NDEMB Program  Monday, May 20th

8:30–8:50 Registration and Coffee  8:50–9:00 Opening Remarks

Morning Session I. Chair: Martin Golubitsky
9:00–9:40 Globally Coupled Oscillator Networks
Philip Holmes, Program in Applied and Computational Mathematics, Princeton University.

S. N. Coppersmith, Department of Physics, University of Wisconsin-Madison.

10:20–10:35 Coffee Break

Morning Session II. Chair: Barbara L. Keyfitz
10:35–10:55 Breakup of Viscoelastic Liquid Jets under Surface Tension
Michael Renardy, Department of Mathematics, Virginia Tech.

11:00–11:20 Equi-integrability Results for 3D-2D Reduction Problems
Marian Bocea, Department of Mathematical Sciences, Carnegie Mellon University.

11:25–11:45 Global Bifurcation Branches of Neumann Boundary Value Problems
Junping Shi, Department of Mathematics, College of William and Mary.

11:45–1:10 Lunch

Afternoon Session I. Chair: Andrea L. Bertozzi
1:10–1:50 Architecture and Dynamics of the Primary Visual Cortex
David W. McLaughlin, Courant Institute, New York University.

1:50–2:30 Faraday Wave Pattern Formation
Mary Silber, Dept. of Engineering Sciences and Applied Mathematics, Northwestern University.

2:40–3:20 Resonant Patterns in a Chemical Reaction-Diffusion System
Anna L. Lin, Physics Department, Duke University.

3:20–3:40 Tea

Afternoon session II. Chair: M. Gregory Forest
3:40–4:20 Theory and Application of Initial-Boundary-Value Problems for Nonlinear Dispersive Waves
Jerry L. Bona, Mathematics Department, University of Illinois, Chicago.

5:00–7:30 Poster Session and Reception
Tuesday, May 21st

8:30–9:00 Conference Group Photo and Coffee

Morning session I. Chair: Michael Shearer
9:00–9:40 Analytic Consequences of Incompressibility
Stuart S. Antman, Department of Mathematics, University of Maryland.

9:40–10:20 The Euler-Lagrange Equation and Minimizers in Elastostatics
John M. Ball, Mathematical Institute, Oxford.

10:20–10:35 Coffee Break

Morning session II. Chair: Robert P. Behringer
10:35–10:55 Directed Force Chain Networks and Stresses in Granular Materials
Joshua Socolar, Physics Department, Duke University.

10:55–11:15 Instability of Local Deformations of an Elastic Rod
S. Lafortune, Department of Mathematics, University of Arizona.

11:20–11:40 Solid Cavitation
M. Ben Amar, Laboratoire de Physique Statistique, Ecole Normale Superieure, Paris.

11:40–12:00 Effective Acoustic Models of Porous Media
A. Panchenko, Department of Mathematics, Penn State University.

12:00–12:20 Wave Equations under Strong Constraining Forces
Chongchun Zeng, Department of Mathematics, University of Virginia.

12:20–1:30 Lunch

Afternoon session. Chair: Lawrence N. Virgin
1:20–2:10 The Axially-Compressed Cylinder: A Exemplar for Buckling and Bifurcation
G. W. Hunt, Department of Mechanical Engineering, University of Bath.

2:10–2:50 A Model of Blood Flow through the Abdominal Aorta after Endovascular Repair
Suncica Canic, Department of Mathematics, University of Houston.

3:00–3:40 Growth and Dynamics of Filamentous Microorganisms
Alain Goriely, Department of Mathematics, University of Arizona.

3:40–4:00 Tea

4:00–5:30 Lab Tours

6:30–11:00 Banquet
Wednesday, May 22nd

8:30–9:00: Coffee

Morning Session I. Chair: Julian Wu

9:00–9:40 Averaging in Temporally Varying Flows and the Homogenization of Gravity Currents in Porous Media
Richard M. McLaughlin, Department of Mathematics, UNC Chapel Hill.

E. Bruce Pitman, Department of Mathematics, University at Buffalo.

10:20–10:35 Coffee Break

Morning Session II. Chair: Suncica Canic

10:35–10:55 The Use of Computers in Proving Theorems in Differential Equations
Joseph D. Fehribach, Mathematical Sciences Department, WPI.

10:55–11:15 Kinematics of Growing Curves: Models of Fungal Hyphae
Gyorgy Karolyi, Program in Applied Mathematics, University of Arizona.

11:20–11:40 Central-Upwind Schemes for Systems of Balance Laws
Alexander Kurganov, Department of Mathematics, Tulane University.

11:40–12:00 Decay of Solutions to Nonlinear Parabolic Equations: Renormalization Group and Analysis Methods
Huseyin Merdan, Department of Mathematics, University of Pittsburgh.

12:00–1:10 Lunch

Afternoon session I. Chair: Thomas P. Witelski

1:10–1:50 The Blob Projection Method for Fluid/Interface Computations
Ricardo Cortez, Mathematics Department, Tulane University.

1:50–2:30 On Various Numerical Issues in Plasticity
Pierre A. Gremaud, Department of Mathematics, North Carolina State University.

2:40–3:20 Singular Shocks in a Two-Fluid Model for Bubbly Flows
Barbara Lee Keyfitz, Department of Mathematics, University of Houston.

3:20–3:40 Tea

Afternoon session II. Chair: M. Gregory Forest

3:40–4:20 Nonlinearly Dispersive Water Waves
Roberto Camassa, Department of Mathematics, UNC Chapel Hill.

4:20–5:00 The Forced Van der Pol Equation Revisited
J. Guckenheimer, Department of Mathematics, Cornell University.

Conference closes