
Program of the Sessions

Los Angeles, California, August 6-12, 2000

Sunday, August 6

Meeting Registration

2:00 PM – 5:00 PM Outside Ticket Booth, Royce Hall
For pickup of advance registration packets only.

MAA Invited Address

4:00 PM – 5:00 PM Auditorium, Royce Hall
(1) *Mathematics in the 21st century: Problems and prospects.*
Ronald L. Graham, University of California at San Diego

Opening Ceremonies and Reception

5:15 PM – 8:00 PM Auditorium, Royce Hall

Monday, August 7

Meeting Registration

8:00 AM – 4:30 PM Room 132, Royce Hall

Book Sales and Exhibits

8:00 AM – 4:30 PM West Lobby, Royce Hall

Invited Address

8:30 AM – 9:30 AM Auditorium, Royce Hall
(2) *Unsolved problems of fluid mechanics.*
Charles L. Fefferman, Princeton University

Invited Address

10:00 AM – 11:00 AM Auditorium, Royce Hall
(3) *Modeling perception and inference in intelligent systems.*
David Mumford, Brown University

Session on Optimization

11:15 AM – 11:55 AM Room 160, Royce Hall
11:15AM *Extremum criteria in Neoclassical Analysis.*
▶ (4) Preliminary report.
Mark S. Burgin, University of California, Los Angeles, CA 90095 (956-49-96)
11:30AM *Substationarity of the non-Lipschitz energy for an eigenvalue problem in Hemivariational Inequalities.*
(5) Preliminary report.
Marian Bocea, Carnegie Mellon University (956-49-134)
11:45AM *A study in the space of functions of bounded variation of a denoising-deblurring variational problem.*
(6) **Luminita A Vese**, University of California, Los Angeles (956-49-144)

Session on Number Theory, I

11:15 AM – 11:55 AM Room 162, Royce Hall
11:15AM *Finte order elements of Hecke groups.* Preliminary report.
▶ (7) **Abdul Hassen**, Rowan University (956-11-36)
11:30AM *Results Concerning Cyclotomic Swan Subgroups.*
(8) **Daniel R Replogle**, College of Saint Elizabeth (956-11-51)
11:45AM *Local L-factors for the symplectic group of order four.*
(9) **Ramin Takloo-Bighash**, Johns Hopkins University (956-11-103)

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 21, Issue 3 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.

Session on Geometry

- 12:45 PM – 1:40 PM **Room 164, Royce Hall**
- 12:45PM (10) *The Duistermaat-Heckman integration formula on generalized flag manifolds via a Morse theoretic approach.*
Andreas T Arvanitoyeorgos, The American College of Greece (956-53-90)
- 1:00PM (11) *Tubes and the geometry of Kahler manifold.*
Christina C Beneki, University of Patras (956-53-93)
- 1:15PM (12) *Exotic Spaces in Quantum Gravity.*
Kristin Schleich* and **Donald M Witt**, University of British Columbia (956-53-124)
- 1:30PM (13) *Closing some gaps in the basic development of hyperbolic geometry.*
Dieter Ruoff, University of Regina, Regina, Canada (956-51-49)

Session on Mathematics Education

- 12:45 PM – 1:40 PM **Room 160, Royce Hall**
- 12:45PM (14) *On mathematical learning: Application to learning generally.* Preliminary report.
Danielle Mihram, University of Southern California, and **G. Arthur Mihram***, Princeton, NJ (956-97-120)
- 1:00PM (15) *Keeping mathematics unified in the 21st century.*
M. Anne Dow, Maharishi University of Management (956-97-140)
- 1:15PM (16) *Some Activities Connecting Geometry, Probability, and Regression.* Preliminary report.
Gie-Whan D Kim*, Southren Oregon University, and **Sungsook Kim**, PaiChai University (956-97-115)
- 1:30PM (17) *Use of Worksheets to Facilitate Understanding.* Preliminary report.
Carol E Fan, Loyola Marymount University (956-97-80)

Session on Associative Rings and Algebras

- 12:45 PM – 1:40 PM **Room 162, Royce Hall**
- 12:45PM (18) *On the structure of certain rings with conditions on potent and noncentral elements.*
Hazar M Abu-Khuzam, Beirut Lebanon (956-16-64)
- 1:00PM (19) *Determinants and inversion of Gram matrices and expansions of the energy operator in the Fock representation of the multiparametric CCR-algebras.* Preliminary report.
Dragutin Svrtn*, Department of Mathematics , University of Zagreb, Bijenicka c.30 ,10000Zagreb, Croatia, and **Stjepan Meljanac**, Rudjer Boskovic Institute (956-16-146)
- 1:15PM (20) *Index of Lie algebras and associative algebras.* Preliminary report.
Vladimir Dergachev, University of Pennsylvania (956-16-127)
- 1:30PM (21) *The algebra of multiple zeta values.* Preliminary report.
Michael E Hoffman, U. S. Naval Academy (956-16-119)

Invited Address

- 2:00 PM – 3:00 PM **Auditorium, Royce Hall**
- (22) *Geometry and its relation to physics.*
Shing-Tung Yau, Harvard University

Invited Address

- 3:15 PM – 4:15 PM **Auditorium, Royce Hall**
- (23) *Recent progress in algebraic combinatorics.*
Richard P. Stanley, Massachusetts Institute of Technology

Invited Address

- 4:30 PM – 5:30 PM **Auditorium, Royce Hall**
- (24) *Geometric partial differential equations: From Hilbert's 23rd Problem to nonlinear waves.*
Karen Uhlenbeck, University of Texas at Austin

UCLA Department of Mathematics Reception

- 5:30 PM – 7:30 PM **Department of Mathematics Building, UCLA**

AWM Special Presentation

- 8:00 PM – 9:00 PM **Grand Horizon Ballroom, Covell Commons at Sunset Village**
- Demographic trends and challenges for mathematics.*
 Presenter: **Carolyn R. Mahoney**, California State University, San Marcos

AWM Reception

- 9:00 PM – 10:30 PM **Grand Horizon Ballroom Terrace, Covell Commons at Sunset Village**

Tuesday, August 8

Meeting Registration

- 8:00 AM – 4:30 PM **Room 132, Royce Hall**

Book Sales and Exhibits

- 8:00 AM – 4:30 PM **West Lobby, Royce Hall**

Invited Address

- 8:30 AM – 9:30 AM **Auditorium, Royce Hall**
- (25) *Bliss and ignorance in 4-dimensions.*
Clifford Taubes, Harvard University

Invited Address

- 10:00 AM – 11:00 AM **Auditorium, Royce Hall**
- (26) *High-dimensional data analysis: The blessings and curses of dimensionality.*
David L. Donoho, Stanford University

Session on Mechanics of Solids

- 11:15 AM – 11:55 AM **Room 164, Royce Hall**
- 11:15AM (27) *A Circular Inclusion with Homogeneously Imperfect Interface in Anti-plane Shear Elasticity.*
Peter Schiavone, University of Alberta, Edmonton, Canada (956-74-53)
- 11:30AM (28) *Aerodynamics of a moving curveball in Navier-Stokes flow.*
Joey Huang, Oak Ridge National Laboratory (956-76-32)

- 11:45AM (29) *A scaling analysis of turbulent flows driven by Rayleigh-Taylor and Richtmyer-Meshkov instabilities.*
Ye Zhou, Univ. of California, LLNL (956-76-122)

Session on Low-Dimensional Topology

11:15 AM – 11:55 AM Room 160, Royce Hall

- 11:15AM (30) *Three weight systems arising from intersection graphs.*
Blake Mellor, Honors College, Florida Atlantic University (956-57-60)
- 11:30AM (31) *Solving oriented tangle equations involving 2-bridge knots and links.*
Isabel K Darcy, University of Texas at Dallas (956-57-123)
- 11:45AM (32) *Convergence and Collapse of Three Manifolds in General Relativity.*
Arthur E Fischer*, University of California, Santa Cruz, and **Vincent Moncrief**, Yale University (956-83-116)

Session on Probability Theory and Stochastic Processes

12:45 PM – 1:40 PM Room 160, Royce Hall

- 12:45PM (33) *Extreme value theory in reinsurance.* Preliminary report.
Nicholas E. Frangos*, Athens University of Economics and Hofstra University, and **John Stamoulis**, Athens University of Economics (956-60-111)
- 1:00PM (34) *Asymptotic Theory of Noncentered Mixing Stochastic Differential Equations.* Preliminary report.
Jeong-Hoon Kim, Yonsei University (956-60-104)
- 1:15PM (35) *On the pointwise central limit theorem for strongly mixing and associated random variables.* Preliminary report.
Khurelbaatar Gonchigdanzan, University of Cincinnati (956-60-34)
- 1:30PM (36) *When does a stochastic process have sample paths in a given RKHS?* Preliminary report.
Jay H. Beder*, University of Wisconsin – Milwaukee, and **Milan N. Lukić**, Viterbo College (956-60-108)

Session on Number Theory, II

12:45 PM – 1:40 PM Room 162, Royce Hall

- 12:45PM (37) *The system of diophantine equations $XYZW = X + Y + Z + W = 1$ over finite fields.*
T. Venkatesh, Karnataka University (956-11-38)
- 1:00PM (38) *Restricted divisor sums and the class number $h(-p)$ of binary quadratic fields.*
Kevin A Broughan, University of Waikato (956-11-126)
- 1:15PM (39) *How the Langlands Program is Prefigured and Mirrored in the "Onsager Program" of Mathematical Statistical Mechanics.* Preliminary report.
Martin H Krieger, University of Southern California (956-11-68)
- 1:30PM (40) *Covering collections and a challenge problem of Serre.*
E. Victor Flynn, University of Liverpool, and **Joseph L Wetherell***, University of Southern California (956-11-142)

Invited Address

- 2:00 PM – 3:00 PM Auditorium, Royce Hall
- (41) *The interplay between analysis and topology in some nonlinear PDEs.*
Haim Brezis, University of Paris VI and Rutgers University

Invited Address

- 3:15 PM – 4:15 PM Auditorium, Royce Hall
- (42) *Quantum computation and modular functors.*
Michael H. Freedman, Microsoft Research

Invited Address

- 4:30 PM – 5:30 PM Auditorium, Royce Hall
- (43) *Quantum computation.*
Peter W. Shor, AT&T Labs

Southern California Barbecue

6:00 PM – 9:30 PM Courtside Lawn, Covell Commons at Sunset Village

Wednesday, August 9

Meeting Registration

8:00 AM – 3:00 PM Room 132, Royce Hall

Book Sales and Exhibits

8:00 AM – 3:00 PM West Lobby, Royce Hall

Invited Address

- 8:30 AM – 9:30 AM Auditorium, Royce Hall
- (44) *On the analysis of geometric evolution equations.*
Sergiu Klainerman, Princeton University

Invited Address

- 10:00 AM – 11:00 AM Auditorium, Royce Hall
- (45) *From renormalization in dynamics to renormalization in probability and statistical physics.*
Yakov G. Sinai, Princeton University

Session on Quantum Theory, I

11:15 AM – 11:55 AM Room 162, Royce Hall

- 11:15AM (46) *Nonlinear Maxwell Theory and Electrons in Two Dimensions.*
Artur Sowa, Yale University (956-81-33)
- 11:30AM (47) *Fractality and Fractional Quantum Mechanics.*
Nick Laskin, Carleton University (956-81-117)
- 11:45AM (48) *Log dimensional of properties spectral measures.* Preliminary report.
Michael D Landrigan, UC Irvine (956-81-145)

Session on Applications to Natural Sciences

11:15 AM – 11:55 AM Room 164, Royce Hall

- 11:15AM (49) *The Topology of Brain Systems.* Preliminary report.
William C Hoffman, Institute for Topological Psychology (956-92-61)

- 11:30AM *Wavelet Analysis of Image Registration.*
 ► (50) **Ivo D Dinov***, Department of Neurology, UCLA,
Michael S Mega, Alzheimer's Disease Center, UCLA,
 and **Arthur W Toga**, Department of Neurology,
 UCLA (956-92-74)
- 11:45AM *Computational grand challenges associated with
 (51) combinatorial models of intra-cellular signaling
 transduction networks.*
Joseph S Oliveira, Pacific Northwest National
 Laboratory (956-92-143)

Session on Algebraic Geometry

- 11:15 AM – 11:55 AM **Room 160, Royce Hall**
- 11:15AM *The chiral ring of Calabi-Yau hypersurfaces in toric
 (52) varieties.*
Anvar R Mavlyutov, University of Massachusetts
 at Amherst and Clay Mathematics Institute
 (956-14-139)
- 11:30AM *Some new analysis on the K-trivial extremal
 (53) contractions of smooth threefolds.* Preliminary
 report.
Csilla Tamás, Purdue University (956-14-129)
- 11:45AM *Jacobian Conjectures: Injectivity and Dynamical
 (54) Systems.*
Marc A Chamberland, Grinnell College (956-14-91)

Session on Partial Differential Equations, I

- 12:45 PM – 1:40 PM **Room 160, Royce Hall**
- 12:45PM *On some quasilinear singular Schrödinger
 (55) equations.*
Horst R Lange, University of Cologne, Germany
 (956-35-78)
- 1:00PM *Singular limit of some degenerate parabolic
 (56) equations.*
Kin Ming Hui, Institute of Mathematics, Academia
 Sinica, Taipei, Taiwan (956-35-45)
- 1:15PM *Dirichlet and Neumann problems with singular
 (57) boundary.* Preliminary report.
Alberto S Dubson, I.A.M. Buenos Aires, Argentina
 (956-35-148)
- 1:30PM *Free Boundary Problems for the Unsteady Transonic
 (58) Small Disturbance Equation: Transonic Regular
 Reflection.*
Suncica Canic, **Barbara L Kefitz** and **Eun Heui
 Kim***, University of Houston (956-35-65)

Session on Geometry and Global Analysis

- 12:45 PM – 1:40 PM **Room 162, Royce Hall**
- 12:45PM *Shape invariants of nonsmooth surfaces.*
 ► (59) **George I Kamberov**, Stevens Inst of Technology
 (956-53-147)
- 1:00PM *A global construction of the CP^2 quantum
 (60) cohomology Frobenius manifold.* Preliminary report.
Jan Segert, University of Missouri (956-53-39)
- 1:15PM *Random Riemann surfaces.* Preliminary report.
 ► (61) **Robert Brooks**, Technion - Israel Institute of
 Technology, and **Eran Makover***, Dartmouth
 College (956-58-137)
- 1:30PM *A new proof of the Smale Conjecture.*
 (62) **Kristin A Schleich** and **Donald M Witt***, University
 of British Columbia (956-58-131)

Invited Address

- 2:00 PM – 3:00 PM **Auditorium, Royce Hall**
- (63) *Algorithmic challenges from genomics and
 molecular biology.*
Richard M. Karp, International Computing Science
 Institute

Invited Address

- 3:15 PM – 4:15 PM **Auditorium, Royce Hall**
- (64) *Mathematics and materials science.*
Jean E. Taylor, Rutgers University

Invited Address

- 4:30 PM – 5:30 PM **Auditorium, Royce Hall**
- (65) *String topology.*
Dennis P. Sullivan, The CUNY Graduate School

Thursday, August 10

Meeting Registration

- 8:00 AM – 3:00 PM **Room 132, Royce Hall**

Book Sales and Exhibits

- 8:00 AM – 3:00 PM **West Lobby, Royce Hall**

Invited Address

- 8:30 AM – 9:30 AM **Auditorium, Royce Hall**
- (66) *The principle of functoriality.*
James G. Arthur, University of Toronto

Invited Address

- 10:00 AM – 11:00 AM **Auditorium, Royce Hall**
- (67) *The mathematical impact of quantum fields and
 strings.*
Edward Witten, Institute for Advanced Study

Session on Quantum Theory, II

- 11:15 AM – 11:55 AM **Room 160, Royce Hall**
- 11:15AM *XIII Hilbert Problem and Quantum Mechanics.*
 (68) **Ladislav G Andrey**, Academy of Sciences, Prague
 (956-81-97)
- 11:30AM *Deformation quantization and Poisson sigma
 (69) models.*
Alberto S Cattaneo*, Zurich University, Switzerland,
 and **Giovanni Felder**, ETH Zurich, Switzerland
 (956-81-110)
- 11:45AM *String theory and quantum computation: A link?*
 (70) Preliminary report.
Karl-Georg Schlesinger, University of Wuppertal
 (956-81-79)

Session on Logic and Foundations

- 11:15 AM – 11:40 AM **Room 162, Royce Hall**
- 11:15AM *The Aset Theory and Its Implications to the
 ► (71) Foundations of Mathematics.* Preliminary report.
Andrew C Angus, Absolute Math Foundation
 (956-03-52)

- 11:30AM Forcing for hd and hL.
(72) **Andrzej Roslanowski***, University of Nebraska at Omaha, and **Saharon Shelah**, Hebrew University of Jerusalem (956-03-109)

Session on Computer Science

11:15 AM – 11:40 AM Room 164, Royce Hall

- 11:15AM Applying molecular computation to construct unbreakable cryptosystems. Preliminary report.
(73) **Ponnammal Natarajan*** and **Anbarasu Sivalingam**, Anna University, India (956-68-83)
- 11:30AM Evidential paradigm: A current state. Preliminary report.
(74) **Alexander V. Lyaletski***, Cybernetics Department, Taras Shevchenko University of Kyiv, and **Marina K. Morokhovets**, Digital Automata Theory Department, Glushkov Institute of Cybernetics (956-68-132)

Session on Partial Differential Equations, II

12:30 PM – 1:40 PM Room 160, Royce Hall

- 12:30PM Three Symmetric Positive Solutions for Lidstone Problems By a Generalization of the Leggett-Williams Theorem.
(75) **Richard I Avery**, Dakota State University, **John M Davis***, Baylor University, and **Johnny Henderson**, Auburn University (956-34-112)
- 12:45PM Canonical Dual Transformation Method for Solving Fully Nonlinear PDEs with Applications in Nonconvex Hamilton Systems.
(76) **David Y Gao**, Virginia Tech (956-35-54)
- 1:00PM Animal coat patterns and the Turing instability. Preliminary report.
(77) **Evelyn Sander***, George Mason University, and **Thomas Wanner**, University of Maryland, Baltimore County (956-35-94)
- 1:15PM Critical exponent for a nonlinear wave equation with damping.
(78) **Grozdena Todorova***, University of Minnesota, and **Borislav Yordanov**, University of Wisconsin - Milwaukee (956-35-102)
- 1:30PM On the L^1 -Well-posedness of Systems of Conservation Laws Near Solutions Containing two Large Shocks.
(79) **Marta Lewicka**, SISSA, Italy, and **Konstantina Trivisa***, Northwestern University (956-35-114)

Session on Complex Variables

12:30 PM – 1:40 PM Room 162, Royce Hall

- 12:30PM Quasiconformal Mappings in Loewner Space.
(80) **Ai-Nong Fang*** and **Zemin Wu**, Shanghai Jiao Tong University (956-30-98)
- 12:45PM Jørgensen groups of parabolic type. Preliminary report.
(81) **Sato Hiroki**, Dept. of Mathematics, Faculty of Science, Shizuoka University, Ohya 836, Shizuoka 422-8529, Japan (956-30-89)
- 1:00PM Symplectic and Szegő Forms on the Moduli Space of Connections on Rank Two Bundles. Preliminary report.
(82) **David J Pinchbeck**, Saint Joseph's College (956-30-113)
- 1:15PM An inequality for the norm of a polynomial factor.
▶ (83) **Igor E Pritsker**, Oklahoma State University (956-30-72)
- 1:30PM Circle Packings and Earthquakes.
(84) **G. Brock Williams**, Texas Tech University (956-30-118)

Session on Fluid Mechanics

12:45 PM – 1:40 PM Room 164, Royce Hall

- 12:45PM Affine Kac-Moody superalgebras: Involutive automorphisms and Iwasawa decompositions.
(85) **Dayanand Parashar**, University of Delhi (956-22-48)
- 1:00PM Equivariant semi-algebraic embeddings.
(86) **Dae Heui Park*** and **Dong Youp Suh**, Korea Advanced Inst. of Science and Tech. (956-22-133)
- 1:15PM An NP-complete Algebraic Question (The Finite Algebra Membership Problem for Varieties).
(87) **Zoltan Szekely**, Gallaudet University (956-06-106)
- 1:30PM A Group Theoretic Approach to Filter Banks, Preliminary report. Preliminary report.
(88) **Hamid R Behamrd**, Wetern Oregon University (956-94-76)

Invited Address

2:00 PM – 3:00 PM Auditorium, Royce Hall

- (89) *Mathematics and computing.*
Peter D. Lax, Courant Institute, New York University

Invited Address

3:15 PM – 4:15 PM Auditorium, Royce Hall

- (90) *Logical dreams.*
Saharon Shelah, The Hebrew University and Rutgers University

Invited Address

4:30 PM – 5:30 PM Auditorium, Royce Hall

- (91) *Three-dimensional topology and geometry.*
William P. Thurston, University of California - Davis

Hollywood Bowl Concert

6:45 PM – 10:30 PM Shuttle pickup at the bottom of Covel Commons stairs

"Thunder and Lightning" featuring the music of Beethoven and Tchaikovsky.

Friday, August 11

Meeting Registration

8:00 AM – 3:00 PM Room 132, Royce Hall

Book Sales and Exhibits

8:00 AM – 3:00 PM West Lobby, Royce Hall

Invited Address

8:30 AM – 9:30 AM Auditorium, Royce Hall

- (92) *On the Geometric Langlands Conjecture.*
Alexander A. Beilinson, University of Chicago

Invited Address

10:00 AM – 11:00 AM Auditorium, Royce Hall

- (93) *Dynamical systems at the interface of symplectic geometry and three-dimensional topology.*
Helmut H. W. Hofer, New York University - Courant Institute

Session on Groups and Modules

11:15 AM – 11:55 AM Room 160, Royce Hall

- 11:15AM (94) *Cotensor products of modules.*
Lowell Abrams* and **Charles Weibel**, Rutgers University (956-18-85)
- 11:30AM (95) *On an Equivalence of Fuzzy Subgroups.* Preliminary report.
▶ **Venkateswaran Murali***, Rhodes University, and **Babington B Makamba**, Fort Hare University (956-20-84)
- 11:45AM (96) *Integrability of infinite dimensional Lie algebras: new result - challenge and perspective.*
Thierry P Robart, Howard University (956-20-95)

Session on Statistics, Approximations and Sequences

11:15 AM – 11:55 AM Room 162, Royce Hall

- 11:15AM (97) *Consistency and limiting distribution of M-estimators in two-phase linear regression models.*
Hira L Koul, Michigan State University, **Lianfen Qian***, Florida Atlantic University, and **Donatas Surgailis**, Institute of Mathematics & Informatics (956-62-121)
- 11:30AM (98) *Isotonic Good Approximation in $L_p[0, 1]$.*
Salem A. Sahab, Abdul-Aziz University (956-41-46)
- 11:45AM (99) *Four Dimensional Characterization of Rates of Convergence for Double Sequences.* Preliminary report.
Richard F Patterson, University of North Florida (956-40-57)

Session on Combinatorics

11:15 AM – 11:40 AM Room 164, Royce Hall

- 11:15AM (100) *Conjugacy graphs.*
Harold Bowman and **Michelle Schultz***, University of Nevada Las Vegas (956-05-135)
- 11:30AM (101) *Homogeneous weights and finite Frobenius rings.* Preliminary report.
▶ **Stefan E Schmidt**, MIT (956-05-136)

Session on Numerical Analysis

12:30 PM – 1:40 PM Room 162, Royce Hall

- 12:30PM (102) *Embedded Additive Runge-Kutta Methods.*
Ali M.S. Sayfy, American University of Sharjah (956-65-69)
- 12:45PM (103) *Numerical validation of linear and nonlinear complimentary problems.*
Goetz E Alefeld*, Institut fuer Angewandte Mathematik, Universitaet Karlsruhe, **Florian Potra**, Department of Mathematics, University of Maryland, and **Xiaojun Chen**, Department of Mthematics and Computer Science, Shimane University, Matsue, Japan (956-65-130)
- 1:00PM (104) *A scalable parallel algorithm for solving time dependent PDEs.*
Wilson Rivera, **Jianping Zhu*** and **David Huddleston**, Mississippi State University (956-65-141)
- 1:15PM (105) *Approximate Solution of the ODE for a Model Neuron* Preliminary report.
▶ **Stanley R Lenihan**, Del Norte Research & Development (956-65-55)
- 1:30PM (106) *A Boundary Condition Capturing Method for Poisson's Equation on Irregular Domains.*
▶ **Xu-Dong Liu***, UCSB, **Ronald Fedkiw** and **Myungjoo Kang**, UCLA (956-65-125)

Session on Integration, Integral Equations and Functional Analysis

12:45 PM – 1:40 PM Room 160, Royce Hall

- 12:30PM (107) *$L^\varphi(\mu)$ -Averaging Domains.* Preliminary report.
Shusen Ding, Seattle University (956-28-92)
- 12:45PM (108) *Anisotropic Hardy Spaces.*
Marcin Bownik, Washington University (956-42-107)
- 1:00PM (109) *The Special Class of Volterra Integral Equations of The First Kind: Theory, Numerical Methods and Applications.*
Anatoly S. Apartsyn, **Eugenia V. Markova**, Malent'ev Institute of Energy Systems of Russian Academy of Sciences, Irkutsk, Russia, and **Denis N. Sidorov***, Malent'ev Institute of Energy Systems of Russian Academy of Sciences, Irkutsk, RUSSIA (956-45-50)
- 1:15PM (110) *Generalized Shifts On Banach Spaces.* Preliminary report.
Rajagopalan Minakshisundarm, Tennessee State University, and **Kondagunta Sundaresan***, Cleveland State University (956-46-105)
- 1:30PM (111) *C^* -algebras of higher dimensional shifts.* Preliminary report.
Valentin Deaconu, University of Nevada, Reno (956-46-138)

Invited Address

2:00 PM – 3:00 PM Auditorium, Royce Hall

- (112) *Some problems in number theory and related analysis.*
Peter Sarnak, Princeton University

Invited Address

3:15 PM – 4:15 PM Auditorium, Royce Hall

- (113) *Stochastic analysis and applications.*
S. R. S. Varadhan, Courant Institute, New York University

Invited Address

4:30 PM – 5:30 PM Auditorium, Royce Hall

- (114) *Classical mathematics and new challenges.*
László Lovász, Microsoft Research

Saturday, August 12

Meeting Registration

8:00 AM – NOON Room 132, Royce Hall

Book Sales and Exhibits

8:00 AM – NOON West Lobby, Royce Hall

Invited Address

8:30 AM – 9:30 AM Auditorium, Royce Hall

- (115) *Wave asymptotics and borderland physics.*
Michael V. Berry, University of Bristol

Invited Address

10:00 AM – 11:00 AM Auditorium, Royce Hall

- (116) *Ecosystems as complex adaptive systems.*
Simon A. Levin, Princeton University

Invited Address

2:00 PM – 3:00 PM Auditorium, Royce Hall

- (117) *Nnumber theory: modular forms.*
Don B. Zagier, Max-Planck Institut für Mathematik

Invited Address

3:15 PM – 4:15 PM Auditorium, Royce Hall

- (118) *Operads of little discs in algebra and topology.*
Maxim Kontsevich, Institut des Hautes Etudes
Scientifiques

Invited Address

4:30 PM – 5:30 PM Auditorium, Royce Hall

- (119) *Noncommutative geometry.*
Alain Connes, IHES and College de France

Millennium Banquet

6:30 PM – 10:00 PM Grand Horizon Ballroom,
Covel Commons at Sunset Village

Robert J. Daverman
Associate Secretary
Knoxville, Tennessee