuum theory of adaptive anisotropy

J T JENKINS Rapid deformations in granular materials

Informal session

J T JENKINS/ Constitutive equations for granular materials
L ANAND

(d) Miscellaneous

C ATKINSON On some mathematical problems arising from the
oil service industry
