
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 *Orthogonal lifting: constructing nonseparable orthogonal wavelets.* Preliminary report.
(2) **Eugene Belogay**, Purdue University (948-42-291)
- 4:30PM *Integer-to-Integer Transformations Using Scaling Vectors.* Preliminary report.
(3) **Patrick J Van Fleet**, University of St. Thomas (948-41-311)
- 5:00PM *Conjugate Wavelets.* Preliminary report.
(4) **Tian-Xiao He**, Illinois Wesleyan University (948-42-67)
- 5:30PM *Multiwavelets on the interval and divergence-free wavelets on a rectangle.*
(5) **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

Special Session on Harmonic Analysis and PDEs, I

4:00 PM – 6:50 PM 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

- 4:00PM *Regularity of Zakharov System Evolutions.*
(6) **James E Colliander**, University of California, Berkeley (948-35-298)
- 4:30PM *Small Solutions of the Kadomtsev-Petviashvili Equation.* Preliminary report.
(7) **Jim Colliander**, University of California Berkeley, **Carlos E Kenig**, University of Chicago, and **Gigliola Staffilani***, Stanford University (948-35-278)
- 5:30PM *Multilinear singular integrals.*
(8) **Christoph M Thiele**, UC Los Angeles (948-42-231)
- 6:00PM *Boundary unique continuation: doubling property and nodal domains.* Preliminary report.
(9) ▶ **Paul MacManus**, N.U.I. Maynooth, Ireland, and **Andrea Nahmod***, University of Massachusetts, Amherst (948-42-208)
- 6:30PM *Recent Regularity Results for Nonlinear Wave Equations.*
(10) **Hart Smith**, University of Washington, Seattle, **Christopher D Sogge**, Johns Hopkins University, **Terence Tao**, University of California, Los Angeles, and **Markus A Keel***, Cal Tech (948-35-277)
- 5:00PM Break.

Special Session on Aperiodic Tiling, I

4:00 PM – 6:50 PM Room 6.122, Robert Lee Moore Hall

Organizers: **Charles Radin**, University of Texas, Austin
Lorenzo Sadun, University of Texas, Austin

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.

- 4:00PM (11) *Self-similarity and Invariant Measures in Model Sets*. Preliminary report.
Robert V Moody, University of Alberta (948-52-100)
- 4:30PM (12) *Substitution Delone sets*. Preliminary report.
Jeffrey C. Lagarias, AT&T (948-52-192)
- 5:00PM (13) *When are two tilings the same?*
Charles Radin* and **Lorenzo Sadun**, University of Texas at Austin (948-52-70)
- 5:30PM (14) *Cohomology and K-theory of spaces of tilings*.
Ian F Putnam, University of Victoria (948-37-80)
- 6:00PM (15) *Rotations and the topology of substitution spaces*. Preliminary report.
Nicholas Ormes, University of Texas at Austin (948-52-193)
- 6:30PM (16) *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)

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

- 4:00PM (17) *Homogeneous Hilbertian subspaces of L_p* . Preliminary report.
Timur Oikhberg, The University of Texas at Austin (948-46-271)
- 4:30PM (18) *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)
- 5:00PM (19) *Non-commutative L_p -spaces and their operator space structures*. Preliminary report.
Marius Junge, University of Illinois at Urbana-Champaign (948-46-139)
- 5:30PM (20) *On Injectivity and Nuclearity for Operator Spaces*.
Edward G Effros, UCLA, **Narutaka Ozawa**, Texas A&M University, and **Zhong-Jin Ruan***, University of Illinois (948-46-111)
- 6:00PM (21) *Exactness of Cuntz-Pimsner algebras*.
Ken Dykema*, Texas A&M University, and **Dimitri Shlyakhtenko**, UCLA (948-46-255)
- 6:30PM (22) *Norming C^* -algebras by subalgebras*. Preliminary report.
Allan M Sinclair, University of Edinburgh, and **Roger R Smith***, Texas A&M University (948-46-57)
- 7:00PM (23) *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)

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

- 4:00PM (24) *Transverse index theory and cyclic cohomology of Hopf algebras*.
Henri Moscovici, Ohio State University (948-58-219)

- 5:00PM (25) *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)
- 6:00PM (26) *Positive scalar curvature metrics and K-theory of C^* -algebras*. Preliminary report.
Stephan A Stolz, Notre Dame (948-47-220)

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

- 4:00PM Discussion.
- 4:30PM (27) *Formation of singularities in solutions of the derivative nonlinear Schrödinger equation on the half line*.
Hayato Nawa, Nagoya University (948-35-202)
- 5:00PM (28) *Nonlinear stability and bifurcation in Optical Parametric Oscillators*.
Keith S. Promislow*, Simon Fraser University, and **J. Nathan Kutz**, University of Washington (948-47-237)

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

- 4:00PM (29) *Modeling Credit Risk*. Preliminary report.
Alain Belanger*, Bank of Nova Scotia, **Steven E Shreve**, Carnegie Mellon, and **Dennis Wong**, Scotia Capital Markets (948-91-322)
- 4:30PM (30) *Modeling of Liquidity Risk*.
Robert Almgren, University of Chicago (948-91-321)
- 5:00PM (31) *Problems in Real Options*. Preliminary report.
Murray Carlson, University of Texas at Austin (948-91-323)
- 5:30PM (32) *Pricing Lease Options in Dynamic Markets*.
Chris M Kenyon*, Schlumberger, and **Stathis Tompaidis**, University of Texas at Austin (948-90-144)
- 6:00PM (33) *Agency Costs, Credit Constraints and Default Costs: the case of Commercial Mortgages*.
Sheridan Titman, **Stathis Tompaidis** and **Sergey Tsyplov***, University of Texas at Austin (948-91-336)
- 6:30PM (34) *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)

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

- 4:00PM (35) *On the elastic stability of configurations of knotted and unknotted miniplasmids*.
Bernard D Coleman* and **David Swigon**, Rutgers University (948-74-140)

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

- 4:30PM *On minimum elastic energy configurations of torus knots*. Preliminary report.
(36) **David Swigon*** and **Bernard D Coleman**, Rutgers University (948-74-141)
- 5:00PM *Biology and Physics of DNA Knots*.
▶ (37) **Andrzej Stasiak**, Universite de Lausanne (948-92-264)
- 6:00PM *Moving knots with obstacles*. Preliminary report.
▶ (38) **Kenneth Hunt**, UW-La Crosse, and **Jonathan Simon***, University of Iowa (948-92-266)
- 6:30PM *Notions of writhing and linking density for closed, circular DNA*. Preliminary report.
(39) **David C Miller***, William Paterson University, and **Craig J Benham**, Mount Sinai School of Medicine (948-92-182)

Special Session on Dehn Surgery and Kleinian Groups, I

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

Organizers: **John Luecke**, University of Texas, Austin

Alan Reid, University of Texas, Austin

- 4:00PM *Incompressible surfaces and Dehn surgery on knots*.
(40) **Hugh N Howards**, Wake Forest University/ UT Austin (948-57-294)
- 4:30PM *Virtual Betti numbers of bundles*.
(41) **Joseph D Masters**, Rice University (948-57-286)
- 5:00PM *Immersed essential surfaces without triple points in 3-manifolds*. Preliminary report.
(42) **Joachim Hyam Rubinstein**, University of Melbourne (948-57-76)
- 5:30PM *Knots and links in S^3 without parallel tangent lines*.
▶ (43) Preliminary report.
Ying-Qing Wu, University of Iowa (948-57-204)
- 6:00PM *Surgery when degeneracy is ± 2* . Preliminary report.
(44) **Rachel D Roberts**, Washington University in St Louis (948-57-195)
- 6:30PM *On Algebraic Components Of $SL(2, C)$ -Character Varieties Of Knot Exteriors*. Preliminary report.
(45) **Steven Boyer**, University of Quebec at Montreal, **Erhard Luft**, University of British Columbia, and **Xingru Zhang***, SUNY at Buffalo (948-57-58)

Special Session on Mathematical Problems in Transport Phenomena, I

4:00 PM – 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

- 4:00PM *Structure of an infinitely strong shock waves*.
(46) **Carlo Cercignani***, Politecnico di Milano, Milano, Italy, **Aldo Frezzotti**, Milano, Italy, and **P Groszfil**, Milano, Italy (948-82-59)
- 4:30PM *Approximate Summation of the Chapman-Enskog Expansion*.
▶ (47) **Marshall Slemrod**, Univ. of Wisconsin (948-76-08)
- 5:00PM *Unsteady Continuum/Rarefied Gasdynamics Simulations with a Hybrid Euler/Monte Carlo Approach*.
(48) **David Goldstein***, **Roberto Roveda** and **Philip Varghese**, University of Texas at Austin (948-82-61)
- 5:30PM *Transport equations and their diffusion approximations*.
(49) **Moulay D Tidriri**, Iowa State University (948-65-315)

- 6:00PM *Some properties of kinetic and macroscopic equations in granular media*.
(50) **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*. Preliminary report.
▶ (51) **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)

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

Organizers: **Eric M. Friedlander**, Northwestern University

Susan J. Friedlander, University of Illinois, Chicago

- 4:00PM *Navier-Stokes Equations*.
(52) **Roger M Temam**, Indiana University (948-35-85)
- 5:00PM *Beyond Sobolev norms in the study of the Navier-Stokes equations*.
(53) **Ciprian Foias**, Indiana University (948-35-36)
- 5:30PM *An Eulerian-Lagrangian Approach to Incompressible Fluids*. Preliminary report.
(54) **Peter Constantin**, The University of Chicago (948-35-53)
- 6:00PM *Some remarks on the post War contributions of Jean Leray*.
(55) **Pierre Cartier**, IHES (948-01-196)

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

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

Organizers: **Eric M. Friedlander**, Northwestern University

Susan J. Friedlander, University of Illinois, Chicago

- 5:00PM *Spectral Sequence*.
(56) **Haynes R Miller**, MIT (948-55-103)
- 5:30PM *The Cohomological Dimension of Function Fields*.
(57) **John Tate**, University of Texas at Austin (948-14-136)

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

4:00 PM – 6:50 PM 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

- 4:00PM *Stability of the Solution with Respect to the Boundary*.
(58) **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*.
(59) **Michael P Marder**, University of Texas at Austin (948-76-341)
- 5:00PM *Stability of instability for the two dimensional Euler equations*.
(60) **Susan Friedlander**, U of Illinois-Chicago (948-35-72)

- 5:30PM (61) *The renormalization group method. Application to a slightly compressible fluid model.*
Ioana Moise*, University of Texas at Austin, and **Mohammed Ziane**, Texas A&M University (948-35-33)
- 6:00PM (62) *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 (63) *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 – 6:50 PM Room 6.124, Robert Lee Moore Hall

Organizers: **Wayne Lewis**, Texas Tech University
Carl Seaquist, Texas Tech University

- 4:00PM (64) *Minimal trees.* Preliminary report.
Krystyna M. Kuperberg* and **Wlodzimierz Kuperberg**, Auburn University (948-54-68)
- 4:30PM (65) *The Hahn-Mazurkiewicz Theorem: A characterization.* Preliminary report.
Dale B Daniel, Lamar University, **Jacek Nikiel**, American University of Beirut, **L Bruce Treybig***, Texas A&M University, and **H Murat Tuncali**, Nipissing University (948-54-295)
- 5:00PM (66) *On strongly monotone mappings.*
Janusz J Charatonik, Universidad Nacional Autonoma de Mexico and University of Wroclaw (948-54-118)
- 5:30PM (67) *Concerning the Role of Local Separating Points of Decomposition Spaces in the Hahn-Mazurkiewicz Theorem.*
Dale Daniel, Lamar University (948-54-216)
- 6:00PM (68) *A Tale of Six Atriodic Tree-like Continua.*
W. T. Ingram, University of Missouri – Rolla (948-54-133)
- 6:30PM (69) *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 (70) *Safe states of subshifts of finite type are not so powerful.* Preliminary report.
Robert M Burton*, Oregon State University, and **Arthur Robinson**, George Washington University (948-37-179)
- 4:30PM (71) *Expansive homeomorphisms of solenoids and generalizations thereof.*
Alex D Clark, University of North Texas (948-58-112)
- 5:00PM (72) *Minimal sets.* Preliminary report.
Krystyna M Kuperberg, Auburn University (948-58-107)
- 5:30PM (73) *Uniformly perfect analytic and conformal attractor sets.*
Rich L Stankewitz, Texas A&M University (948-30-91)

- 6:00PM (74) *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 (75) *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 (76) *Non reflexive subspaces of duals of C^* -algebras.* Preliminary report.
Narcisse J Randrianantoanina, Miami University (948-46-296)
- 9:00AM (77) *Uniform duality of the weak essential norm.*
Hans-Olav J Tylli, University of Helsinki (948-46-200)
- 9:30AM (78) *A separable space with no Schauder decomposition.*
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 (79) *Dual Banach spaces which contain an isometric copy of L_1 .*
S. J Dilworth, **Maria Girardi***, University of South Carolina, and **James N Hagler**, University of Denver (948-46-276)
- 10:30AM (80) *Daugavet property of Banach spaces.* Preliminary report.
Roman Shvidkoy, University of Missouri (948-46-138)
- 11:00AM (81) *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)

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 Seaquist, Texas Tech University

- 8:30AM Irreducible Whitney levels. Preliminary report.
▶ (82) **Włodzimirz J Charatonik**, University of Missouri-Rolla (948-54-292)
- 9:00AM Joinable Continua-An Application of Inverse Limits.
(83) **William S Mahavier**, Emory University (948-54-205)
- 9:30AM Applications of Topology to Medicine. Preliminary report.
▶ (84) **Beverly L Brechner**, University of Florida, Gainesville, Florida (948-54-147)
- 10:00AM Expansive Homeomorphisms and Plane Continua.
(85) **Christopher G MOURON**, University of Delaware (948-54-265)
- 10:30AM Indecomposable continua having hyperspaces as cones.
(86) **Maria de Jesus Lopez**, Instituto de Matematicas, UNAM. (948-54-275)
- 11:00AM Open maps on Knaster Continua.
(87) **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 Urbanski, University of North Texas
Luca Quardo Zamboni, University of North Texas

- 8:30AM Discussion.
- 9:00AM Integral means of derivative of conformal mappings.
(88) **Alexander Volberg**, Michigan State University (948-37-352)
- 9:30AM Growing trees, laminations and the dynamics on the Julia set.
(89) **Alexander Blokh***, University of Alabama at Birmingham, and **Genadi Levin**, Hebrew University, Jerusalem, Israel (948-37-175)
- 10:00AM Dimension of quasicircles.
(90) **Stanislav K Smirnov**, KTH (Stockholm) (948-30-262)
- 10:30AM Phasetransitions for equilibrium states on subshifts.
▶ (91) **Nicolai T A Haydn**, University of Southern California (948-60-224)
- 11:00AM Attractors for graph critical rational functions.
(92) Preliminary report.
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
Ioan Mackenzie James, University of Oxford

- 9:00AM The Golden Age of Princeton Topology.
(93) **I. M. James**, University of Oxford (948-01-06)
- 10:00AM Steenrod and his students.
(94) **Franklin P Peterson**, M.I.T. (948-01-52)
- 10:30AM Topological groups vis-à-vis Lie groups.
(95) **Robert D. Edwards**, UCLA (948-22-280)
- 11:00AM Little and Haseman – early American tabulators of knots. Preliminary report.
▶ (96) **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

- 9:00AM Algorithm for optimal triangulations in scattered data representation and implementation in MatLab. Preliminary report.
(97) **Brad Dyer*** and **Don Hong**, East Tennessee State University (948-41-129)
- 9:30AM On Optimal Triangulation and Local Basis of Bivariate Spline Spaces. Preliminary report.
(98) **Don Hong**, East Tennessee State University (948-41-228)
- 10:00AM Cardinal interpolation by Gaussian radial-basis functions.
(99) **N Sivakumar**, Texas A&M University (948-41-42)
- 10:30AM Interpolants with bounded derivatives.
(100) **Tom Kunkle**, College of Charleston (948-41-218)
- 11:00AM Bivariate Polynomial Natural Spline Interpolation Algorithm with Local Basis for Scattered Data. Preliminary report.
(101) **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

- 9:00AM Rank sets of harmonic mappings.
(102) **Qing Han***, University of Notre Dame, and **Fanghua Lin**, Courant intitute (948-35-206)
- 9:30AM An application of corner comparison theorems.
(103) **John McCuan**, Georgia Tech (948-39-176)
- 10:00AM Break.
- 10:30AM Crystals in a Cone: Equilibrium Shapes in the Plane.
▶ (104) Preliminary report.
Robert J McCann*, University of Toronto, and **Felix Otto**, University of California at Santa Barbara (948-73-236)
- 11:00AM Gamma limits of Ginzburg-Landau functionals.
(105) **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

Catherine Sulem, University of Toronto

- 9:00AM *Time-dependent solutions of the Benjamin Equation.*
 ▶ (106) Preliminary report.
Juan Mario Restrepo*, University of Arizona, and **James Hyman**, Los Alamos National Laboratory (948-35-223)
- 9:30AM *Time-Evolving Interfaces in Viscous Flows.*
 (107) **Mary Catherine A Kropinski**, Simon Fraser University (948-76-269)
- 10:00AM *A New Approach to Analytic Continuation of Dirichlet-Neumann Operators Upon Boundary Variations.*
 (108) **David P Nicholls**, University of Minnesota (948-35-283)
- 10:30AM Discussion.

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

- 9:00AM *Hybrid Calibration of Interest Rate Models: Implied and Statistical.*
 (109) **Raphael Douady**, CIBC New York (948-91-324)
- 9:30AM *Comparing Stochastic Discount Factors Through Their Implied Measures.*
 (110) **Yan Jin**, Goldman, Sachs NY (948-91-325)
- 10:00AM *Stochastic Volatility Modeling, Asymptotics & Parameter Estimation.*
 (111) **Jean-Pierre Fouque**, North Carolina State University, **George Papanicolaou**, Stanford University, and **Ronnie Sircar***, University of Michigan (948-91-335)
- 10:30AM *Calibration of Financial Models.* Preliminary report.
 (112) **David Saunders**, University of Toronto (948-91-332)

Special Session on DNA Topology, II

9:00 AM – 11:20 AM Room 4.102, Robert Lee Moore Hall

Organizers: **Isabel K. Darcy**, University of Texas, Austin
Makkuni Jayaram, University of Texas, Austin

- 9:00AM *Chirality of knots and links.*
 ▶ (113) **Corinne Cerf**, Université Libre de Bruxelles, Belgium (948-57-50)
- 9:30AM *Topological Symmetry Groups of Embedded Graphs.*
 ▶ (114) **Erica L Flapan***, Pomona College, and **David L Li**, Stanford University (948-92-167)
- 10:00AM *Self-Assembling Graphs with DNA molecules.*
 ▶ (115) Preliminary report.
Nataša Jonoska, University of South Florida (948-68-143)
- 10:30AM *Characterizing DNA knots from bacteriophage P4.*
 (116) Preliminary report.
Francisco J Arsuaga*, Florida State University, **Carles Rojals**, I.B.M.B. - C.S.I.C., **Maria E Vazquez**, Florida State University, **Sonia Trigueros**, I.B.M.B. - C.S.I.C., **Joaquim Roca**, I.B.M.B. - C.S.I.C., and **De Witt L Sumners**, Florida State University (948-92-95)
- 11:00AM *Knotting under Spatial Constraints.* Preliminary report.
 ▶ (117) **Kenneth C Millett**, University of California (948-57-235)

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

- 9:00AM *Phragmen-Lindelof theorems for quasilinear elliptic partial differential equations.*
 (118) **Kirk E Lancaster**, Wichita State University (948-35-110)
- 9:30AM *Asymptotic Behavior of Minimal Surfaces Over Strips and Sectors.* Preliminary report.
 (119) **David Siegel**, University of Waterloo (948-35-226)
- 10:00AM *Equilibrium Configurations for a Floating Drop.*
 ▶ (120) Preliminary report.
Alan R Elcrat, Wichita State University (948-35-78)
- 10:30AM *Bubble Development of Known Radius from Capillary Surfaces.*
 ▶ (121) **Kevin M Hemphill**, Wichita State University (948-35-213)
- 11:00AM *Wetting barriers and local minimizers in the calculus of variations.*
 ▶ (122) **Erich Miersemann**, Leipzig University, Germany (948-49-84)

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

- 9:00AM *Foliations and group actions on S^1 and \mathbb{R} .*
 (123) **Danny Calegari**, UC Berkeley (948-57-146)
- 9:30AM *Volumes of Haken hyperbolic 3-manifolds.*
 (124) **Ian Agol**, U. C. Davis (948-57-342)
- 10:00AM *Supercrossing Number for Knots and Links.*
 ▶ (125) Preliminary report.
Colin C Adams*, Williams College, and **Sang Pakh**, University of California-Davis (948-57-145)
- 10:30AM *Abelian Subgroup Separability of Kleinian Groups and Fundamental Groups of Haken Manifolds.*
 (126) Preliminary report.
Emily Hamilton, Emory University (948-57-71)
- 11:00AM *Pseudomodular surfaces.* Preliminary report.
 (127) **Darren Long***, UC Santa Barbara, and **Alan W Reid**, UT, Austin (948-57-116)

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

- 9:00AM *High frequency behavior of the focusing nonlinear Schrödinger equation with random inhomogeneities.*
 (128) **Shi Jin***, Georgia Institute of Technology, **George Papanicolaou**, Stanford University, and **Albert Fannjiang**, University of California, Davis (948-65-07)
- 9:30AM *A High Order Discontinuous Galerkin Method for 2D Incompressible Flows.*
 (129) **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 *Maximum Entropy Closure for Nonparabolic Band Transport in Semiconductors*.
(130) **Angelo M Anile***, University of Catania, and **Vittorio Romano**, Politecnico di Bari (948-76-15)
- 10:30AM *Entropy Based Numerical Methods For Kinetic And Fluid Dynamic Semiconductor Models*.
(131) **Christian Ringhofer**, Arizona State University (948-65-21)
- 11:00AM *Relaxation, Stability and Oscillation in a Reactive Transport Model of Bioremediation*. Preliminary report.
▶ (132) **Jack Xin**, UT Texas, Austin (948-35-81)

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*.
(133) **Pierre B Schapira**, University of Paris 6 (948-32-30)
- 10:00AM *Space time decay of solutions to the Navier-Stokes equations*.
(134) **Cherif E Amrouche**, Univ. de Technologie de Compiègne, **Vivette Giraud**, Univ. Pierre et Marie Curie, **Maria E Schonbek***, University of California, and **Tomas P Schonbek**, Florida Atlantic University (948-35-123)
- 10:30AM *On the connection between the Camassa-Holm equations and turbulence theory*.
(135) **Edriss Titi**, U of California, Irvine (948-35-177)
- 11:00AM *Regularity of solutions of Navier-Stokes equations for rotating fluids*.
(136) **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.
(137) **Reese Harvey**, Rice University (948-53-128)
- 10:30AM *CR-characteristic classes and residues*.
(138) **Daniel M. Burns, Jr.**, University of Michigan (948-32-215)
- 11:00AM *The Spectral Sequence Relating Algebraic K-theory to Motivic Cohomology*.
(139) **Eric M Friedlander** and **Andrei A 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*.
(140) **Bernard D Coleman**, Rutgers University (948-76-55)

- 9:30AM *Stability and symmetry of solitary-wave solutions to model systems for long waves*.
(141) **John P. Albert***, University of Oklahoma, and **Felipe Linares**, IMPA (948-35-31)
- 10:00AM *Stability of solitary waves for a complex modified KdV system*.
(142) **Judith R. Miller**, Georgetown University (948-35-28)
- 10:30AM *Strong instability of solitary-wave solution of Boussinesq equations*. Preliminary report.
(143) **Yue Liu**, Univ. of Texas, Arlington (948-35-56)
- 11:00AM *The Boussinesq Limit of the Fermi-Pasta-Ulam Equation*.
(144) **John F Bukowski**, Juniata College (948-35-168)

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

9:00 AM – 10:50 AM Room 5.124, Robert Lee Moore Hall

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

- 9:00AM *Some recent results on "shift" theorems for elliptic problems on plane polygonal domains*.
(145) **James Bramble**, Texas A&M University (948-65-131)
- 10:00AM *Approximation theory of the p-version finite element method and spectral method in the framework of Jacobi-weighted Besov spaces*. Preliminary report.
(146) **Benqi Guo**, university of Manitoba (948-65-258)
- 10:30AM *Nonlinear subgrid upscaling of two-phase flow in porous media*.
(147) **Todd Arbogast**, Texas Institute for Computational and Applied Mathematics, The University of Texas at Austin (948-65-120)

Special Session on Aperiodic Tiling, II

9:30 AM – 11:20 AM Room 6.122, Robert Lee Moore Hall

Organizers: **Charles Radin**, University of Texas, Austin
Lorenzo Sadun, University of Texas, Austin

- 9:30AM *Diffraction of Stochastic Structures*.
▶ (148) **Michael Baake**, University of Tübingen (948-37-162)
- 10:00AM *Energy spectra and eigenstates of discrete quasiperiodic Schrödinger operators*.
(149) **Uwe Grimm**, Institut für Physik, Technische Universität Chemnitz, Germany (948-81-166)
- 10:30AM *Crystallography of Quasiperiodic Tilings*.
(150) **Ted Janssen**, University of Nijmegen (948-20-238)
- 11:00AM *Crystallography and Riemann surfaces*.
▶ (151) **Veit Elser**, Cornell University (948-06-203)

Special Session on Recent Developments in Index Theory, II

9:30 AM – 11:15 AM Room 6.126, 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*.
(152) **Jacek Brodzki***, University of Exeter, UK, and **Roger J Plymen**, Manchester University (948-46-90)
- 10:30AM *An index theorem for families of elliptic operators invariant with respect to the action of a bundle of Lie groups*.
(153) **Victor Nistor**, Penn State (948-58-126)

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

9:30 AM – 11:20 AM 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

- 9:30AM *Big Picard and trichotomy.*
 (154) **Alexandru Buium**, University of New Mexico (948-32-19)
- 10:00AM *The Contribution of the Infinite Valuations to the Radical.* Preliminary report.
 (155) **Machiel van Frankenhuysen**, University of California, Riverside (948-11-96)
- 10:30AM *Transcendental Bézout Estimates.* Preliminary report.
 (156) **Bao Qin Li**, Florida International University (948-32-242)
- 11:00AM *A geometric version of the “lemma on the logarithmic derivative”.*
 (157) **Paul Vojta**, University of California, Berkeley (948-32-222)

Invited Address

11:30 AM – 12:20 PM Room 106, Burdine Hall

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

Invited Address

2:00 PM – 2:50 PM Room 106, Burdine Hall

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

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

3:00 PM – 6:10 PM Room 7.124, Robert Lee Moore Hall

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

- 3:00PM *3-manifolds in Princeton in the 50’s and 60’s.*
 ▶ (160) **John R Stallings**, University of California, Berkeley (948-01-127)
- 4:00PM *The Harvard-Princeton connection: The development of the exact sciences in Latin America, 1942-1950.* Preliminary report.
 ▶ (161) **Eduardo L Ortiz**, Imperial College, London (UK) (948-01-117)
- 5:00PM *Algebraic Topology in Brazil.*
 (162) **Duane Randall**, Loyola University New Orleans (948-55-29)
- 5:30PM Discussion.
 (163) *The development of infinite-dimensional topology in the United States.* Preliminary report.
James E. West, Cornell Univ. (948-01-354)

Special Session on Wavelets and Approximation Theory, III

3:00 PM – 5:50 PM Room 5.122, Robert Lee Moore Hall

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

- 3:30PM *On the Hahn-Banach Operators.*
 (164) **Boris Shekhtman**, University of South Florida (948-41-244)
- 4:00PM *Constrained Optimal Location.*
 (165) **Robert Huotari**, California State Automobile Association, and **Michael P Prophet***, University of Northern Iowa (948-41-172)
- 4:30PM *An n-Dimensional Hahn-Banach Extension Theorem and Minimal Projections.* Preliminary report.
 ▶ (166) **Bruce L Chalmers**, University of California (948-41-161)
- 5:00PM *Bounding nonharmonic, nonnegative, trigonometric sums.*
 (167) **John N McDonald**, Arizona State University, and **Andrew J Siefker***, Murray State University (948-42-45)
- 5:30PM *M.I.N.D.Y. BASIC as a Data Collection.*
 (168) **Franc Dominica S Mueller**, C.F.C.T.E., Inc. (948-53-12)

Special Session on Harmonic Analysis and PDEs, III

3:00 PM – 5:20 PM 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

- 3:00PM *A Priori Estimates for Solutions of Fully Nonlinear Equations with Convex Level Set.* Preliminary report.
 (169) **Luis A Caffarelli**, University of Texas at Austin, and **Yu Yuan***, University of Texas at Austin (948-35-268)
- 3:30PM *Legendrian energy minimizers.* Preliminary report.
 (170) **Luca Capogna**, University of Arkansas (948-49-214)
- 4:00PM Break.
- 4:30PM *Existence and uniqueness in the Monge’s transport problem.*
 (171) **Mikhail Feldman**, University of Wisconsin-Madison (948-49-199)
- 5:00PM *The Gauss Curvature Flow on Rotationally Symmetric Surfaces with Flat Sides.* Preliminary report.
 (172) **Ki-ahm Lee*** and **Panagiota Daskalopoulos**, UC-Irvine (948-35-230)

Special Session on Aperiodic Tiling, III

3:00 PM – 5:50 PM Room 6.122, Robert Lee Moore Hall

Organizers: **Charles Radin**, University of Texas, Austin
Lorenzo Sadun, University of Texas, Austin

- 3:00PM *Construction of dual substitution on the stepped surface tiling.*
 (173) **Maki Furukado**, Tsuda College (948-37-83)

- 3:30PM *Tilings from stepped surfaces and dual substitutions.*
(174) **Shunji Ito**, Suda College (948-37-82)
- 4:00PM *A dynamical systems approach to the symmetry properties of aperiodic tilings.*
(175) **Arthur Robinson**, George Washington University (948-37-158)
- 4:30PM *Optimal Circle Packing in the Hyperbolic Plane.*
(176) **Lewis P Bowen**, University of Texas (948-51-188)
- 5:00PM *Non-repetitive tilings.* Preliminary report.
(177) **James Currie**, University of Winnipeg (948-52-189)
- 5:30PM *Old Open Questions: Whither the Einstein?*
(178) Preliminary report.
Chaim Goodman-Strauss, University of Arkansas (948-52-191)

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

3:00 PM – 5:50 PM Room 5.118, Robert Lee Moore Hall

- Organizers: **Edward Odell**, University of Texas, Austin
Haskell P. Rosenthal, University of Texas, Austin
- 3:30PM *A geometric inequality concerning the average Banach Mazur diameter of proportional sections symmetric convex bodies in R^n .* Preliminary report.
(179) **Piotr Mankiewicz***, Institute of Mathematics, Polish Academy of Sciences, and **Nicole Tomczak-Jaegermann**, University of Alberta, Edmonton (948-46-151)
- 4:00PM *A functional analytic approach to intersection bodies.* Preliminary report.
(180) **Alexander Koldobsky**, University of Missouri - Columbia (948-46-17)
- 4:30PM *Asymptotic uniform smoothness.* Preliminary report.
(181) **William B Johnson***, Texas A&M University, **Joram Lindenstrauss**, Hebrew University of Jerusalem, **David Preiss**, University College London, and **Gideon Schechtman**, Weizmann Institute of Science (948-46-98)
- 5:00PM *The maximal regularity problem.*
(182) **Nigel Kalton*** and **Gilles Lancien**, University of Missouri (948-46-93)
- 5:30PM *One-complemented subspaces in H_p , $1 < p < \infty$.*
(183) Preliminary report.
Beata Randrianantoanina, Miami University (948-46-297)

Special Session on Recent Developments in Index Theory, III

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

- Organizers: **Daniel S. Freed**, University of Texas, Austin
John Roe, Pennsylvania State University
- 3:00PM *Finite energy Seiberg-Witten monopoles.*
(184) **Liviu I Nicolaescu**, University of Notre Dame (948-58-240)
- 4:00PM *Combinatorial Morse Theory.*
(185) **Robin Forman**, Rice University (948-58-159)
- 5:00PM *Exact triangle in Seiberg-Witten Floer theory.*
(186) Preliminary report.
Matilde Marcolli*, MIT, and **Bai-Ling Wang**, University of Adelaide (948-57-122)

Special Session on Nonlinear Dynamics, III

3:00 PM – 5:20 PM Room 7.122, Robert Lee Moore Hall

Organizers: **Robert J. McCann**, University of Toronto
Catherine Sulem, University of Toronto

- 3:00PM *Soliton perturbations and the random Kepler problem.*
▶ (187) **Jared C Bronski***, University of Illinois Urbana-Champaign, **Fatkhulla Kh Abdullaev**, Physical/Technical Institute, Tashkent, and **George Papanicolaou**, Stanford University (948-34-314)
- 3:30PM *Optimal Transportation on Manifolds with Obstacles.* Preliminary report.
(188) **Mikhail Feldman**, University of Wisconsin, and **Robert J McCann***, University of Toronto (948-49-241)
- 4:00PM *Stability and Instability of Ginzburg-Landau Vortices.* Preliminary report.
(189) **Stephen J Gustafson**, University of Toronto (948-35-251)
- 4:30PM *On a nonlinear heat equation.*
(190) **Changfeng Gui**, University of Connecticut and University of British Columbia (948-35-46)
- 5:00PM *On a p -Laplacian Type of Evolution System Arising from Bean's Superconductivity Theory.*
(191) **Hong-Ming Yin**, Washington State University (948-35-35)

Special Session on Mathematical and Computational Finance, III

3:00 PM – 5:45 PM Room 7.104, Robert Lee Moore Hall

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

- 3:00PM *New Ways to Price Options: Unleashing the Power of PDEs.*
(192) **Curt Randall**, SciComp, Inc. (948-91-331)
- 3:30PM *A new integral representation of the early exercise boundary for American Put Options.* Preliminary report.
(193) **Chunli Hou**, PriceWaterhouseCoopers, **Thomas D Little*** and **Vijay Pant**, PriceWaterHouseCoopers (948-91-329)
- 4:00PM *A PDE method for Computing Moments.*
(194) **Thomas D Little** and **Vijay Pant***, PriceWaterHouseCoopers (948-91-330)
- 4:30PM *On the Robustness of Option Pricing.*
(195) **Thomas Schlumprecht**, Texas A&M University (948-60-256)
- 5:00PM *Options on a Traded Account.*
(196) **Steven E. Shreve*** and **Jan Vecer**, Carnegie Mellon University (948-60-38)

Special Session on DNA Topology, III

3:00 PM – 6:20 PM Room 4.102, Robert Lee Moore Hall

Organizers: **Isabel K. Darcy**, University of Texas, Austin
Makkuni Jayaram, University of Texas, Austin

- 3:00PM *Introduction to DNA Recombination.*
▶ (197) **De Witt Sumners**, Florida State University (948-92-349)
- 3:30PM *Topology of Xer recombination at ψ .* Preliminary report.
(198) **Sean D Colloms**, University of Oxford (948-92-284)

- 4:00PM *Tangle Analysis of Xer Site-Specific Recombination.* Preliminary report.
(199) **Maria Elena Vazquez*** and **De Witt Summers**, Florida State University (948-92-88)
- 4:30PM *DNA Structure and Topology in FLP Site-specific Recombination.*
▶ (200) **Stephen D Levene*** and **Kenneth E Huffman**, University of Texas at Dallas (948-92-273)
- 5:00PM *Topological investigations of Flp site-specific recombination.*
(201) **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.
(202) **David MJ Lilley***, **Jon M Fogg** and **Mark Schofield**, University of Dundee (948-92-130)
- 6:00PM *The Double Helix Knot.* Preliminary report.
▶ (203) **Louis H Kauffman**, Univ of Illinois at Chicago (948-57-97)

Special Session on Free Surface Interfaces and PDEs, II

3:00 PM – 6:20 PM Room 7.112, Robert Lee Moore Hall

- Organizers: **Kirk Lancaster**, Wichita State University
Thomas Vogel, Texas A&M University
- 3:00PM *C-singular solutions of the capillary problem.*
(204) **Robert Finn***, Stanford University, and **Robert W Neel**, Universität Leipzig (948-35-150)
- 3:30PM *Uniqueness of the singular solution to the capillary equation.*
(205) **Radoslav P Nickolov**, Stanford University (948-35-183)
- 4:00PM *Instability of non-spherical liquid bridges.*
▶ (206) **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.*
(207) **Maria Athanassenas**, Monash University (948-35-234)
- 5:00PM *Sufficient Conditions for Capillary Surfaces to be Energy Minima.*
(208) **Thomas I Vogel**, Texas A&M University (948-53-163)
- 5:30PM *Constant mean curvature surfaces of annular type.* Preliminary report.
(209) **Henry C Wente**, University of Toledo (948-49-27)
- 6:00PM *A general variational method for crystalline triple junction motion.*
(210) **Jean Taylor**, Rutgers University (948-49-355)

Special Session on Dehn Surgery and Kleinian Groups, III

3:00 PM – 5:50 PM 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.
(211) **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.
(212) **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.
(213) **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 $SL_2(\mathbb{C})$ -character variety of 3-manifolds.* Preliminary report.
(214) **Steven P Boyer**, UQAM (948-57-281)
- 5:00PM *Boundary slopes of immersed surfaces in 3-manifolds.*
(215) **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.*
(216) **Steve Kerckhoff***, Stanford University, and **Craig Hodgson**, University of Melbourne (948-53-303)

Special Session on Mathematical Problems in Transport Phenomena, III

3:00 PM – 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.*
▶ (217) **Paul Nelson*** and **Alexandros Sopaskis**, Texas A&M University (948-76-13)
- 3:30PM *Kinetic formulation for system of two conservation laws.*
(218) **Benoit Perthame**, ENS-Ulm, and **Athanasios Tzavaras***, Univ. of Wisconsin (948-35-16)
- 4:00PM *Inviscid limits of the complex Ginzburg-Landau equation.*
(219) **Ansgar Jungel**, TU Berlin (948-35-25)
- 4:30PM *Strong uncertainty principle and stability of fronts.*
(220) **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 Schrodinger Equations for charged particle transport.*
(221) **Norbert J. Mauser**, Univ. of Vienna and Courant Institute (948-81-60)
- 5:30PM *Derivation of Fokker-Planck type equations from coupled quantum oscillators.*
(222) **Francois Castella**, University of Rennes, France, **Laszlo Erdos***, Georgia Tech, Atlanta, **Florian Fromlet**, Technical University of Berlin, Germany, and **Peter Markowich**, University of Vienna, Austria (948-81-18)
- 6:00PM *Self-consistent quantum-diffusion models.*
(223) **Anton Arnold**, TU-Berlin, MA 6-2 (948-35-09)
- 6:30PM *Magnetically created instability in a collisionless plasma.*
(224) **Walter Strauss**, Brown University (948-35-356)

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

3:00 PM – 5:50 PM Room 7.116, Robert Lee Moore Hall

- Organizers: **Eric M. Friedlander**, Northwestern University
Susan J. Friedlander, University of Illinois, Chicago
- 4:00PM *The damping of fluid motion.*
(225) **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.*
(226) **Jindrich Necas**, Northern Illinois U. (948-35-75)

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 (B)

3:00 PM – 4:50 PM **Room 7.118, Robert Lee Moore Hall**

Organizers: **Eric M. Friedlander**, Northwestern University
Susan J. Friedlander, University of Illinois, Chicago

- 4:00PM *Jean Leray's work on spectral sequences.*
(229) **Douglas C Ravenel**, University of Rochester (948-01-99)
- 4:30PM *Weight filtrations in K-theory.*
(230) **Daniel R Grayson**, University of Illinois at Urbana-Champaign (948-19-142)

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

3:00 PM – 5:20 PM **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

- 3:00PM *Flows of an ideal incompressible fluid with unbounded vorticity.* Preliminary report.
(231) **Misha Vishik**, University of Texas at Austin (948-35-306)
- 3:30PM *Numerical simulation of circulation and transport in shallow water systems.*
(232) **Clint Dawson**, University of Texas at Austin (948-65-51)
- 4:00PM *Mixed Finite Element Methods on Non-Matching Multiblock Grids.*
(233) **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.*
(234) **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.*
▶ (235) **Yuefei Wang**, Institute of Mathematics, Academia Sinica, PRC (948-30-66)

- 3:30PM *On Cartan's Conjecture and the moving target problem.*
(236) **Pit-Mann Wong**, University of Notre Dame (948-32-290)
- 4:00PM *The Radon transform and holomorphic curves in Abelian varieties.*
(237) **Ryoichi Kobayashi**, Nagoya University (948-32-132)
- 4:30PM Break.
- 5:00PM *p-coverings and geometric height inequalities.* Preliminary report.
(238) **Minhyong Kim**, University of Arizona (948-11-225)
- 5:30PM *The truncated second main theorem over higher dimensional function fields of arbitrary characteristic.* Preliminary report.
(239) **Julie Tzu-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 6.124, Robert Lee Moore Hall**

Organizers: **Wayne Lewis**, Texas Tech University
Carl Seaquist, Texas Tech University

- 3:00PM *Preservation of properties of continua by refinable maps.*
(240) **Eldon J Vought**, California State University, Chico (948-54-282)
- 3:30PM *Higher-dimensional hereditarily indecomposable continua.*
(241) **James T Rogers, Jr.**, Tulane University (948-54-217)
- 4:00PM *Non-hereditarily indecomposable local Siegel disk boundaries.* Preliminary report.
(242) **Andrew O Maner**, University of Alabama at Birmingham (948-54-252)
- 4:30PM *Circle-like continua with small rotations.*
(243) **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.
(244) **Lex G Oversteegen***, UAB, **Robbert Fokkink**, TuDelft, and **John C Mayer**, UAB (948-54-310)
- 5:30PM *Locally Connected Continua and Images of Arcs.*
(245) **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 Quardo Zamboni, University of North Texas

- 3:30PM *Numerical calculation of the decay of correlations in particle systems.* Preliminary report.
▶ (246) **Marek R Rychlik**, University of Arizona (948-37-350)
- 4:00PM *Gaussian Thermostats, Lorentz Gas and Differential Geometry.* Preliminary report.
(247) **Maciej P. Wojtkowski**, University of Arizona (948-58-41)
- 4:30PM *A Dani Theorem for the Teichmüller Horocycle Flow.*
(248) **William A Veech**, Rice University (948-37-198)
- 5:00PM *Periodic billiard orbits for a simple family of polygons.* Preliminary report.
▶ (249) **Eugene Gutkin**, University of Southern California (948-37-197)

- 5:30PM *Perturbations of piecewise rotations*. Preliminary report. (250)
 ► **Arek Goetz**, San Francisco State University (948-58-327)
- 6:00PM Discussion.

8:30PM Roundtable discussion.

Sunday, October 10

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

- 3:00 PM – 4:50 PM **Room 5.124, Robert Lee Moore Hall**
 Organizer: **J. Tinsley Oden**, University of Texas, Austin
- 3:00PM *Local discontinuous Galerkin methods for contaminant transport*. (251)
Clint Dawson, Texas Institute for Computational & Applied Mathematics, The University of Texas at Austin (948-65-119)
- 3:30PM *Locally Conservative Discretizations on Non-matching Grids*. (252)
Raytcho Lazarov*, Texas A&M University, **Joseph Pasciak** and **P. Vassilevski**, Texas A&M University (948-65-121)
- 4:00PM *A Fully Automatic hp-Adaptivity for Maxwell Equations. Is it Possible?* (253)
Leszek Demkowicz, TICAM, The University of Texas at Austin (948-65-243)
- 4:30PM *Finite Element Approximation of a Linearized Buckling Model*. (254)
Manil Suri, University of Maryland Baltimore County (948-65-288)

Session for Contributed Papers

- 3:00 PM – 4:40 PM **Room 5.112, Robert Lee Moore Hall**
- 3:00PM *Global solutions for a class of nonlinear dispersive and dissipative equations via semigroups*. Preliminary report. (255)
Radu C Cascaval, University of Memphis (948-35-317)
- 3:15PM *On the geometry of the free boundary of the one-phase Stefan problem*. (256)
Marianne K Korten, University of Louisville (948-35-54)
- 3:30PM *Regularity of solutions to the perturbed conservation laws*. (257)
Yudi Soeharyadi* and **Jerome A Goldstein**, The University of Memphis (948-35-300)
- 3:45PM *A time dependent model for the transport of heavy pollutants from ground-level aerial sources*. (258)
Ismail Taqi Ali, Kuwait University (948-35-01)
- 4:00PM *General Formulas for Solving Solvable Sextic Equations*. (259)
 ► **Thomas R Hagedorn**, Centre de Recherche Mathematique (948-12-34)
- 4:15PM *Braid representatives of links in 3-manifolds*. (260)
Gretchen Wright, Bronx Community College, CUNY (948-57-301)
- 4:30PM *The Asymptotic Expansion and Numerical Verification of Van der Pol's Equation*. Preliminary report. (261)
 ► **Deeba Elias** and **Shishen S Xie***, University of Houston-Downtown (948-41-316)

Special Session on Aperiodic Tiling, IV

- 8:30 PM – 9:30 PM **Room 6.122, Robert Lee Moore Hall**
 Organizers: **Charles Radin**, University of Texas, Austin
Lorenzo Sadun, University of Texas, Austin

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
- 10:00AM *Index Theory of Toeplitz Operators on Transformation Group C^* -algebras*. Preliminary report. (263)
Efton Park, Texas Christian University (948-47-32)
- 11:00AM *Coarse obstructions to positive scalar curvature metrics in noncompact quotients of symmetric spaces*. Preliminary report. (264)
Stanley S Chang, Rice University (948-19-207)
- NOON *C^* -algebraic index theory and finite asymptotic dimension*. Preliminary report. (265)
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
- 10:00AM *Wavelets for Compression of Terrain Data*. Preliminary report. (266)
Ratan Guha, **Rajkumar Madhuram** and **R. N Mohapatra***, University of Central Florida (948-41-339)
- 10:30AM *Semi-orthogonal Spline Wavelet Packets for Homogeneous Sobolev Spaces on a Bounded Interval*. (267)
Jianzhong Wang, Sam Houston State University (948-41-249)
- 11:00AM *Digitized PDE method for data restoration*. (268)
 ► **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
- 10:00AM *Rotating the unit ball of l_1^n* . (269)
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.)

- 10:30AM (270) *Constructing isomorphic ℓ_1 -preduals*. Preliminary report.
Dale E. Alspach, Oklahoma State University (948-46-259)
- 11:00AM (271) *Ramsey dichotomies and ordinal indices*.
Vassiliki A Farmaki, University of Athens, Greece (948-05-48)
- 11:30AM (272) *Unconditional structures of weakly null sequences*.
Spiros A Argyros, University of Athens, and **Ioannis Gasparis***, Oklahoma State University (948-46-65)
- NOON (273) *A remark on polynomials in several variables*. Preliminary report.
Petr Hajek, Texas A&M University (948-46-263)
- 12:30PM (274) *On the scalar plus compact problem*. Preliminary report.
Thomas Schlumprecht* and **George Androulakis**, Texas A&M University (948-46-253)
- 1:00PM (275) *Subsymmetric sequences in Schlumprecht's space*. Preliminary report.
George Androulakis* and **Thomas Schlumprecht**, Texas A&M University (948-46-257)

Special Session on Mathematical and Computational Finance, IV

- 10:00 AM – 12:20 PM Room 7.104, Robert Lee Moore Hall**
 Organizer: **Stathis Tompaidis**, University of Texas, Austin
- 10:00AM (276) *Risk Management in Non-gaussian markets*. Preliminary report.
Luis Seco, University of Toronto (948-91-334)
- 10:30AM (277) *Stratified Sampling and Quasi Monte Carlo Methods to Measure Portfolio Risk*.
Alex Kreinin*, **Leonid Merkoullovitch**, **Dan Rosen** and **Michael Zerbs**, Algorithmics, Inc. (948-91-326)
- 11:00AM (278) *Affine stochastic models for energy prices*. Preliminary report.
Mihaela Manoliu, Caminus LLC/Zai*Net Analytics (948-90-229)
- 11:30AM (279) *Uncertain Growth Prospects, Estimation Risk, and Asset Prices*.
Hong Yan, University of Texas at Austin (948-91-345)
- NOON (280) *Equity options with Monte Carlo methods: calibration and variance reduction*.
Claudio Albanese, University of Toronto (948-91-337)

Special Session on DNA Topology, IV

- 10:00 AM – 1:30 PM Room 4.102, Robert Lee Moore Hall**
 Organizers: **Isabel K. Darcy**, University of Texas, Austin
Makkuni Jayaram, University of Texas, Austin
- 10:00AM (281) *Simplification of DNA Topology by Type II Topoisomerases*.
Alexander V Vologodskii, New York University (948-92-293)
- 11:00AM (282) *A three DNA-segment recognition model of type II topoisomerases*.
Joaquim Roca, IBMB - CSIC, Barcelona, Spain (948-92-102)
- 11:30AM (283) *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 (284) *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)
- 12:30PM 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
- 10:00AM (285) *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)
- 10:30AM (286) *Gauss map omissions of minimal surfaces*. Preliminary report.
Helen Moore, Stanford University/Bowdoin College (948-53-302)
- 11:00AM (287) *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)
- 11:30AM (288) *Dirac's Equation and Prescribing Mean Curvature*.
George I Kamberov, Washington University in St. Louis (948-53-299)
- NOON (289) *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
- 10:00AM (290) *Finiteness of (Heegaard splittings for atoroidal 3-manifolds)*.
William H Jaco*, Oklahoma State University, and **Joachim H Rubinstein**, University of Melbourne (948-57-210)
- 10:30AM (291) *Heegaard genus and separating incompressible surfaces*.
Martin G Scharlemann, UCSB, and **Jennifer C Schultens***, Emory University (948-57-201)
- 11:00AM (292) *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)
- 11:30AM (293) *Seifert surfaces and disk decompositions*.
Mark W Brittenham, University of North Texas (948-57-211)
- NOON (294) *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

- 10:00AM (295) *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)
- 10:30AM (296) *Entropy dissipation methods in kinetic theory.*
Cedric Villani, ENS, DMI (948-35-23)
- 11:00AM (297) *Acoustic and Stokes Limits for the Boltzmann Equation.*
C. David Levermore, The University of Arizona, (948-82-109)
- 11:30AM (298) *Some geometric mechanisms for transport in classical dynamical systems.*
Rafael de la Llave, Univ. of Texas at Austin (948-35-11)
- NOON (299) *Hamiltonian Description of Vlasov Dynamics: Action-Angle Variables for the Continuous Spectrum.*
Philip J Morrison, University of Texas at Austin (948-82-62)
- 12:30PM (300) *Asymmetric Quasiperiodic 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)

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

10:00 AM – 1:20 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

- 10:00AM (301) *Simultaneous approximation in positive characteristic.*
Wolfgang M Schmidt, University of Colorado at Boulder (948-11-174)
- 10:30AM (302) *Stability of base loci of linear series.* Preliminary report.
Michael Nakamaye, University of New Mexico (948-14-173)
- 11:00AM (303) *On Lang's Geometric Conjecture for Surfaces of General Type.*
Cong X Kang, American University (948-14-87)
- 11:30AM (304) *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)
- NOON Break.
- 12:30PM (305) *A uniform bound for the number of solutions to some Thue equations.* Preliminary report.
Thomas J Tucker, University of Georgia (948-11-212)

- 1:00PM (306) *Quadratic points on some Fermat curves.* Preliminary report.
Pavlos Tzermias, University of Arizona (948-11-227)

Special Session on Topology of Continua, IV

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

Organizers: **Wayne Lewis**, Texas Tech University
Carl Seaquist, Texas Tech University

- 10:00AM (307) *On C_n -Determined Continua.*
Sergio Maías, Universidad Nacional Autonoma de Mexico (948-54-37)
- 10:30AM (308) *Spans of Spaces Contained in a Convex Disc Cross an Arc.*
Thelma R West, University of Southwestern Louisiana (948-54-108)
- 11:00AM (309) *On open retractions of the pseudo-arc.* Preliminary report.
Janusz R. Prajs, Texas Tech University, Lubbock, Texas (948-54-135)
- 11:30AM (310) *Concerning Continua that are Irreducible about Finitely Many Points.*
David J Ryden, University of Missouri - Rolla (948-54-157)
- NOON (311) *Unions of shore sets in dendroids.*
Alejandro Illanes, Universidad Nacional Autonoma de Mexico (948-54-320)

Special Session on Dynamical Systems, IV

10:00 AM – 12:20 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

- 10:00AM (312) *The Eckmann-Ruelle conjecture – the past, present, and future.*
Yakov B Pesin, Penn State University (948-37-279)
- 11:00AM (313) *Asymptotic Measures in Dissipative Systems.*
Sheldon E Newhouse, Michigan State University (948-37-171)
- 11:30AM (314) *Positive entropy for the Standard map.*
Oliver R Knill, University of Texas (948-58-170)
- NOON (315) *Smooth Rigidity of Conformal Anosov systems in higher dimensions.*
Rafael de la Llave, U. Texas at Austin (948-37-64)

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

- 10:00AM (316) *Numerical modeling of photonic crystals.*
Joseph E Pasciak* and **David C Dobson**, Texas A&M University (948-65-124)
- 10:30AM (317) *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)
- NOON *Finite Volume Element Methods for Fluid Flow.*
(320) **Richard E. Ewing***, **Raytcho Lazarov** and **Yanping Lin**, Texas A&M University, College Station, Texas (948-65-89)

Susan J. Friedlander
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