

Special Session on Microlocal Analysis and Applications, I

8:20 AM – 10:50 AM Room 237, Orson Spencer Hall

Organizers: **Gunther Uhlmann**, University of Washington
Maciej Zworski, University of California, Berkeley

- 8:20AM *To be announced.*
 (13) **Richard B. Melrose**, Massachusetts Institute of Technology (946-35-130)
- 9:00AM *Wave Equations with Low Regularity Coefficients.*
 (14) **Hart F Smith**, University of Washington, Seattle (946-35-82)
- 9:40AM *Sharp Spectral Asymptotics for Operators with Non-Smooth Coefficients.*
 (15) **Victor Ivrii**, University of Toronto (946-35-32)
- 10:20AM *Existence of resonances for metric perturbation of the Euclidean Laplacian in even dimensional spaces.*
 (16) Preliminary report.
Siu-Hung Tang, University of California, Berkeley (946-35-107)

Special Session on Ergodic Theory of Stochastic Processes, I

8:30 AM – 10:20 AM Room 233, Orson Spencer Hall

Organizers: **Stewart N. Ethier**, University of Utah
Davar Khoshnevisan, University of Utah

- 8:30AM *Monotonicity of conditional distributions and growth models on trees.*
 (17) **Thomas M Liggett**, UCLA (946-60-45)
- 9:00AM *Random Walks on Stochastic Sceneries.* Preliminary report.
 (18) **David A Levin**, University of Connecticut (946-60-89)
- 9:30AM *Joint Large Deviations for Additive Functionals of Harris Recurrent Markov Chains.* Preliminary report.
 (19) **Xia Chen**, University of Utah (946-60-85)
- 10:00AM *Random logistic maps.*
 (20) **Krishna B Athreya**, Iowa State University (946-60-84)

Special Session on Ergodic and Number Theory, I

8:30 AM – 10:50 AM Room 234, Orson Spencer Hall

Organizers: **Robert Burton**, Oregon State University
Thomas Schmidt, Oregon State University

- 8:30AM *Geodesics on Riemann Surfaces with Ramification Points of Order Greater than 2.* Preliminary report.
 (21) **Mark Sheingorn**, CUNY - Baruch (946-30-42)
- 9:00AM *Veech groups and polygonal coverings.*
 (22) **Pascal Hubert**, Institut de Mathématiques de Luminy, and **Thomas A Schmidt***, Oregon State University (946-30-115)
- 9:30AM *Geodesic flow on nonpositively curved length spaces.* Preliminary report.
 (23) **Christopher M Judge**, Indiana University (946-37-77)
- 10:00AM *Periodic and singular geodesics on flat surfaces, with applications to billiards.* Preliminary report.
 (24) **Eugene Gutkin**, University of Southern California (946-37-97)
- 10:30AM *A tessellation associated to a quadratic differential.*
 (25) Preliminary report.
William A Veech, Rice University (946-37-61)

Special Session on Arithmetical Algebraic Geometry, I

9:00 AM – 10:50 AM Room 231, Orson Spencer Hall

Organizers: **Minhyong Kim**, University of Arizona
Wieslawa Niziol, University of Utah

- 9:00AM *The Brauer-Manin Obstruction for 0-cycles of degree 1.* Preliminary report.
 (26) **Victor Scharaschkin**, University of Southern California (946-11-14)
- 9:30AM *A conjecture of Milne and its applications.*
 (27) Preliminary report.
Adrian Vasiu, University of Utah, Salt Lake City (946-14-43)
- 10:00AM *On the crystalline cohomology of Frobenius-split varieties.*
 (28) **Kirti Joshi**, University of Arizona (946-14-119)
- 10:30AM *Distribution of almost division points.*
 (29) **Shou-Wu Zhang**, Columbia University (946-11-62)

Special Session on Numerical Methods for Partial Differential Equations, I

9:00 AM – 10:50 AM Room 235, Orson Spencer Hall

Organizers: **Benito Chen**, Institute for Scientific Study, University of Wyoming
Junping Wang, Institute for Scientific Study, University of Wyoming

- 9:00AM *Large Finite Volume Element Methods in Porous Media Flow.*
 (30) **Richard E Ewing***, ISC, Texas A&M University, **Raytcho Lazarov** and **Yanping Lin**, Texas A&M University (946-35-88)
- 9:30AM *Development of an adaptive mixed finite element simulator for coupled geomechanics and fluid flow problems.*
 (31) **Hongsen Chen**, University of Wyoming (946-35-113)
- 10:00AM *The Sinc-Galerkin Method for Differential Equations with an Application to Oceanography.*
 (32) **Kenneth L Bowers***, Montana State University, **Donald F Winter**, Department of Physics, University of Redlands, and **John Lund**, Montana State University (946-35-94)
- 10:30AM *Numerical Simulation Of Biofilm Growth at the Pore Scale.*
 (33) **Benito M Chen*** and **Yaqing Li**, University of Wyoming (946-35-90)

Invited Address

11:10 AM – NOON Saltair Room, Union Building

- (34) *Continued Fraction Algorithms: Dynamics, Convergence, and Stochastics.* Preliminary report.
Robert M. Burton, Oregon State University (946-11-129)

Invited Address

1:30 PM – 2:20 PM Saltair Room, Union Building

- (35) *Harmonic Maps to R-Trees.*
Richard A Wentworth, University of California, Irvine (946-58-78)

Special Session on Complex Variables and Operator Theory, II

3:00 PM – 6:20 PM Room 236, Orson Spencer Hall

Organizers: **Siqi Fu**, University of Wyoming
Farhad Jafari, University of Wyoming

- Peter Polyakov**, University of Wyoming
- 3:00PM *Commutators on harmonic Bergman spaces.*
(36) **Zhijian Wu**, University of Alabama (946-47-75)
- 3:30PM *A Beurling-Lax-Halmos Theorem for N.P. Kernels.*
(37) Preliminary report.
Tavan T Trent*, University of Alabama, and **Scott A McCollough**, University of Florida (946-47-66)
- 4:00PM *Regularity of the Szegő projection for non-smooth planar domains.* Preliminary report.
(38) **Loredana Lanzani***, University of Arkansas, and **Elias Stein**, Princeton University (946-30-79)
- (39) *Extending holomorphic functions of infinitely many variables.* Preliminary report.
Laszlo Lempert, Purdue University (946-46-127)
- 5:00PM *Hermitian metric with constant holomorphic sectional curvature on a convex domain.* Preliminary report.
(40) **Wing-Sum Cheung**, University of Hong Kong, and **Bun Wong***, University of California, Riverside (946-32-99)
- 5:30PM *Some nonlinear representations of the Lorentz group by holomorphic automorphisms of a Lie ball.* Preliminary report.
(41) **Yaakov Friedman**, Jerusalem College of Technology, and **Bernard Russo***, University of California, Irvine (946-32-103)
- 6:00PM *A Transformation formula for the Bergman kernel functions.*
(42) **Siqi Fu**, The University of Wyoming (946-32-59)

Special Session on Arithmetical Algebraic Geometry, II

3:00 PM – 4:50 PM Room 231, Orson Spencer Hall

Organizers: **Minhyong Kim**, University of Arizona
Wieslawa Niziol, University of Utah

- 3:00PM *Singularities of the height strata in the moduli of K3 surfaces.* Preliminary report.
(43) **Arthur E Ogus**, University of California, Berkeley (946-14-109)
- 3:30PM *The Hodge-Arakelov Theory of Elliptic Curves.*
(44) **Shinichi Mochizuki**, Research Institute for Mathematical Sciences, Kyoto University (946-11-37)
- 4:00PM *Differential modular forms.* Preliminary report.
(45) **Alexandru Buium**, University of New Mexico (946-11-10)
- 4:30PM *Mixed Tate motives and a conjecture of Hain.*
(46) Preliminary report.
Norman P Levin, University of Minnesota (946-14-76)

Special Session on Commutative Algebra, II

3:00 PM – 5:20 PM Room 232, Orson Spencer Hall

Organizers: **Paul Roberts**, University of Utah
Roger Wiegand, University of Nebraska

- 3:00PM *An Alternative Definition of Serre's Intersection Multiplicity.*
(47) **C-Y. Jean Chan**, University of Utah (946-13-68)
- 3:30PM *Vanishing of (co)homology over local rings.*
(48) **David A Jorgensen**, University of Texas at Arlington (946-13-41)
- 4:00PM *Boundedness of local cohomology for graded affine algebras.*
(49) **Adela N Vraciu**, University of Michigan (946-13-36)
- 4:30PM *Multiplicities and Localization (preliminary report).*
(50) Preliminary report.
Sean M Sather-Wagstaff, University of Utah (946-13-30)

- 5:00PM *Absolute, relative, and stable cohomology of modules of finite G-dimension.* Preliminary report.
(51) **Luchezar L Avramov***, Purdue University, and **Alex Martsinkovsky**, Northeastern University (946-16-102)

Special Session on Ergodic Theory of Stochastic Processes, II

3:00 PM – 5:20 PM Room 233, Orson Spencer Hall

Organizers: **Stewart N. Ethier**, University of Utah
Davar Khoshnevisan, University of Utah

- 3:00PM *Langevin diffusions and their applications in MCMC.*
(52) **Richard L Tweedie**, University of Minnesota (946-60-56)
- 3:30PM *Analysis of Fluid Models for Processor Sharing Queues.*
(53) **Amber L Puha***, California State University San Marcos, and **Ruth J Williams**, University of California San Diego (946-60-24)
- 4:00PM *Brownian Bubbles and Local Time of the Brownian Sheet.* Preliminary report.
(54) **Thomas S Mountford**, UCLA (946-60-86)
- 4:30PM *Discrete spectrum of nonstationary stochastic processes on groups.*
(55) **Leonid G. Hanin***, Idaho State University, and **Bertram M. Schreiber**, Wayne State University (946-60-40)
- 5:00PM *Representations and limits for functionals of stochastic processes.*
(56) **S. Borovkova**, **Robert M Burton***, Oregon State University, and **H. Dehling** (946-60-121)

Special Session on Microlocal Analysis and Applications, II

3:00 PM – 6:10 PM Room 237, Orson Spencer Hall

Organizers: **Gunther Uhlmann**, University of Washington
Maciej Zworski, University of California, Berkeley

- 3:00PM *Semi-classical resolvent estimates for trapping perturbations.*
(57) **Vesselin Petkov**, Universite de Bordeaux I (946-81-49)
- 3:40PM *Recovering asymptotics of some perturbations from fixed energy scattering data.* Preliminary report.
(58) **Tanya J Christiansen***, University of Missouri, and **Mark S Joshi**, NatWest, London, England (946-35-87)
- 4:20PM *Characteristic Strichartz Estimates.*
(59) **Allan Greenleaf***, University of Rochester, and **Gunther Uhlmann**, University of Washington (946-35-83)
- 5:00PM *Lower bound of the number of Rayleigh resonances.*
(60) **Plamen Stefanov**, East Carolina University (946-35-46)
- 5:40PM *Inverse Scattering on Asymptotically Hyperbolic Spaces.*
(61) **Antônio C Sá Barreto***, Purdue University, and **Mark S Joshi**, University of Cambridge (946-35-44)

Special Session on Numerical Methods for Partial Differential Equations, II

3:00 PM – 5:50 PM Room 235, Orson Spencer Hall

Organizers: **Benito Chen**, Institute for Scientific Study, University of Wyoming

- Junping Wang**, Institute for Scientific Study, University of Wyoming
- 3:00PM (62) *A Numerical Study of Fluid Mixing in Multiphase Flows in Heterogeneous Porous Media.*
Frederico Furtado, University of Wyoming (946-35-112)
- 3:30PM (63) *A Family of Numerical Methods for Stiffly Forced Conservation Laws.*
C Hillyard, University of Arizona, and **J Koebbe***, Utah State University (946-35-105)
- 4:00PM (64) *Models of low-speed flow for near-critical fluids.*
Diane L Denny, University of Wyoming (946-35-106)
- 4:30PM (65) *Multigrid Method and High Order Compact Scheme for Solving Boundary Layer Problems on Nonuniform Grids.*
Ge Lixin and **Jun Zhang***, University of Kentucky (946-65-111)
- 5:00PM (66) *Mixed finite element methods for variational inequalities.*
Hong Huang, Texas A&M, **Junping Wang*** and **Yongjun Yang**, University of Wyoming (946-35-122)
- 5:30PM (67) *Mass conservation and long time error control.* Preliminary report.
Tong Sun, Texas A&M University (946-35-126)

- 3:45PM (76) *New ternary quasi cyclic codes and improvements on minimum distances.*
Irfan Siap, **Nuh Aydin***, The Ohio State University, and **Dijen K. Ray-Chaudhuri**, The Ohio State University (946-05-12)
- 4:00PM (77) *A Theory of Resultant of Diophantine Equations.*
Kau U Lu, California State University, Long Beach (946-11-28)
- 4:15PM (78) *Random Sperner Systems.* Preliminary report.
Michelle K Bylund*, Brigham Young University, **Jayadev S Athreya**, Iowa State University, **Anant P Godbole**, Michigan Technological University, and **Jessica Maia**, Washington University (946-60-116)
- 4:30PM (79) *Dominance of geometry over algebraic elegance.* Preliminary report.
Gunwon Lee, Seoul National University (946-00-25)
- 4:45PM (80) *A Brief History and Discussion on the Calculus.*
L. F. M. York, CFCTE, Inc. (946-03-06)

Sunday, September 26

Meeting Registration

8:00 AM – NOON outside Saltair and Collegiate Rooms, Union Building

Special Session on Ergodic and Number Theory, II

3:00 PM – 5:20 PM Room 234, Orson Spencer Hall

Organizers: **Robert Burton**, Oregon State University
Thomas Schmidt, Oregon State University

- 3:00PM (68) *The mother of all continued fractions.*
Karma Dajani*, Universiteit Utrecht, and **Cor Kraaikamp**, TUDelft (946-28-120)
- 3:30PM (69) *Mixing Measures Achieve Nearly Maximal Entropy in \mathbb{Z}^d Shifts of Finite Type with Uniform Filling.* Preliminary report.
E. Arthur Robinson, Jr., George Washington University, and **Ayse A Sahin***, North Dakota State University (946-37-91)
- 4:00PM (70) *Subshifts of a higher-dimensional shift of finite type.*
Anthony N Quas* and **Paul B Trow**, University of Memphis (946-58-98)
- 4:30PM (71) *L^q densities and q -dimensions.* Preliminary report.
Mariusz Urbanski, University of North Texas (946-37-48)
- 5:00PM (72) *On the convergence of series of translates of measurable functions.*
Zoltan Buczolich, Eotvos Lorand University, **Jean-Pierre Kahane**, Université de Paris-Sud, and **R. Daniel Mauldin***, University of North Texas (946-28-128)

General Session

3:00 PM – 4:55 PM Room 209, Orson Spencer Hall

- 3:00PM (73) *Sphere of Influence Graphs and the L_∞ -Metric.*
Thomas Quint*, University of Nevada at Reno, and **T S Michael**, United States Naval Academy (946-05-13)
- 3:15PM (74) *Notions of stability for one dimensional dynamical systems.*
T H Steele, Weber State University (946-26-26)
- 3:30PM (75) *New quasi cyclic linear codes over \mathbb{F}_5 and improvements on bounds.*
Irfan Siap* and **Dijen K. Ray-Chaudhuri**, The Ohio State University (946-05-05)

Special Session on Complex Variables and Operator Theory, III

8:00 AM – 10:50 AM Room 236, Orson Spencer Hall

Organizers: **Siqi Fu**, University of Wyoming
Farhad Jafari, University of Wyoming
Peter Polyakov, University of Wyoming

- 8:00AM (81) *Sharp Lipschitz estimates for operator $\bar{\partial}_b$.*
Peter L Polyakov, University of Wyoming (946-32-58)
- 8:30AM (82) *Compactness in the $\bar{\partial}$ -Neumann problem.* Preliminary report.
Siqi Fu, University of Wyoming, and **Emil J Straube***, Texas A&M University (946-32-74)
- 9:00AM (83) *The heat kernel for $\bar{\partial}_b^* \bar{\partial}_b$ on domains of finite type in \mathbb{C}^2 .* Preliminary report.
Alexander J Nagel, University of Wisconsin-Madison (946-32-53)
- 9:30AM (84) *Mappings between balls.* Preliminary report.
Xiaojun Huang, Rutgers University (946-32-73)
- 10:00AM (85) *Bohr's power series theorem in the unit ball of $\ell_p(\mathbb{C}^n)$.* Preliminary report.
Harold P Boas, Texas A&M University (946-32-27)
- 10:30AM (86) *Conformal maps and non-reversibility of elliptic area-preserving maps.*
Xianghong Gong, Oklahoma State University (946-58-31)

Special Session on Commutative Algebra, III

8:00 AM – 10:50 AM Room 232, Orson Spencer Hall

Organizers: **Paul Roberts**, University of Utah
Roger Wiegand, University of Nebraska

- 8:00AM (87) *Free extensions of prime power order.*
Daniel Katz, University of Kansas (946-13-92)
- 8:30AM (88) *Prime ideals in two-dimensional domains.*
Serpil Saydam, Northeast Louisiana State University, and **Sylvia M Wiegand***, University of Nebraska (946-13-60)

- 9:00AM *Behavior of tight closure under flat maps with Gorenstein fibers.* Preliminary report.
(89) **Ian M Aberbach**, University of Missouri (946-13-35)
- 9:30AM *Gorenstein Modules.* Preliminary report.
(90) **Graham J Leuschke**, University of Nebraska-Lincoln (946-13-52)
- 10:00AM *F-Rational Rings and Flat Base Change.* Preliminary report.
(91) **Florian Enescu**, University of Mathematics (946-13-23)
- 10:30AM *Local-Global duality for finitely generated modules over Artin rings.* Preliminary report.
(92) **Ruth I Michler**, University of North Texas (946-13-15)

AMS Exhibit and Book Sale

8:00 AM – NOON Collegiate Room, Union Building

Special Session on Microlocal Analysis and Applications, III

8:20 AM – 10:50 AM Room 237, Orson Spencer Hall

- Organizers: **Gunther Uhlmann**, University of Washington
Maciej Zworski, University of California, Berkeley
- 8:20AM *Hearing the shape of an analytic drum with the symmetries of an ellipse.* Preliminary report.
(93) **Steve Zelditch**, Johns Hopkins University (946-35-95)
- 9:00AM *Generalized geodesic flow and inverse scattering by obstacles.*
▶ (94) **Luchezar N Stoyanov**, University of Western Australia (946-35-81)
- 9:40AM *Microlocal analysis in the service of harmonic analysis, and vice-versa.*
(95) **Michael E Taylor**, University of North Carolina (946-35-69)
- 10:20AM *Propagation of singularities and structure of the scattering matrices in many-body scattering in the presence of bound states.* Preliminary report.
(96) **Andras Vasy**, UC Berkeley (946-35-51)

Special Session on Arithmetical Algebraic Geometry, III

9:00 AM – 10:50 AM Room 231, Orson Spencer Hall

- Organizers: **Minhyong Kim**, University of Arizona
Wieslawa Nizioł, University of Utah
- 9:00AM *Frobenius and monodromy operators on de Rham cohomology of crystals on semistable curves via degeneration.* Preliminary report.
(97) **Adrian Iovita**, University of Washington (946-11-38)
- 9:30AM *On the supersingular locus of Hilbert-Blumenthal modular varieties.*
(98) **Chia-Fu Yu**, Columbia University (946-11-72)
- 10:00AM *Tate-Linear Subvarieties and Density of Hecke Orbits.* Preliminary report.
(99) **Ching-Li Chai**, University of Pennsylvania (946-14-63)
- 10:30AM *Monodromy in families of abelian varieties.* Preliminary report.
(100) **Jeffrey D Achter**, University of Massachusetts, Amherst (946-14-57)

Invited Address

11:10 AM – NOON Saltair Room, Union Building

- (101) *Resonances in chaotic scattering.*
Maciej Zworski, University of California, Berkeley (946-35-17)

Invited Address

1:30 PM – 2:20 PM Saltair Room, Union Building

- (102) *Monodromy of Schwarzian equations on Riemann surfaces, holomorphic bundles and dynamics of the mapping class group on character varieties.* Preliminary report.
Michael Kapovich, University of Utah (946-30-104)

Special Session on Complex Variables and Operator Theory, IV

3:00 PM – 4:50 PM Room 236, Orson Spencer Hall

Organizers: **Siqi Fu**, University of Wyoming
Farhad Jafari, University of Wyoming
Peter Polyakov, University of Wyoming

- 3:00PM *New results for The Logvinenko-Sereda Theorem.* Preliminary report.
(103) **Oleg Kovrijkine**, California Institute of Technology (946-42-80)
- 3:30PM *Composition operators on analytic Lipschitz spaces of the unit ball.* Preliminary report.
(104) **Dana D. Clahane**, University of California, Irvine (946-47-125)
- 4:00PM *Rational approximation of analytic functions of a finite generalized order.*
(105) **Vasiliy Prokhorov**, University of South Alabama (946-30-117)
- 4:30PM *Computation and Application of Operator Cosine.* Preliminary report.
(106) **Morteza Seddighin**, Texas A&M University-Texarkana (946-15-07)

Special Session on Arithmetical Algebraic Geometry, IV

3:00 PM – 4:20 PM Room 231, Orson Spencer Hall

Organizers: **Minhyong Kim**, University of Arizona
Wieslawa Nizioł, University of Utah

- 3:00PM *Moduli Spaces of Curves with Marked Points which are of General Type.*
(107) **Adam M Logan**, MSRI (946-14-101)
- 3:30PM *Fundamental Groups of Curves.* Preliminary report.
(108) **Katherine F Stevenson**, Caltech (946-14-114)
- 4:00PM *L-functions of p-adic lisse sheaves.*
(109) **Mathew Emerton**, University of Michigan (946-14-131)

Special Session on Commutative Algebra, IV

3:00 PM – 5:50 PM Room 232, Orson Spencer Hall

Organizers: **Paul Roberts**, University of Utah
Roger Wiegand, University of Nebraska

- 3:00PM *Some Aspects of the Mononical Conjecture.*
(110) **Sankar P. Dutta**, University of Illinois at Urbana-Champaign (946-13-29)
- 3:30PM *Associated graded rings of numerical semigroup rings.* Preliminary report.
(111) **Victoria A Sapko**, University of Nebraska-Lincoln (946-13-16)

- 4:00PM *Ext and Hilbert polynomials.*
(112) **Emanoil Theodorescu**, University of Kansas
(946-13-93)
- 4:30PM *Separable integral extensions.*
(113) **Anurag K Singh**, University of Utah (946-13-39)
- 5:00PM *Direct-Sum Cancellation of Modules over Quadratic Orders.*
(114) **Ryan D Karr**, University of Nebraska-Lincoln
(946-13-50)
- 5:30PM *Taylor tower for rational algebraic K-theory and Hochschild homology.*
(115) **Miriam Ruth Kantorovitz***, University Of Illinois, UC, and **Randy McCarthy**, University of Illinois
(946-18-54)

Special Session on Microlocal Analysis and Applications, IV

3:00 PM – 4:10 PM **Room 237, Orson Spencer Hall**

Organizers: **Gunther Uhlmann**, University of Washington
Maciej Zworski, University of California, Berkeley

- 3:00PM *Nonlinear scattering on hyperbolic manifolds.*
(116) Preliminary report.
Rafe Mazzeo, Stanford University (946-58-70)
- 3:40PM *On the generalized eigenfunctions of one-dimensional Schrödinger operators.* Preliminary report.
(117) **Michael Christ***, University of California, Berkeley, and **Alexander Kiselev**, University of Chicago
(946-35-108)

Bernard Russo
Associate Secretary
Irvine, California