Program of the Sessions
Austin, Texas, October 8–10, 1999

Friday, October 8

Meeting Registration
1:00 PM – 5:00 PM  RLM, Robert Lee Moore Hall

AMS Exhibit and Book Sale
1:00 PM – 5:00 PM  RLM, Robert Lee Moore Hall

Invited Address
3:00 PM – 3:50 PM  Room 106, Burdine Hall
(1) Characterization of non-smooth domains via potential theory.
Carlos E. Kenig, University of Chicago, and Tatiana Toro*, University of Washington (948-28-260)

Special Session on Wavelets and Approximation Theory, I
4:00 PM – 5:50 PM  Room 5.122, Robert Lee Moore Hall
Organizers:
Don Hong, Eastern Tennessee State University
Michael Prophet, Murray State University

4:00PM
(2) Orthogonal lifting: constructing nonseparable orthogonal wavelets. Preliminary report.
Eugene Belogay, Purdue University (948-42-291)

4:30PM
Patrick J Van Fleet, University of St. Thomas (948-41-311)

5:00PM
Tian-Xiao He, Illinois Wesleyan University (948-42-67)

5:30PM
(5) Multiwavelets on the interval and divergence-free wavelets on a rectangle.
Maria C Pereyra*, University of New Mexico, and Joseph Lakey, New Mexico State University (948-41-250)

The time limit for each contributed paper in the sessions is ten minutes.
In the Special Sessions the time limit varies from session to session and within sessions. To maintain the schedule, time limits will be strictly enforced.
For papers with more than one author, an asterisk follows the name of the author who plans to present the paper at the meeting.
Papers flagged with a solid triangle (∆) have been designated by the author as being of possible interest to undergraduate students.
Abstracts of papers presented in the sessions at this meeting will be found in Volume 20, Issue 4 of Abstracts of papers presented to the American Mathematical Society, ordered according to the numbers in parentheses following the listings. The middle two digits, e.g., 897-20-1136, refer to the Mathematical Reviews subject classification assigned by the individual author. Groups of papers for each subject are listed chronologically in the Abstracts. The last one to four digits, e.g., 897-20-1136, refer to the receipt number of the abstract; abstracts are further sorted by the receipt number within each classification.
4:00 PM  Self-similarity and Invariant Measures in Model Sets. Preliminary report.
John F. Huxley, Aalborg University (948-55-17)

4:30 PM  Substitution Delone sets. Preliminary report.
Jeffrey C. Lagarias, AT&T (948-52-192)

5:00 PM  When are two tilings the same?
Charles Radin*, University of Texas at Austin (948-52-70)

5:30 PM  Cohomology and K-theory of spaces of tilings.
Ivan F. Putnam, University of Victoria (948-57-80)

6:00 PM  Rotations and the topology of substitution spaces.
Preliminary report.
Nicholas Ormes, University of Illinois at Urbana-Champaign (948-52-193)

6:30 PM  Pseudo-self-similar tilings are MLD from self-similar tilings. Preliminary report.
Natalie M. Priebe*, Rensselaer Polytechnic Institute, and Boris Solomyak, University of Washington (948-52-194)

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Special Session on Banach and Operator Spaces: Isomorphic and Geometric Structure, I

4:00 PM - 7:20 PM  Room 5.118, Robert Lee Moore Hall
Organizers: Edward Odell, University of Texas, Austin
Haskell P. Rosenthal, University of Texas, Austin

4:00 PM  Homogeneous Hilbertian subspaces of Lp. Preliminary report.
Timur Oikhberg, The University of Texas at Austin (948-46-271)

4:30 PM  Approximate units and complete M-ideals. Preliminary report.
Alvaro Arias*, The University of Texas at San Antonio, and Haskell Rosenthal, The University of Texas at Austin (948-46-328)

5:00 PM  Non-commutative lp-spaces and their operator space structures. Preliminary report.
Marius Junge, University of Illinois at Urbana-Champaign (948-46-139)

5:30 PM  On injectivity and Nuclearity for Operator Spaces. Preliminary report.
Edward G Effros, UCLA, Narutaka Ozawa, Texas A&M University, and Zhong-Jin Ruan*, University of Illinois (948-46-111)

6:00 PM  Exactness of Cuntz-Pimsner algebras.
Ken Dykema*, Texas A&M University, and Dimitri Shlyakhtenko, UCLA (948-46-255)

6:30 PM  Norming C*-algebras by subalgebras. Preliminary report.
Allan M Sinclair, University of Edinburgh, and Roger R Smith*, Texas A&M University (948-46-57)

7:00 PM  The measure of non-compactness, the essential spectrum, and the essential spectral radius of a positive operator. Preliminary report.
Vladimir G Troitsky, University of Texas, Austin (948-47-63)

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Special Session on Recent Developments in Index Theory, I

4:00 PM - 6:45 PM  Room 6.126, Robert Lee Moore Hall
Organizers: Daniel S. Freed, University of Texas, Austin
John Roe, Pennsylvania State University

4:00 PM  Transverse index theory and cyclic cohomology of Hopf algebras.
Henri Moscovici, Ohio State University (948-58-219)

5:00 PM  Family Index Theorems for Manifolds with Boundary and Adiabatic limit. Preliminary report.
Xianzhe Dai*, UCSB, and Weiping Zhang, Nankai Institute of Mathematics (948-58-319)

6:00 PM  Positive scalar curvature metrics and K-theory of C*-algebras. Preliminary report.
Stephan A Stolz, Notre Dame (948-47-220)

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Special Session on Nonlinear Dynamics, I

4:00 PM - 5:50 PM  Room 7.122, Robert Lee Moore Hall
Organizers: Robert J. McCann, University of Toronto
Catherine Sulem, University of Toronto

4:00 PM  Discussion.

4:30 PM  Formation of singularities in solutions of the derivative nonlinear Schrödinger equation on the half line.
Hayato Nawa, Nagoya University (948-35-202)

5:00 PM  Nonlinear stability and bifurcation in Optical Parametric Oscillators.
Keith S. Promislow*, Simon Fraser University, and J. Nathan Kutz, University of Washington (948-47-237)

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Special Session on Mathematical and Computational Finance, I

4:00 PM - 6:50 PM  Room 7.104, Robert Lee Moore Hall
Organizer: Stathis Tompaidis, University of Texas, Austin

4:00 PM  Modeling Credit Risk. Preliminary report.

4:30 PM  Modeling of Liquidity Risk.
Robert Almgren*, University of Chicago (948-91-321)

5:00 PM  Problems in Real Options. Preliminary report.
Murray Carlson, University of Texas at Austin (948-91-323)

5:30 PM  Pricing Lease Options in Dynamic Markets.
Chris M Kenyon*, Schlumberger, and Stathis Tompaidis, University of Texas at Austin (948-90-144)

6:00 PM  Agency Costs, Credit Constraints and Default Costs: the case of Commercial Mortgages.
Sheridan Titman, Stathis Tompaidis and Sergey Tsypakov*, University of Texas at Austin (948-91-336)

6:30 PM  The Impact of Large Changes in Asset Prices on Intra-Market Correlations in the Stock, Bond, and International Markets.
Ehud I Ronn, University of Texas at Austin, Akin Sayrak*, University of Pittsburgh, and Stathis Tompaidis, University of Texas at Austin (948-91-333)

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Special Session on DNA Topology, I

4:00 PM - 6:50 PM  Room 4.102, Robert Lee Moore Hall
Organizers: Isabel K. Darcy, University of Texas, Austin
Makkuni Jayaram, University of Texas, Austin

4:00 PM  On the elastic stability of configurations of knotted and unknotted miniplasmids.
Sayrak Ehud I Ronn, International Markets.

4:00 PM  The Impact of Large Changes in Asset Prices on Intra-Market Correlations in the Stock, Bond, and International Markets.
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Appendix ± 20 NOTICES OF THE AMS VOLUME 46, NUMBER 11

Program of the Sessions – Austin, TX, Friday, October 8 (cont’d.)

4:00PM Special Session on Mathematical Problems in Transport Phenomena, I

4:00PM Organizers: John Luecke, University of Texas, Austin

4:00PM On minimum elastic energy configurations of torus knots. Preliminary report.
David Swigon* and Bernard D Coleman, Rutgers University (948-74-141)

5:00PM Biology and Physics of DNA Knots.

5:00PM Andrzei Stasiak, Universite de Lausanne (948-35-37)

6:00PM Moving knots with obstacles. Preliminary report.

6:00PM Kenneth Hunt, UW-La Crosse, and Jonathan Simon*, University of Iowa (948-92-266)

6:30PM Notions of writhe and linking density for closed, circular DNA. Preliminary report.

6:30PM David C Miller*, William Paterson University, and Craig Jen Benjamin, Mount Sinai School of Medicine (948-92-182)

Special Session on Dehn Surgery and Kleinian Groups, I

4:00PM – 6:50 PM Room 6.116, Robert Lee Moore Hall

4:00PM Incompressible surfaces and Dehn surgery on knots.

4:00PM Hugh N Howards, Wake Forest University/ UT Austin (948-57-294)

4:30PM Virtual Betti numbers of bundles.

4:30PM Joseph D Masters, Rice University (948-57-286)

5:00PM Immersed essential surfaces without triple points in 3-manifolds. Preliminary report.

5:00PM Joachim Hym Rubinstein, University of Melbourne (948-57-76)

5:30PM Knots and links in $S^3$ without parallel tangent lines. Preliminary report.

5:30PM Ying-Qing Wu, University of Iowa (948-57-204)

6:00PM Surgery when degeneracy is ±2. Preliminary report.

6:00PM Rachel D Roberts, Washington University in St Louis (948-57-195)


6:30PM Steven Boyer, University of Quebec at Montreal, Erhard Luft, University of British Columbia, and Xingrong Zhang*, SUNY at Buffalo (948-57-58)

Special Session on Mathematical Problems in Transport Phenomena, I

4:00PM – 6:50 PM Room 5.116, Robert Lee Moore Hall

4:00PM Structure of an infinitely strong shock waves.

4:00PM Carlo Cercignani*, Politecnico di Milano, Milano, Italy, Aldo Frezzotti, Milano, Italy, and P Grosfils, Milano, Italy (948-82-59)

4:30PM Approximate Summation of the Chapman-Enskog Expansion.

4:30PM Marshall Slemrod, Univ. of Wisconsin (948-76-08)

5:00PM Unsteady Continua/Rarefied Gasdynamics Simulations with a Hybrid Euler/Monte Carlo Approach.

5:00PM David Goldstein*, Roberto Roveda and Philip Varghese, University of Texas at Austin (948-82-61)

5:30PM Transport equations and their diffusion approximations.

5:30PM Moulay D Tidriri, Iowa State University (948-65-315)

6:00PM Some properties of kinetic and macroscopic equations in granular media.

6:00PM Alexander V Bobylev, Keldysh Institute, Moscow, Russia, Jose A Carrillo* and Irene M Gamba, University of Texas at Austin (948-82-69)

6:30PM Vibrated Granular Media and Kinetic Theory.

6:30PM Mark D. Shattuck*, University of Texas at Austin, Chris Bizon, Colorado Research Associates, Jack B. Swift and Harry L. Swinney, University of Texas at Austin (948-76-267)

Special Session on The Diverse Mathematical Legacy of Jean Leray, I (A)

4:00PM – 6:20 PM Room 7.116, Robert Lee Moore Hall

4:00PM Navier-Stokes Equations.

4:00PM Roger M Temam, Indiana University (948-35-85)

5:00PM Beyond Sobolev norms in the study of the Navier-Stokes equations.

5:00PM Ciprian Foias, Indiana University (948-35-36)

5:30PM An Eulerian-Lagrangian Approach to Incompressible Fluids. Preliminary report.

5:30PM Peter Constantin, The University of Chicago (948-35-53)

6:00PM Some remarks on the post War contributions of Jean Leray.

6:00PM Pierre Cartier, IHES (948-01-196)

Special Session on The Diverse Mathematical Legacy of Jean Leray, I (B)

4:00PM – 5:50 PM Room 7.118, Robert Lee Moore Hall

4:00PM Organizers: Eric M. Friedlander, Northwestern University

4:00PM Susan J. Friedlander, University of Illinois, Chicago

4:00PM Organizers: Eric M. Friedlander, Northwestern University

4:00PM Haynes R Miller, MIT (948-55-103)

5:30PM The Cohomological Dimension of Function Fields.

5:30PM John Tate, University of Texas at Austin (948-14-136)

Special Session on Theoretical, Computational and Experimental Aspects of Mechanics, I

4:00PM – 6:50 PM Room 7.120, Robert Lee Moore Hall

4:00PM Stability of the Solution with Respect to the Boundary.

4:00PM Ivo M Babuska*, Texas Institute of Computational and Applied Mathematics, The University of Texas at Austin, and Jan Chleboun, Mathematical Institute, Academy of Science, Czech Republic (948-35-105)

4:30PM Modelling of crack propagation.

4:30PM Michael P Marder, University of Texas at Austin (948-76-341)

5:00PM Stability of instability for the two dimensional Euler equations.

5:00PM Susan Friedlander, U of Illinois-Chicago (948-35-72)
Austin, TX, Saturday, October 9 - Program of the Sessions

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5:30PM The renormalization group method. Application to a slightly compressible fluid model.
   Ioana Moise*, University of Texas at Austin, and Mohammd Ziane, Texas A&M University
   (948-35-33)
   
6:00PM The geometric structure of the super-level sets and global regularity for 3D Navier-Stokes equations.
   Zoran Grujic, University of Texas (948-76-26)
   
6:30PM Zero-dissipation limits of nonlinear waves.
   Jerry L. Bona and Jiahong Wu*, University of Texas at Austin (948-76-115)

Special Session on Topology of Continua, I
4:00 PM – 6:30 PM Room 6.124, Robert Lee Moore Hall
Organizers: Wayne Lewis, Texas Tech University
   Carl Seaquist, Texas Tech University

4:00PM Minimal trees. Preliminary report.
   (64) Krystyna M. Kuperberg* and Wlodzimierz Kuperberg, Auburn University (948-54-68)

   Dale B Daniel, Lamar University, Jacke Nikiel, American University of Beirut, L Bruce Treybig*,
   Texas A&M University, and H Murat Tuncali, Nipissing University (948-54-295)

5:00PM On strongly monotone mappings.
   (66) Janusz J Charatonik, Universidad Nacional Autonoma de Mexico and University of Wroclaw
       (948-54-118)

5:30PM Concerning the Role of Local Separating Points of Decomposition Spaces in the Hahn-Mazurkiewicz
       Theorem.
   Dale Daniel, Lamar University (948-54-216)

6:00PM A Tale of Six Atriodic Tree-like Continua.
   (68) W. T. Ingram, University of Missouri – Rolla (948-54-133)

6:30PM A problem concerning topological properties which are inherited.
   Raul Escobedo, Instituto de Matematicas, UNAM (948-54-305)

Special Session on Dynamical Systems, I
4:00 PM – 6:50 PM Room 6.120, Robert Lee Moore Hall
Organizers: David Delatte, University of North Texas
   R. Daniel Mauldin, University of North Texas
   Mariusz Urbanski, University of North Texas
   Luca Quardo Zamboni, University of North Texas

4:00PM Safe states of subshifts of finite type are not so powerful. Preliminary report.
   (70) Robert M Burton*, Oregon State University, and Arthur Robinson, George Washington University
   (948-37-179)

4:30PM Expansive homeomorphisms of solenoids and generalizations thereof.
   Alex D Clark, University of North Texas (948-58-112)

5:00PM Minimal sets. Preliminary report.
   (72) Krystyna M Kuperberg, Auburn University

5:30PM Uniformly perfect analytic and conformal attractor sets.
   Rich L Stankewitz, Texas A&M University (948-30-91)

6:00PM On Besicovitch’s 1/2-Conjecture. Preliminary report.
   Hany M Farag, Caltech (948-28-40)

6:30PM Discussion.

Special Session on Advances in the Mathematics and Applications of Finite Elements, I
4:00 PM – 5:45 PM Room 5.124, Robert Lee Moore Hall
Organizer: J. Tinsley Oden, University of Texas, Austin

5:00PM Approximation Problems and Generalized Finite Element Method.
   Ivo M Babuska, Texas Institute for Computational and Applied Mathematics, The University of Texas
   at Austin (948-65-106)

Reception
7:00 PM – 9:00 PM Texas Union Building, Texas Union Building

Saturday, October 9

Meeting Registration
8:00 AM – 4:30 PM RLM, Robert Lee Moore Hall

AMS Exhibit and Book Sale
8:00 AM – 4:30 PM RLM, Robert Lee Moore Hall

Special Session on Banach and Operator Spaces: Isomorphic and Geometric Structure, II
8:30 AM – 11:20 AM Room 5.118, Robert Lee Moore Hall
Organizers: Edward Odell, University of Texas, Austin
   Haskell P. Rosenthal, University of Texas, Austin

8:30AM Non reflexive subspaces of duals of C*-algebras. Preliminary report.
   Narcisse J Randrianantoanina, Miami University (948-46-296)

9:00AM Uniform duality of the weak essential norm.
   Hans-Olav J Tylli, University of Helsinki (948-46-200)

9:30AM A separable space with no Schauder decomposition.
   (78) Denka Kutzarova*, Bulgarian Academy of Sciences and University of South Carolina, G. Alexandrov,
       University of Sofia, Bulgaria, and A. Plichko, Pedagogical University, Kirovograd, Ukraine
       (948-46-156)

10:00AM Dual Banach spaces which contain an isometric copy of L1.
   (79) S. J Dilworth, Maria Girardi*, University of South Carolina, and James N Hagler, University of Denver
       (948-46-276)

10:30AM Daugavet property of Banach spaces. Preliminary report.
   Roman Shvidkoy, University of Missouri (948-46-138)

11:00AM On the size of approximately convex sets in normed spaces.
   Stephen J Dilworth*, Ralph Howard and James W Roberts, University of South Carolina (948-46-155)
Program of the Sessions – Austin, TX, Saturday, October 9 (cont’d.)

**Special Session on Topology of Continua, II**

8:30 AM – 11:20 AM Room 6.124, Robert Lee Moore Hall

Organizers: Wayne Lewis, Texas Tech University
Carl Seabist, Texas Tech University

8:30 AM
Irreducible Whitney levels. Preliminary report.
Wlodzimierz J Charatonik, University of Missouri-Rolla (948-54-292)

9:00 AM
Joinable Continua-An Application of Inverse Limits.
William S Mahavier, Emory University (948-54-205)

9:30 AM
Beverly L Brechner, University of Florida, Gainesville, Florida (948-54-147)

10:00 AM
Expansive Homeomorphisms and Plane Continua.
Christopher G Mouron, University of Delaware (948-54-265)

10:30 AM
Indecomposable continua having hyperspaces as cones.
Maria de Jesus Lopez, Instituto de Matematicas, UNAM. (948-54-275)

11:00 AM
Open maps on Knaster Continua.
Carl Eberhart, Brauch Fugate*, University of Kentucky, and Shannon Schumann, Centre College (948-54-169)

**Special Session on Dynamical Systems, II**

8:30 AM – 11:20 AM Room 6.120, Robert Lee Moore Hall

Organizers: David Delatte, University of North Texas
R. Daniel Mauldin, University of North Texas
Mariusz Urbański, University of North Texas
Luca Quardo Zamboni, University of North Texas

8:30 AM
Discussion.

9:00 AM
Integral means of derivative of conformal mappings.
Alexander Volberg, Michigan State University (948-37-352)

9:30 AM
Growing trees, laminations and the dynamics on the Julia set.
Alexander Blokh*, University of Alabama at Birmingham, and Genadi Levin, Hebrew University, Jerusalem, Israel (948-37-175)

10:00 AM
Dimension of quasicircles.
Stanislav K Smirnov, KTH (Stockholm) (948-30-262)

10:30 AM
Phase transitions for equilibrium states on subshifts.
Nicola T A Haydn, University of Southern California (948-60-224)

11:00 AM
Attractors for graph critical rational functions.
Alexander Blokh, University of Alabama in Birmingham, and Michal Misiurewicz*, Indiana University-Purdue University Indianapolis (948-58-114)

**Special Session on The Development of Topology in the Americas, I**

9:00 AM – 11:20 AM Room 7.124, Robert Lee Moore Hall

Organizers: Cameron Gordon, University of Texas, Austin
Ian Mackenzie James, University of Oxford

9:00 AM
The Golden Age of Princeton Topology.
I. M. James, University of Oxford (948-01-06)

10:00 AM
Steenrod and his students.
Franklin P Peterson, M.I.T. (948-01-52)

10:30 AM
Topological groups vis-à-vis Lie groups.
Robert D. Edwards, UCLA (948-22-280)

11:00 AM
Little and Haseman – early American tabulators of knots. Preliminary report.
Jozef H Przytycki, GWU (948-01-24)

**Special Session on Wavelets and Approximation Theory, II**

9:00 AM – 11:20 AM Room 5.122, Robert Lee Moore Hall

Organizers: Don Hong, Eastern Tennessee State University
Michael Prophet, Murray State University

9:00 AM
Algorithm for optimal triangulations in scattered data representation and implementation in MatLab. Preliminary report.
Brad Dyer* and Don Hong, East Tennessee State University (948-41-129)

9:30 AM
On Optimal Triangulation and Local Basis of Bivariate Spline Spaces. Preliminary report.
Don Hong, East Tennessee State University (948-41-228)

10:00 AM
Cardinal interpolation by Gaussian radial-basis functions.
N Sivakumar, Texas A&M University (948-41-42)

10:30 AM
Interpolants with bounded derivatives.
Tom Kunkle, College of Charleston (948-41-218)

11:00 AM
Bivariate Polynomial Natural Spline Interpolation Algorithm with Local Basis for Scattered Data. Preliminary report.
Lutai Guan, Zhongshan University (948-41-152)

**Special Session on Harmonic Analysis and PDEs, II**

9:00 AM – 11:20 AM Room 6.104, Robert Lee Moore Hall

Organizers: William Beckner, University of Texas at Austin
Luis A. Caffarelli, University of Texas at Austin
Toti Daskalopoulos, University of California, Irvine
Tatiana Toro, University of Washington

9:00 AM
Rank sets of harmonic mappings.
Qing Han*, University of Notre Dame, and Fanghua Lin, Courant institute (948-35-206)

9:30 AM
An application of corner comparison theorems.
John McCuan, Georgia Tech (948-39-176)

10:00 AM
Break.

10:30 AM
Robert J McCann*, University of Toronto, and Felix Otto, University of California at Santa Barbara (948-73-236)

11:00 AM
Gamma limits of Ginzburg-Landau functionals.
R L Jerrard*, University of Illinois at Urbana-Champaign, and H M Soner, Princeton University (948-49-270)

**Special Session on Nonlinear Dynamics, II**

9:00 AM – 10:50 AM Room 7.122, Robert Lee Moore Hall

Organizers: Robert J. McCann, University of Toronto
### Special Session on Mathematical and Computational Finance, II

**9:00 AM - 10:50 AM**

**Room 7.104, Robert Lee Moore Hall**

Organizer: **Stathis Tompaidis**, University of Texas, Austin

- **9:00 AM**
  - **Raphael Douady**, CIBC New York (948-91-324)
  - **Comparing Stochastic Discount Factors Through Their Implied Measures.**

- **9:30 AM**
  - **Yan Jin**, Goldman Sachs NY (948-91-325)
  - **Stochastic Volatility Modeling, Asymptotics & Parameter Estimation.**

- **10:00 AM**
  - **Jean-Pierre Fouque**, North Carolina State University, **George Papanicolaou**, Stanford University, and **Ronnie Sircar***, University of Michigan (948-91-335)
  - **Calibration of Financial Models.** Preliminary report.

- **10:30 AM**
  - **David Saunders**, University of Toronto (948-91-332)
  - **Preliminary report.**

- **11:00 AM**
  - **Wetting barriers and local minimizers in the calculus of variations.**
    - **Erich Miersemann**, Leipzig University, Germany (948-49-84)

### Special Session on Free Surface Interfaces and PDEs, I

**9:00 AM - 11:20 AM**

**Room 7.112, Robert Lee Moore Hall**

Organizers: **Kirk Lancaster**, Wichita State University
  - **Thomas Vogel**, Texas A&M University

- **9:00 AM**
  - **Foliations and group actions on S¹ and S².**
    - **Danny Calegari**, UC Berkeley (948-57-146)
    - **Colin Adams**, Williams College, and **Sang Pahk**, University of California-Davis (948-57-145)

- **9:30 AM**
  - **Volumes of Haken hyperbolic 3-manifolds.**
    - **Ian Agol**, U. C. Davis (948-57-142)

- **10:00 AM**
  - **Supercovering Number for Knots and Links.**
    - **Kevin M Hemphill**, Wichita State University (948-35-213)

- **11:00 AM**
  - **Pseudomodular surfaces.** Preliminary report.
    - **Darren Long***, UC Santa Barbara, and **Alan W Reid**, UT, Austin (948-57-116)

### Special Session on Dehn Surgery and Kleinian Groups, II

**9:00 AM - 11:20 AM**

**Room 6.116, Robert Lee Moore Hall**

Organizers: **John Luecke**, University of Texas, Austin
  - **Alan Reid**, University of Texas, Austin

- **9:00 AM**
  - **Abelian Subgroup Separability of Kleinian Groups and Fundamental Groups of Haken Manifolds.**
    - **Colin Adams***, Williams College, and **Sang Pahk**, University of California-Davis (948-57-145)

- **9:30 AM**
  - **Preliminary report.**
    - **Emily Hamilton**, Emory University (948-57-71)

- **10:00 AM**
  - **Self-Assembling Graphs with DNA molecules.**
    - **Natali Jonoska**, University of South Florida (948-68-143)

- **10:30 AM**
  - **Characterizing DNA knots from bacteriophage P4.**
    - **Francisco J Arsuaga***, Florida State University, **Carles Rojals**, I.B.M. - C.S.I.C., **Maria E Vazquez**, Florida State University, **Sonia Trigueros**, I.B.M. - C.S.I.C., **Joaquim Roca**, I.B.M. - C.S.I.C., and **De Witt L Sumners**, Florida State University (948-92-95)

- **11:00 AM**
  - **Knotting under Spatial Constraints.** Preliminary report.
    - **Kenneth C Millett**, University of California (948-57-235)

### Special Session on Mathematical Problems in Transport Phenomena, II

**9:00 AM - 11:20 AM**

**Room 5.116, Robert Lee Moore Hall**

Organizers: **Jose Antonio Carrillo**, University of Texas, Austin
  - **Irene M. Gamba**, University of Texas, Austin

- **9:00 AM**
  - **High frequency behavior of the focusing nonlinear Schrödinger equation with random inhomogeneities.**
    - **Shi Jin***, Georgia Institute of Technology, **George Papanicolaou**, Stanford University, and **Albert Fannjiang**, University of California, Davis (948-65-07)

- **9:30 AM**
  - **A High Order Discontinuous Galerkin Method for 2D Incompressible Flows.**
    - **Jian-Guo Liu**, University of Maryland, and **Chi-Wang Shu***, Brown University (948-65-14)
Program of the Sessions – Austin, TX, Saturday, October 9 (cont’d.)

10:00AM - 11:20 AM Room 7.118, Robert Lee Moore Hall
- Jean Leray and Algebraic Analysis
  - Pierre B. Schapira, University of Paris 6 (948-32-30)
  - A. Ermouche, Univ. de Technologie de Compiegne, V. Giraud, Univ. Pierre et Marie Curie, M. E. Schonbek, University of California, and T. Schonbek, Florida Atlantic University (948-35-13)
  - On the connection between the Camassa-Holm equations and turbulence theory
    - Edriss Titi, U of California, Irvine (948-35-177)
  - Regularity of solutions of Navier-Stokes equations for rotating fluids
    - Anatoli V. Babin, UC at Irvine (948-35-39)

Special Session on The Diverse Mathematical Legacy of Jean Leray, II (A)

9:00 AM – 11:20 AM Room 7.116, Robert Lee Moore Hall
- Organizers: Eric M. Friedlander, Northwestern University
  - Susan J. Friedlander, University of Illinois, Chicago
  - 9:00AM
    - Jean Leray and Algebraic Analysis
      - Pierre B. Schapira, University of Paris 6 (948-32-30)
    - Space time decay of solutions to the Navier-Stokes equations
      - A. Ermouche, Univ. de Technologie de Compiegne, V. Giraud, Univ. Pierre et Marie Curie, M. E. Schonbek, University of California, and T. Schonbek, Florida Atlantic University (948-35-13)
  - On the connection between the Camassa-Holm equations and turbulence theory
    - Edriss Titi, U of California, Irvine (948-35-177)
  - Regularity of solutions of Navier-Stokes equations for rotating fluids
    - Anatoli V. Babin, UC at Irvine (948-35-39)

Special Session on The Diverse Mathematical Legacy of Jean Leray, II (B)

9:00 AM – 11:20 AM Room 7.118, Robert Lee Moore Hall
- Organizers: Eric M. Friedlander, Northwestern University
  - Susan J. Friedlander, University of Illinois, Chicago
  - 10:00AM
    - A DeRham/Federer approach to the Cheeger/Simons theory of differential characters
      - Preliminary report
        - Reese Harvey, Rice University (948-53-128)
    - CR-characteristic classes and residues
      - Michael M. Burns, Jr., University of Michigan (948-32-215)
  - The Spectral Sequence Relating Algebraic K-theory to Motivic Cohomology
    - Eric M. Friedlander and Andrei Suslin, Northwestern University (948-19-73)

Special Session on Theoretical, Computational and Experimental Aspects of Mechanics, II

9:00 AM – 11:20 AM Room 7.120, Robert Lee Moore Hall
- Organizers: Jerry Bona, University of Texas, Austin
  - Steven Levandosky, University of Texas, Austin
  - Jiahong Wu, University of Texas, Austin
  - 9:00AM
    - On similarity solutions in theories of curvature driven motion of planar curves
      - Bernard D. Coleman, Rutgers University (948-76-55)

9:30 AM – 11:20 AM Room 7.120, Robert Lee Moore Hall
- Organizers: Daniel S. Freed, University of Texas, Austin
  - John Roe, Pennsylvania State University
  - 9:30AM
    - The Schwartz algebra, Chern characters and the Baum-Connes conjecture
      - Jacek Brodzki, University of Exeter, UK, and Roger Plymen, Manchester University (948-46-90)
    - An index theorem for families of elliptic operators invariant with respect to the action of a bundle of Lie groups
      - Victor Nistor, Penn State (948-58-126)
### Special Session on Interconnections Among Diophantine Geometry, Algebraic Geometry, and Value Distribution Theory, I

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>9:30 AM - 11:20 AM</td>
<td>Room 5.126, Robert Lee Moore Hall</td>
<td>William Cherry, University of North Texas Min Ru, University of Houston Felice Voloch, University of Texas, Austin</td>
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</table>

#### Invited Address

**11:30 AM - 12:20 PM**

**Room 106, Burdine Hall**

- Derived deformation theory, Mikhail Kapranov, Northwestern University Evanston IL (948-14-308)

**Special Session on The Development of Topology in the Americas, II**

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>3:00 PM - 6:10 PM</td>
<td>Room 7.124, Robert Lee Moore Hall</td>
<td>Cameron Gordon, University of Texas, Austin Ioan Mackenzie James, University of Oxford</td>
</tr>
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#### Special Session on Wavelets and Approximation Theory, III

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<tr>
<td>3:00 PM - 5:50 PM</td>
<td>Room 5.122, Robert Lee Moore Hall</td>
<td>Don Hong, Eastern Tennessee State University Michael Prophet, Murray State University</td>
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#### Special Session on Harmonic Analysis and PDEs, III

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<tr>
<td>3:00 PM - 5:20 PM</td>
<td>Room 6.104, Robert Lee Moore Hall</td>
<td>William Beckner, University of Texas at Austin Luis A. Caffarelli, University of Texas at Austin Toti Daskalopoulos, University of California, Irvine Tatiana Toro, University of Washington</td>
</tr>
</tbody>
</table>

#### Invited Address

**2:00 PM - 2:50 PM**

**Room 106, Burdine Hall**

- The Nonlinear Schrödinger equation: Self-focusing and Wave Collapse, Catherine Sulem, University of Toronto (948-35-353)

### Special Session on Aperiodic Tiling, III

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<tr>
<td>3:00 PM - 5:50 PM</td>
<td>Room 6.122, Robert Lee Moore Hall</td>
<td>Charles Radin, University of Texas, Austin Lorenzo Sadun, University of Texas, Austin</td>
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</table>

**Organizers:**

- Charles Radin, University of Texas, Austin
- Lorenzo Sadun, University of Texas, Austin
Program of the Sessions – Austin, TX, Saturday, October 9 (cont’d.)

3:30PM–5:45PM Room 6.126, Robert Lee Moore Hall

**Special Session on Nonlinear Dynamics, III**

3:00 PM – 5:20 PM

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<tr>
<th>Time</th>
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<tr>
<td>3:00 PM</td>
<td>Robert J. McCann</td>
<td>University of Toronto</td>
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<tr>
<td>3:30 PM</td>
<td>Jared C Bronski*</td>
<td>University of Illinois Urbana-Champaign, Fatkhulla Kh Abdullaev, Physical/Technical Institute, Tashkent, and George Papadopoulos, Stanford University</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>Changfeng Gui</td>
<td>University of Connecticut and University of British Columbia</td>
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<tr>
<td>4:30 PM</td>
<td>Michael Feldman</td>
<td>University of Wisconsin, and Robert J McCann*</td>
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<tr>
<td>5:00 PM</td>
<td>Thomas Schlumprecht</td>
<td>University of Toronto</td>
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**Special Session on Mathematical and Computational Finance, III**

3:00 PM – 5:45 PM

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<th>Time</th>
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<tr>
<td>3:00 PM</td>
<td>Stathees Tompaides</td>
<td>University of Texas, Austin</td>
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<tr>
<td>3:30 PM</td>
<td>Curt Randall</td>
<td>SciComp, Inc. (948-91-331)</td>
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<tr>
<td>4:00 PM</td>
<td>Ichirou Ono</td>
<td>University of Connecticut and University of British Columbia</td>
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<tr>
<td>4:30 PM</td>
<td>Thomas Schlumprecht</td>
<td>Texas A&amp;M University</td>
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<tr>
<td>5:00 PM</td>
<td>Steven E. Shreve &amp; Jan Vecer</td>
<td>Carnegie Mellon University</td>
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**Special Session on DNA Topology, III**

3:00 PM – 6:20 PM

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<tr>
<td>3:00 PM</td>
<td>Isabel K. Darcy</td>
<td>University of Texas, Austin</td>
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<tr>
<td>3:30 PM</td>
<td>De Witt Sumners</td>
<td>Florida State University</td>
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<tr>
<td>3:30 PM</td>
<td>Sean D Colloms</td>
<td>University of Oxford</td>
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**Special Session on Recent Developments in Index Theory, III**

3:00 PM–5:45PM Room 6.126, Robert Lee Moore Hall

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<td>3:00 PM</td>
<td>Daniel S. Freed</td>
<td>University of Texas, Austin</td>
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<tr>
<td>3:30 PM</td>
<td>Liviu I Nicolaescu</td>
<td>University of Notre Dame (948-58-240)</td>
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<tr>
<td>4:00 PM</td>
<td>Robin Forman</td>
<td>Rice University (948-58-159)</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Matilde Marcolli*</td>
<td>MIT, and Bai-Ling Wang, University of Adelaide</td>
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**Special Session on Banach and Operator Spaces: Isomorphic and Geometric Structure, III**

3:00 PM – 5:50 PM

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<tr>
<td>3:00 PM</td>
<td>Edward Odell</td>
<td>University of Texas, Austin</td>
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<tr>
<td>3:30 PM</td>
<td>Alexander Koldobsky</td>
<td>University of Missouri - Columbia (948-46-17)</td>
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<tr>
<td>4:00 PM</td>
<td>Piotr Mankiewicz*</td>
<td>Institute of Mathematics, Polish Academy of Sciences, and Nicole Tomczak-Jaegermann, University of Alberta, Edmonton (948-46-151)</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>A geometric inequality concerning the average Banach Mazur diameter of proportional sections symmetric convex bodies in R^n. Preliminary report.</td>
<td>Piotr Mankiewicz*</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>The maximal regularity problem.</td>
<td>Nigel Kalton* &amp; Gilles Lancien, University of Missouri (948-46-93)</td>
</tr>
<tr>
<td>5:30 PM</td>
<td>One-complemented subspaces in l_p, 1 &lt; p &lt; ∞. Preliminary report.</td>
<td>Beata Randrianantoanina, Miami University</td>
</tr>
</tbody>
</table>

**Organizers:** Edward Odell, University of Texas, Austin, Haskell P. Rosenthal, University of Texas, Austin, and Isaac K. Darcy, University of Texas, Austin.
4:00pm Tangle Analysis of Xer Site-Specific Recombination. Preliminary report.
Maria Elena Vazquez* and De Witt Summers, Florida State University (948-92-88)

4:30pm DNA Structure and Topology in FLP Site-specific Recombination.
Stephen D Levene* and Kenneth E Huffman, University of Texas at Dallas (948-92-273)

5:00pm Topological investigations of FLP site-specific recombination.
Ian Grainge*, Dorothy Buck and Makkuni Jayaram, University of Texas at Austin (948-92-164)

5:30pm Coordination of bilateral cleavage of DNA four-way junctions by resolving enzymes. Preliminary report.
David MJ Lilley*, Jon M Fogg and Mark Schofield, University of Dundee (948-92-130)

6:00pm The Double Helix Knot. Preliminary report.
Louis H Kauffman, Univ of Illinois at Chicago (948-57-97)

Special Session on Free Surface Interfaces and PDEs, II

3:00pm – 6:20pm Room 7.112, Robert Lee Moore Hall
Organizers: Kirk Lancaster, Wichita State University
Thomas Vogel, Texas A&M University

3:00pm C^1 singular solutions of the capillary problem.
Robert Finn*, Stanford University, and Robert W Neel, Universität Leipzig (948-35-150)

3:30pm Uniqueness of the singular solution to the capillary equation.
Radoslav P Nickolov, Stanford University (948-35-183)

4:00pm Instability of non-spherical liquid bridges.
Paul Concus, Lawrence Berkeley Lab and UC Berkeley, Robert Finn, Stanford University, and John McCuan*, Georgia Tech (948-53-181)

4:30pm Behaviour of singularities for the rotationally symmetric, volume-preserving mean curvature flow.
Maria Athanassenas, Monash University (948-35-234)

5:00pm Sufficient Conditions for Capacillary Surfaces to be Energy Minima.
Thomas I Vogel, Texas A&M University (948-53-163)

5:30pm Constant mean curvature surfaces of annular type. Preliminary report.
Henry C Wente, University of Toledo (948-49-27)

6:00pm A general variational method for crystalline triple junction motion.
Jean Taylor, Rutgers University (948-49-355)

Special Session on Dehn Surgery and Kleinian Groups, III

3:00pm – 5:50pm Room 6.116, Robert Lee Moore Hall
Organizers: John Luecke, University of Texas, Austin
Alan Reid, University of Texas, Austin

3:00pm On the Weak Lopez Conjecture. Preliminary report.
Marc E Culler, U. of I. at Chicago, Nathan M Dunfield, Harvard University, and Peter B Shalen*, U. of I. at Chicago (948-57-184)

3:30pm More on the Weak Lopez Conjecture. Preliminary report.
Marc E Culler*, U. of I. at Chicago, Nathan M Dunfield, Harvard University, and Peter B Shalen, U. of I. at Chicago (948-57-186)

4:00pm Levelling a knot’s tunnel. Preliminary report.
Hiroshi Goda, Kobe University, Martin Scharlemann*, U. C. Santa Barbara, and Abigail Thompson, U. C. Davis (948-57-187)

4:30pm Some local properties of the SL_2(C)-character variety of 3 manifolds. Preliminary report.
Steven P Boyer, UQAM (948-57-281)

5:00pm Boundary slopes of immersed surfaces in 3-manifolds.
Joel Hass*, U. C. Davis, Hyam Rubinstein, University of Melbourne, and Shicheng Wang, Beijing University (948-57-307)

5:30pm The shape of hyperbolic Dehn surgery space. Steve Kerckhoff*, Stanford University, and Craig Hodgson, University of Melbourne (948-53-303)

Special Session on Mathematical Problems in Transport Phenomena, III

3:00pm – 6:50 pm Room 5.116, Robert Lee Moore Hall
Organizers: Jose Antonio Carrillo, University of Texas, Austin
Irene M. Gamba, University of Texas, Austin

3:00pm Novel results in the kinetic theory of vehicular traffic.
Paul Nelson* and Alexandros Sopasakis, Texas A&M University (948-76-13)

3:30pm Kinetic formulation for system of two conservation laws.
Benoit Perthame, ENS-Ulm, and Athanasios Tzavaras*, Univ. of Wisconsin (948-35-16)

4:00pm Inviscid limits of the complex Ginzburg-Landau equation.
Ansgar Jüngel, TU Berlin (948-35-25)

4:30pm Strong uncertainty principle and stability of fronts.
Eric A. Carlen, Georgia Tech, Maria C. Carvalho*, Lisbon University and Georgia Tech, and E. Orlandi, Universita degli Studi di Roma Tre (948-35-180)

5:00pm Asymptotic Analysis of some Nonlinear Schrödinger Equations for charged particle transport.
Norbert J. Mauser, Univ. of Vienna and Courant Institute (948-81-60)

5:30pm Derivation of Fokker-Planck type equations from coupled quantum oscillators.
Francois Castella, University of Rennes, France, Laszlo Erdos*, Georgia Tech, Atlanta, Florian Frommlet, Technical University of Berlin, Germany, and Peter Markowich, University of Vienna, Austria (948-81-18)

6:00pm Self-consistent quantum-diffusion models.
Anton Arnold, TU-Berlin, MA 6-2 (948-35-09)

6:30pm Magnetically created instability in a collisionless plasma.
Walter Strauss, Brown University (948-35-356)

Special Session on The Diverse Mathematical Legacy of Jean Leray, III (A)

3:00pm – 5:50 pm Room 7.112, Robert Lee Moore Hall
Organizers: Eric M. Friedlander, Northwestern University
Susan J. Friedlander, University of Texas, Austin

3:00pm The damping of fluid motion.
Jerry Bona, U of Texas, Austin (948-35-178)

4:30pm On Leray’s self-similar solution to the Navier-Stokes equations in three dimensions.
Jindrich Necas, Northern Illinois U. (948-35-75)
Appendix–28
NOTICES OF THE AMS
VOLUME 46, NUMBER 11

Program of the Sessions – Austin, TX, Saturday, October 9 (cont’d.)

5:00PM Approximation dynamics for the Navier-Stokes equations.
(227) Victor A Pliss, St Petersburg University, St Petersburg, Russia, and George R Sell*, University of Minnesota, Minneapolis, MN (948-35-165)

5:30PM On the minimal scale for the Navier-Stokes equation.
(228) Igor Kukavica, University of Southern California (948-35-113)

Special Session on The Diverse Mathematical Legacy of Jean Leray, III (8)

3:00 PM – 4:50 PM Room 7.118, Robert Lee Moore Hall
Organizers: William Cherry, University of North Texas
Min Ru, University of Houston
Felipe Voloch, University of Texas, Austin

3:00PM Flows of an ideal incompressible fluid with unbounded vorticity. Preliminary report.
Misha Vishik, University of Texas at Austin (948-35-306)

3:30PM Numerical simulation of circulation and transport in shallow water systems.
Clint Dawson, University of Texas at Austin (948-65-51)

4:00PM Mixed Finite Element Methods on Non-Matching Multiblock Grids.
Todd Arbogast*, The University of Texas, Lawrence C Cowsar, Lucent Technologies Bell Labs, Mary F Wheeler, The University of Texas at Austin, and Ivan Yotov, University of Pittsburgh (948-65-346)

4:30PM On Temporal Asymptotics in One-Dimensional Nonlinear Thermoviscoelasticity with Phase Transitions.
Stephen J Watson, Professor (948-35-22)

5:00PM Discussion.

Special Session on Interconnections Among Diophantine Geometry, Algebraic Geometry, and Value Distribution Theory, II

3:00 PM – 5:50 PM Room 5.126, Robert Lee Moore Hall
Organizers: William Cherry, University of North Texas
Min Ru, University of Houston
Felipe Voloch, University of Texas, Austin

3:00PM A sharp form of the Nevanlinna’s error term.
Yuefei Wang, Institute of Mathematics, Academia Sinica, PRC (948-30-66)

3:30PM On Cartan’s Conjecture and the moving target problem.
Pit-Mann Wong, University of Notre Dame (948-32-290)

4:00PM The Radon transform and holomorphic curves in Abelian varieties.
Ryoichi Kobayashi, Nagoya University (948-32-132)

4:30PM p-coverings and geometric height inequalities.
Minhyong Kim, University of Arizona (948-11-225)

5:00PM The truncated second main theorem over higher dimensional function fields of arbitrary characteristic. Preliminary report.
Julie Tsu-Yueh Wang, Academia Sinica, Taiwan and University of Notre Dame (948-11-101)

Special Session on Topology of Continua, III

3:00 PM – 5:50 PM Room 6.120, Robert Lee Moore Hall
Organizers: Wayne Lewis, Texas Tech University
Carl Seagquist, Texas Tech University

3:00PM Preservation of properties of continua by refinable maps.
 Eldon J Vought, California State University, Chico (948-54-282)

3:30PM Higher-dimensional hereditarily indecomposable continua.
James T Rogers, Jr., Tulane University (948-54-217)

4:00PM Non-hereditarily indecomposable local Siegel disk boundaries. Preliminary report.
Andrew O Maner, University of Alabama at Birmingham (948-54-252)

4:30PM Circle-like continua with small rotations.
Andrew O Maner, John C Mayer* and Lex G Oversteegen, University of Alabama at Birmingham (948-54-274)

5:00PM On fixed points and prime-ends. Preliminary report.
Lex G Oversteegen*, UAB, Robbert Fokkink, TuDelft, and John C Mayer, UAB (948-54-310)

5:30PM Locally Connected Continua and Images of Arcs.
Murat Tuncali, Nipissing University, North Bay, Ontario, Canada (948-54-185)

Special Session on Dynamical Systems, III

3:00 PM – 6:30 PM Room 6.120, Robert Lee Moore Hall
Organizers: David Delatte, University of North Texas
R. Daniel Mauldin, University of North Texas
Mariusz Urbanski, University of North Texas
Luca Guardo Zamboni, University of North Texas

3:30PM Numerical calculation of the decay of correlations in particle systems. Preliminary report.
Marek R Rychlik, University of Arizona (948-37-350)

4:00PM Gaussian Thermostats, Lorentz Gas and Differential Geometry. Preliminary report.
Maciej P Wojtkowski, University of Arizona (948-58-41)

4:30PM A Dani Theorem for the Teichmuller Horocycle Flow.
William A Veech, Rice University (948-37-198)

5:00PM Periodic billiard orbits for a simple family of polygons. Preliminary report.
Eugene Gutkin, University of Southern California (948-37-197)
Sunday, October 10

Invited Address

9:00 AM – 9:50 AM
Room 106, Burdine Hall

(262) Large scale geometric invariants of elliptic operators.
John Roe, Penn State University (948-58-153)

Special Session on Recent Developments in Index Theory, IV

9:30 AM – 12:45 PM
Room 6.126, Robert Lee Moore Hall

Organizers: Daniel S. Freed, University of Texas, Austin
John Roe, Pennsylvania State University

10:00 AM
Index Theory of Toeplitz Operators on Transformation Group $C^*$-algebras. Preliminary report.
Efton Park, Texas Christian University (948-47-32)

11:00 AM
Coarse obstructions to positive scalar curvature metrics in noncompact quotients of symmetric spaces. Preliminary report.
Stanley S Chang, Rice University (948-19-207)

C*-algebraic index theory and finite asymptotic dimension. Preliminary report.
Nigel D Higson, Penn State University (948-19-304)

Special Session on Wavelets and Approximation Theory, IV

10:00 AM – 11:50 AM
Room 5.122, Robert Lee Moore Hall

Organizers: Don Hong, Eastern Tennessee State University
Michael Prophet, Murray State University

10:00 AM
Wavelets for Compression of Terrain Data. Preliminary report.
Ratan C. Cuha, Rajkumar Madhuram and R. N. Mohapatra*, University of Central Florida (948-41-339)

10:30 AM
Semi-orthogonal Spline Wavelet Packets for Homogeneous Sobolev Spaces on a Bounded Interval.
Jianzhong Wang, Sam Houston State University (948-41-249)

11:00 AM
Digitized PDE method for data restoration.
Stanley Osher and Jianhong Shen*, UCLA (948-94-245)

Special Session on Banach and Operator Spaces: Isomorphic and Geometric Structure, IV

10:00 AM – 1:20 PM
Room 5.118, Robert Lee Moore Hall

Organizers: Edward Odell, University of Texas, Austin
Haskell P. Rosenthal, University of Texas, Austin

10:00 AM
Rotating the unit ball of $l^1$.
Piotr Mankiewicz, Polish Acad. of Sciences, and Nicole Tomczak-Jaegermann*, Univ. of Alberta (948-46-340)
Program of the Sessions – Austin, TX, Sunday, October 10 (cont’d.)

10:00 AM – 12:20 PM Room 7.104, Robert Lee Moore Hall
Organizer: Stathis Tompaidis, University of Texas, Austin
10:00 AM Risk Management in Non-gaussian markets.
Luis Seco, University of Toronto (948-91-334)
10:30 AM Stratified Sampling and Quasi Monte Carlo Methods to Measure Portfolio Risk.
Alex Kreinin, Leonid Merkoulovitch, Dan Rosen and Michael Zerbs, Algorithmics, Inc. (948-91-326)
11:00 AM Affine stochastic models for energy prices.
Mihaela Manoliu, Caminus LLC/Zai*Net Analytics (948-90-229)
11:30 AM Uncertain Growth Prospects, Estimation Risk, and Asset Prices.
Hong Yan, University of Texas at Austin (948-91-345)
Noon Equity options with Monte Carlo methods: calibration and variance reduction.
Claudio Albanese, University of Toronto (948-91-337)

Special Session on Mathematical and Computational Finance, IV

10:00 AM – 12:20 PM Room 4.102, Robert Lee Moore Hall
Organizers: Isabel K. Darcy, University of Texas, Austin
Makkuni Jayaram, University of Texas, Austin
10:00 AM Simplification of DNA Topology by Type II Topoisomerases.
Alexander V Volkodvskii, New York University (948-92-293)
11:00 AM A three DNA-segment recognition model of type II topoisomerases.
Jaquim Roca, IBMB - CSIC, Barcelona, Spain (948-92-102)
11:30 AM Effect of DNA topology on E. coli DNA topoisomerase IV. Preliminary report.
Richard W. Deibler, Sonia R. Rahmati and Lynn Zechiedrich*, Baylor College of Medicine (948-92-149)

Noon Topoisomerase IV is the Main Unknotting Enzyme in Escherichia coli. Preliminary report.
Richard W Deibler* and Lynn Zechiedrich, Baylor College of Medicine (948-92-160)
12:30 PM Discussion of open problems at the interface of mathematics and molecular biology.

Special Session on Free Surface Interfaces and PDEs, III

10:00 AM – 12:20 PM Room 7.112, Robert Lee Moore Hall
Organizers: Kirk Lancaster, Wichita State University
Thomas Vogel, Texas A&M University
10:00 AM Approximating Finite 3-energy Maps from the 4 Ball to the 2 Sphere. Preliminary report.
Robert M Hardt*, Rice University, and Tristan Riviere, Ecole Norm. Sup.-Cachan (948-35-134)
10:30 AM Gauss map omission of minimal surfaces. Preliminary report.
Rob Kusner, University of Massachusetts (948-53-302)
11:00 AM Triunduloids: embedded three-ended surfaces of constant mean curvature.
John M Sullivan*, Univ. of Illinois, Rob Kusner, Univ. of Massachusetts, and Karsten Grosse-Brauckmann, Uni. Bonn (948-53-232)
11:30 AM Dirac’s Equation and Prescribing Mean Curvature.
George I Kamberov, Washington University in St. Louis (948-53-299)
Noon Geometry, topology and conformal structure of properly embedded minimal surfaces. Preliminary report.
Rob Kusner, University of Massachusetts (948-53-313)

Special Session on Dehn Surgery and Kleinian Groups, IV

10:00 AM – 12:20 PM Room 6.116, Robert Lee Moore Hall
Organizers: John Luecke, University of Texas, Austin
Alan Reid, University of Texas, Austin
10:00 AM Finiteness of (H)eegaard splittings for atoroidal 3-manifolds.
William H Jaco*, Oklahoma State University, and Joachim H Rubinstein, University of Melbourne (948-57-210)
10:30 AM Heegaard genus and separating incompressible surfaces.
Martin G Scharlemann, UCSB, and Jennifer C Schultens*, Emory University (948-57-201)
11:00 AM Non-mutant hyperbolic knots with unfaithful double branch covers. Preliminary report.
Steven A. Bleiler*, Portland State University, Bell Foozwell and Hyam Rubinstein, University of Melbourne (948-57-221)
11:30 AM Seifert surfaces and disk decompositions.
Mark W Brittenham, University of North Texas (948-57-211)
Noon Decision problems in the space of Dehn fillings.
William Jaco, Oklahoma State University, and Eric Sedgwick*, DePaul University (948-57-309)
## Special Session on Mathematical Problems in Transport Phenomena, IV

**10:00 AM - 12:50 PM**
**Room 5.116, Robert Lee Moore Hall**

**Organizers:**
- Jose Antonio Carrillo, University of Texas, Austin
- Irene M. Gamba, University of Texas, Austin

### Entropy Production and Convergence to Equilibrium for the Povzner and Povzner-Vlasov Equations.
- Eric A Carlen*, M C Carvalho, Ga Tech, and Joel Lebowitz, Rutgers University (948-82-148)

### Entropy dissipation methods in kinetic theory.
- Cedric Villani, ENS, DMI (948-35-23)

### Acoustic and Stokes Limits for the Boltzmann Equation.
- C. David Levermore, The University of Arizona, (948-82-106)

### Some geometric mechanisms for transport in classical dynamical systems.
- Rafael de la Llave, Univ. of Texas at Austin (948-35-11)

### Hamiltonian Description of Vlasov Dynamics: Action-Angle Variables for the Continuous Spectrum.
- Philip J Morrison, University of Texas at Austin (948-82-62)

### Asymmetric Quasiperiodical Solution of Hartree-Fock Systems, and their Counterparts for the Vlasov-Poisson System.
- Jean Dolbeault, CEREMADE, Reinhard Illner*, University of Victoria, and Horst Lange, Universitaet Koeln (948-81-49)

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## Special Session on Interconnections Among Diophantine Geometry, Algebraic Geometry, and Value Distribution Theory, III

**10:00 AM - 1:00 PM**
**Room 5.126, Robert Lee Moore Hall**

**Organizers:**
- William Cherry, University of North Texas
- Min Ru, University of Houston
- Felipe Voloch, University of Texas, Austin

### Simultaneous approximation in positive characteristic.
- Wolfgang M Schmidt, University of Colorado at Boulder (948-11-174)

### Stability of base loci of linear series. Preliminary report.
- Michael Nakamaye, University of New Mexico (948-14-173)

### On Lang's Geometric Conjecture for Surfaces of General Type.
- Cong X Kang, American University (948-14-87)

### Rational curves on holomorphic symplectic manifolds, with applications to rational points and rationality problems.
- Brendan E Hassett*, University of Chicago, and Yuri Tschinkel, University of Illinois at Chicago (948-14-209)

### A uniform bound for the number of solutions to some Thue equations. Preliminary report.
- Thomas J Tucker, University of Georgia (948-11-212)

### 1:00 PM - 1:50 PM

#### Quadratic points on some Fermat curves.
- Pavlos Tzermias, University of Arizona (948-11-227)

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## Special Session on Topology of Continua, IV

**10:00 AM - 12:20 PM**
**Room 6.120, Robert Lee Moore Hall**

**Organizers:**
- Wayne Lewis, Texas Tech University
- Carl Seabquist, Texas Tech University

### On cones – Determined Continua.
- Sergio Maia, Universidad Nacional Autonoma de Mexico (948-54-37)

### Spans of Spaces Contained in a Convex Disc Cross an Arc.
- Thelma R West, Austin University of Southwestern Louisiana (948-54-108)

### Concerning Continua that are Irreducible about Finitely Many Points.
- David J Ryden, University of Missouri - Rolla (948-54-157)

### Unions of shore sets in dendroids.
- Alejandro Illanes, Universidad Nacional Autonoma de Mexico (948-54-320)

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## Special Session on Dynamical Systems, IV

**10:00 AM - 12:20 PM**
**Room 6.124, Robert Lee Moore Hall**

**Organizers:**
- David Delatte, University of North Texas
- R. Daniel Mauldin, University of North Texas
- Mariusz Urbanski, University of North Texas
- Luca Quardo Zamboni, University of North Texas
- Pavlos Tzermias, Texas Tech University, Lubbock, Texas (948-54-135)

### The Eckmann-Ruelle conjecture – the past, present, and future.
- Yakov B Pesin, Penn State University (948-37-279)

### Asymptotic Measures in Dissipative Systems.
- Sheldon E Newhouse, Michigan State University (948-37-171)

### Positive entropy for the Standard map.
- Oliver Knill, University of Texas (948-58-170)

### Smooth Rigidity of Conformal Anosov systems in higher dimensions.
- Rafael de la Llave, U. Texas at Austin (948-37-64)

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## Special Session on Advances in the Mathematics and Applications of Finite Elements, IV

**10:00 AM - 12:20 PM**
**Room 5.124, Robert Lee Moore Hall**

**Organizer:**
- J. Tinsley Oden, University of Texas, Austin

### Numerical modeling of photonic crystals.
- Joseph E Pasciak*, and David C Dobson, Texas A&M University (948-65-124)

### Some Theoretical and Practical Aspects of Least Squares Finite Element Methods.
- Graham F Carey*, The University of Texas at Austin, Walter B Richardson, The University of Texas at San Antonio, Atanas I Pehlivanov, The University of Texas at Austin, and Abhijit Bose, The University of Michigan (948-65-137)
Program of the Sessions – Austin, TX, Sunday, October 10 (cont’d.)

11:00AM  Locally Conservative Algorithms for Flow.
(318) Mary F Wheeler, Texas Institute for Computational and Applied Mathematics, The University of Texas at Austin (948-65-125)

11:30AM  Iterative Analysis of the Mortar Element.
(319) Yuri A Kuznetsov, University of Houston (948-65-261)

(320) Richard E. Ewing*, Raytcho Lazarov and Yanping Lin, Texas A&M University, College Station, Texas (948-65-89)

Susan J. Friedlander
Associate Secretary
Chicago, Illinois