Contents

Preface
List of conference participants
List of unpublished communications

1. PARABOLIC EQUATIONS

S.N. Antontsev and J.I. Diaz
On space or time localization of solutions of nonlinear elliptic or parabolic equations via energy methods 3

C. Bandle
Blow up in exterior domains 15

B. Biler
Blow up in the porous medium equation 28

V. Caselles
Duality and nonlinear equations governed by accretive operators 39

F. Conrad, D. Hilhorst and T.I. Seidman
On a reaction-diffusion equation with a moving boundary 50

J. Goncerzewicz
Porous medium-type equations with irregular boundary data 59

N. Kenmochi and M. Kubo
Periodic behaviour of solutions to a parabolic-elliptic problem 68

M. Langlais
Asymptotic behaviour in some evolution equations arising in population dynamics 77

M.S. Moulay and M. Pierre
About regularity of the solutions of some nonlinear degenerate parabolic equations 87

2. TIME-DEPENDENT SYSTEMS

P. Acquistapace and B. Terreni
Fully nonlinear parabolic systems 97

S. Amraoui
On the bifurcation at double critical values for the Brusselator 112

M. Artola
Existence and uniqueness for a diffusion system with coupling 123

P. Bénilan and H. Labani
Existence of attractors for the Brusselator 139

L.C. Evans
Some asymptotics for reaction-diffusion PDEs 152

G. Gagneux, A.M. Lefevere and M. Madaune-Tort
An implicit time-stepping scheme for polyphasic flows in porous media including coupled quasi-linear inequalities 161

M.A. Pozio and A. Tesei
Global existence of solutions for a strongly coupled semilinear parabolic system 172

3. ELLIPTIC EQUATIONS AND SYSTEMS

C.J. Amick and R.E.L. Turner
Elliptic equations, internal waves and dynamical systems 187

P. Baras
Semilinear problem with convex nonlinearity 202

J. Blat and J.M. Morel
Elliptic problems in image segmentation and their relation to fracture theory. 216

L. Boccardo, J.I. Diaz, D. Giachetti and F. Murat
Existence of a solution for a weaker form of a nonlinear elliptic equation 229

L. Boccardo and F. Murat
Strongly nonlinear Cauchy problems with gradient-dependent lower order nonlinearity 247

M. Chipot, A. Feggous and G. Michaille
Monotonicity properties for variational inequalities associated with strongly nonlinear diagonal systems 255

P. Clément and G. Sweers
On subsolutions to a semilinear elliptic problem 267

I. Fonseca
Remarks on phase transitions 274

A. Henrot and M. Pierre
About existence of a free boundary in electromagnetic shaping 283

N. Labani and C. Picard
Homogenization of a nonlinear Dirichlet problem in a periodically perforated domain. 294

J.P. Puel
Some results on quasi-linear elliptic equations 306

J.F. Rodrigues
Some remarks on the quasi-linear noncoercive elliptic obstacle problem 319

A. Visintin
Generalized coarea formula 333