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# Program of the Sessions

Urbana, Illinois, March 18–21, 1999

## Thursday, March 18

### Invited Address

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7:00 PM – 7:50 PM Auditorium, Beckman Institute

- (1) *Maximal functions revisited*  
Alexandra Bellow, Northwestern University

### Department of Mathematics Reception

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8:00 PM – 10:00 PM Lobby, Beckman Institute

## Friday, March 19

### Meeting Registration

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7:30 AM – 5:00 PM Second Floor, Altgeld Hall

### AMS Exhibit and Book Sale

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7:30 AM – 5:00 PM Library, Altgeld Hall

### Special Session on Nonstandard Analysis, I

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8:30 AM – 10:55 AM Room 269, Everitt Laboratory

Organizers: **C. Ward Henson**, University of Illinois at Urbana-Champaign  
**Peter Loeb**, University of Illinois at Urbana-Champaign

- 8:30AM *Base operators and their topologies.*  
(2) **Jurgen E. Bliedtner**, University of Frankfurt, and **Peter A. Loeb\***, University of Illinois at Urbana-Champaign (941-26-112)
- 9:00AM *Infinite products of infinite measures.*  
(3) **David A. Ross\***, University of Hawaii, and **Peter A. Loeb**, University of Illinois (941-28-238)
- 9:30AM *Extensions of the Wiener space and anticipating Girsanov transformations.* Preliminary report.  
(4) **Horst Osswald**, University of Munich (941-28-323)

- 10:00AM *Conditional law of large numbers in the exact settings.* Preliminary report.  
(5) **Yeneng Sun**, National University of Singapore (941-60-148)

- 10:30AM *Continua of Loeb measures and Borel bijections.* Preliminary report.  
(6) **Kenneth Schilling\***, University of Michigan-Flint, and **Bosko Živaljević**, Cisco Systems (941-03-98)

### Special Session on Elementary and Analytic Number Theory, I

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8:30 AM – 10:50 AM Room 245, Altgeld Hall

Organizers: **Harold G. Diamond**, University of Illinois at Urbana-Champaign  
**A. J. Hildebrand**, University of Illinois at Urbana-Champaign

- 8:30AM *Ramanujan's second unpublished manuscript on the partition function.*  
(7) **Bruce C. Berndt\***, University of Illinois at Urbana-Champaign, and **Ken Ono**, Pennsylvania State University at University Park (941-11-269)
- 9:00AM *Two tenth order mock theta function identities in Ramanujan's lost notebook.*  
(8) **Youn-Seo Choi**, University of Illinois at Urbana-Champaign (941-11-218)
- 9:30AM *A certain quotient of eta-functions found in Ramanujan's lost notebook.*  
(9) **Bruce C. Berndt**, University of Illinois at Urbana-Champaign, **Heng H. Chan**, National University of Singapore, **Soon-Yi Kang\***, University of Illinois at Urbana-Champaign, and **Liang C. Zhang**, Southwest Missouri State University (941-11-194)
- 10:00AM *Two dimensional vector spaces of partial  $q$ -difference equations for basic hypergeometric functions.*  
▶ (10) **Jaebum Sohn\*** and **Douglas C. Bowman**, University of Illinois at Urbana-Champaign (941-11-285)

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The time limit for each contributed paper in the sessions is ten minutes. In the Special Sessions the time limit varies from session to session and within sessions. To maintain the schedule, time limits will be strictly enforced.

For papers with more than one author, an asterisk follows the name of the author who plans to present the paper at the meeting.

Papers flagged with a solid triangle (▶) have been designated by the author as being of possible interest to undergraduate students.

Abstracts of papers presented in the sessions at this meeting will be

found in Volume 20, Issue 2 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.

- 10:30AM *Polynomial continued fractions*. Preliminary report.  
 ► (11) **Douglas C. Bowman\***, University of Illinois at Urbana-Champaign, and **James G. McLaughlin**, University of Illinois at Urbana-Champaign (941-41-314)

***Special Session on Diophantine Equations, Inequalities and Related Arithmetic Problems, I***

8:30 AM – 10:50 AM Room 143, Altgeld Hall

Organizers: **Michael Bennett**, University of Illinois at Urbana-Champaign  
**Trevor Wooley**, University of Michigan

- 8:30AM *Mahler’s measure and the volume of hyperbolic manifolds*. Preliminary report.  
 ► (12) **David W. Boyd**, U. British Columbia (941-11-34)
- 9:00AM *On the integer Chebyshev constant and the asymptotic structure of the integer Chebyshev polynomials*.  
 (13) **Igor E. Pritsker**, Case Western Reserve University (941-11-190)
- 10:00AM *Diophantine approximation in the vector space  $\mathbb{Q} + \alpha\mathbb{Q}$* .  
 (14) **Edward B Burger**, Williams College & University of Colorado at Boulder (941-11-225)
- 10:30AM *Estimates for the number of polynomials with bounded degree and bounded Mahler measure*. Preliminary report.  
 (15) **Shey-Jey Chern** and **Jeffrey D. Vaaler\***, University of Texas at Austin (941-11-181)

***Special Session on Operator Spaces and Their Applications, I***

8:30 AM – 10:50 AM Room 165, Everitt Laboratory

Organizers: **Gilles Pisier**, Texas A&M  
**Zhong-Jin Ruan**, University of Illinois at Urbana-Champaign

- 8:30AM *Hilbert  $C^*$ -modules: A useful tool*.  
 (16) **Sze-Kai Tsui**, Oakland University (941-46-183)
- 9:00AM *Modules over operator algebras*. Preliminary report.  
 (17) **David P. Blecher**, University of Houston (941-46-99)
- 9:30AM *Isometric dilations of non-commuting  $n$ -tuples and representations of the Cuntz-Toeplitz algebra*. Preliminary report.  
 (18) **Kenneth R. Davidson\***, **David W. Kribs** and **Miron Shpigel**, University of Waterloo (941-47-210)
- 10:00AM *Quantized commutant lifting and functional calculus in several variables*.  
 (19) **Gelu F. Popescu**, University of Texas at San Antonio (941-47-92)
- 10:30AM *Local reflexivity and decomposable operators between  $C^*$ -algebras*. Preliminary report.  
 (20) **Christian Le Merdy**, University of Houston and Universite de Franche-Comte (941-46-176)

***Special Session on Commutative Algebra, I***

8:30 AM – 10:50 AM Room 345, Altgeld Hall

Organizers: **Joseph Brennan**, North Dakota State University  
**Sankar Dutta**, University of Illinois at Urbana-Champaign  
**Robert Fossum**, University of Illinois at Urbana-Champaign  
**Phillip Griffith**, University of Illinois at Urbana-Champaign

- 8:30AM *Baxter algebras and shuffle products*.  
 (21) **Li Guo** and **William F. Keigher\***, Rutgers University (941-13-31)
- 9:00AM *Hochschild homology of hypersurfaces with isolated singularities*. Preliminary report.  
 (22) **Ruth I. Michler**, University of North Texas (941-13-303)
- 9:30AM *Finite generation of Hochschild homology algebras*.  
 (23) **Luchezar L. Avramov\***, Purdue University, and **Srikanth Iyengar**, University of Missouri (941-13-331)
- 10:00AM *On Bass numbers of modules over local Noetherian rings*. Preliminary report.  
 (24) **Mee Kyung Kim**, Sung Kyun Kwan University, Suwon, Korea, **Jee Heub Koh\***, Korea Institute for Advanced Study, Seoul, Korea, and **Kisuk Lee**, Sookmyung Women’s University, Seoul, Korea (941-13-315)
- 10:30AM *Quasi-Cohen-Macaulay homomorphisms*. Preliminary report.  
 (25) **Hans-Bjørn Foxby**, Københavns Universitet (941-13-330)

***Special Session on Recent Progress in Elementary Geometry, I***

9:00 AM – 10:45 AM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign  
**Clark Kimberling**, University of Evansville

- 9:00AM *Revisiting some tiling problems*. Preliminary report.  
 (26) **Doris J. Schattschneider**, Moravian College (941-52-150)
- 10:00AM *Okumura’s double tiling*.  
 (27) **John Rigby**, Cardiff University (941-51-149)

***Special Session on Galois Representations, I***

9:00 AM – 10:50 AM Room 141, Altgeld Hall

Organizers: **Nigel Boston**, University of Illinois at Urbana-Champaign  
**Michael Larsen**, University of Missouri

- 9:00AM *L-functions of crystals over function fields, a cohomological approach*.  
 (28) **Gebhard Boeckle\*** and **Richard Pink**, University of Mannheim (941-11-287)
- 9:45AM *Extensions of crystalline representations*.  
 (29) **Matthew Emerton\***, University of Michigan, and **Mark Kisin**, Westfälischen Wilhelms Universität (941-11-172)
- 10:15AM *Shimura varieties and the Mumford-Tate conjecture*.  
 (30) **Adrian Vasiu**, University of California, Berkeley (941-14-94)

***Special Session on Martingales and Analysis, I***

9:00 AM – 10:50 AM Room 161, Everitt Laboratory

Organizers: **Joseph Max Rosenblatt**, University of Illinois at Urbana-Champaign  
**Renming Song**, University of Illinois at Urbana-Champaign  
**Richard B. Sowers**, University of Illinois at Urbana-Champaign

- 9:00AM *Non-commutative martingale inequalities in  $L_p$  and related questions*.  
 (31) **Gilles J. Pisier**, Texas A&M (941-60-52)

- 9:30AM *Martingales on trees.*  
(32) **Davar Khoshnevisan**, University of Utah (941-60-249)
- 10:00AM *Some analogies between martingales and Dirichlet functions.*  
(33) **Russell D. Lyons\***, Indiana University, **Alano Ancona**, Université de Paris-Sud, and **Yuval Peres**, Hebrew University of Jerusalem (941-60-137)
- 10:30AM *Some unknown constants in inequalities.*  
(34) Preliminary report.  
**Mate Wierdl**, University of Memphis (941-42-104)

**Lawrence Ein**, University of Illinois-Chicago

- 9:00AM *The decomposition theorem: Heisenberg algebras, Hilbert schemes and equivariant K-Theory.*  
(43) **Mark de Cataldo**, Harvard University (941-14-51)
- 9:30AM *Existence of Kähler-Einstein metrics on certain Hilbert schemes.* Preliminary report.  
(44) **Zhuang-dan D. Guan\*** and **Xiuxiong Chen**, Princeton University (941-53-76)
- 10:00AM *Inhomogeneous hyper-Kähler geometry with torsion.* Preliminary report.  
(45) **Yat Sun Poon\*** and **Gueo Grantcharov**, UC Riverside (941-53-240)
- 10:30AM *Low degree coverings of homogeneous spaces.*  
(46) **Meeyoung Kim\***, Michigan State University, and **Laurent Manivel**, Université de Grenoble (941-14-216)

### Special Session on Graph Theory, I

9:00 AM – 10:50 AM Room 243, Altgeld Hall

Organizer: **Douglas B. West**, University of Illinois, Urbana

- 9:00AM *The spectral radius of graphs on surfaces.*  
▶ (35) **Mark N. Ellingham\***, Vanderbilt University, and **Xiaoya Zha**, Middle Tennessee State University (941-05-141)
- 9:30AM *Genus bounds for embeddings with large connectivity and large representativity.*  
(36) **Michael Plummer**, Vanderbilt University, and **Xiaoya Zha\***, Middle Tennessee State University (941-05-168)
- 10:00AM *On some extensions of bar-visibility graphs.*  
(37) Preliminary report.  
**Joan P. Hutchinson**, Macalester College (941-05-44)
- 10:30AM *Recent research on digraph minors.* Preliminary report.  
(38) **Neil Robertson**, The Ohio state University (941-05-271)

### Special Session on Integrable Equations, I

9:00 AM – 10:50 AM Room 147, Altgeld Hall

Organizers: **Igor Krichever**, Columbia University  
**Kirill Vaninsky**, Kansas State University

- 9:00AM *Rogers-Ramanujan identities in integrable statistical mechanical models.* Preliminary report.  
▶ (39) **Barry McCoy**, SUNY Stony Brook (941-35-63)
- 9:30AM *New types of soliton interactions for nonlinear equations.*  
(40) **Mark S. Alber\***, University of Notre Dame, **Gregory G. Luther**, Northwestern University, and **Charles Miller**, University of Notre Dame (941-35-16)
- 10:00AM *Noncommutative integrability of generalized rigid body equations.*  
(41) **Anthony M. Bloch\***, University of Michigan, **Peter E. Crouch**, Arizona State University, **Jerrold E. Marsden**, California Institute of Technology, and **Tudor S. Ratiu**, University of California at Santa Cruz (941-70-20)
- 10:30AM *Extended integrability and bi-Hamiltonian systems.*  
(42) **Oleg I. Bogoyavlenskij**, Queen's University, Canada (941-34-17)

### Special Session on Holomorphic Vector Bundles and Complex Geometry, I

9:00 AM – 10:50 AM Room 343, Altgeld Hall

Organizers: **Maarten Bergvelt**, University of Illinois at Urbana-Champaign  
**Steven Bradlow**, University of Illinois at Urbana-Champaign  
**John P. D'Angelo**, University of Illinois at Urbana-Champaign

### Special Session on Combinatorial Designs, I

9:00 AM – 10:50 AM Room 241, Altgeld Hall

Organizers: **Ilene H. Morgan**, University of Missouri-Rolla

**Walter D. Wallis**, Southern Illinois University-Carbondale

- 9:00AM *New balanced neighbor designs from modifications of the Lucas/Walecki construction.*  
▶ (47) **Donald A. Preece**, University of Kent at Canterbury (941-05-53)
- 10:00AM *Finding large single change covering designs.*  
(48) Preliminary report.  
**Nicholas C. Phillips**, Southern Illinois University (941-05-102)
- 10:30AM *Almost perfect one-factorizations: Some examples and properties.* Preliminary report.  
▶ (49) **Emily R. Petrie\***, Merrimack College, and **Edwin Ihrig**, Arizona State University (941-05-306)

### Special Session on Low-dimensional Topology, I

9:00 AM – 10:50 AM Room 341, Altgeld Hall

Organizers: **Mark Brittenham**, University of North Texas

**Charles Delman**, Eastern Illinois University

**Rachel Roberts**, Washington University

- 9:00AM *The A-polynomial from the noncommutative viewpoint.*  
(50) **Charles D. Frohman\***, The University of Iowa, **Razvan Gelca**, The University of Michigan, and **Walter LoFaro**, Boise State University (941-57-136)
- 10:00AM *Bracket and regular isotopy of singular links.*  
(51) Preliminary report.  
**Chichen Michael Tsau**, Saint Louis University (941-57-319)
- 10:30AM *Vassiliev invariants for spin 3-manifolds.*  
(52) **Nadya K. Shirokova**, UIUC (941-57-08)

### Special Session on Wavelet Analysis and Multiresolution Methods, I

9:00 AM – 10:50 AM Room 151, Everitt Laboratory

Organizer: **Tian-Xiao He**, Illinois Wesleyan University

- 9:00AM *Information cost functions.*  
(53) **Mladen Victor Wickerhauser**, Washington University, St Louis (941-42-58)

- 9:30AM *Conversion between orthogonal and biorthogonal wavelets.*  
 ▶ (54) **Jun Tian\*** and **Raymond O. Wells Jr.**, Computational Mathematics Laboratory, Rice University, Houston, Texas (941-42-184)
- 10:00AM *Optimal multivariate biorthogonal wavelets and CBC algorithm.*  
 (55) **Bin Han**, Oklahoma State University (941-41-191)
- 10:30AM *Bases consisting of rational functions of uniformly bounded degrees or more general functions.*  
 (56) **Pencho P. Petrushev**, University of South Carolina (941-42-295)

**Session on Number Theory, I**

9:30 AM – 10:55 AM Room 443, Altgeld Hall

- 9:30AM *The  $k$ -free divisor problem.*  
 (57) **Anguel V. Koumitchev**, University of South Carolina (941-11-33)
- 9:45AM *Exponents of class groups of quadratic function fields over finite fields.*  
 ▶ (58) **David A. Cardon**, Brigham Young University (941-11-81)
- 10:00AM *Fibonacci and Lucas numbers with only one distinct digit. Preliminary report.*  
 ▶ (59) **Florian Luca**, Bielefeld University (941-11-13)
- 10:45AM *Automorphic integrals of positive weight on Hecke groups. Preliminary report.*  
 (60) **Abdulkadir Hassen**, Rowan University (941-11-26)

**Invited Address**

11:00 AM – 11:50 AM Room 314, Altgeld Hall

- (61) *Analytic methods count for diophantine problems.*  
**Trevor D. Wooley**, University of Michigan (941-11-292)

**Invited Address**

1:30 PM – 2:20 PM Room 314, Altgeld Hall

- (62) *Discrete analogs of the Egoroff-Darboux metrics.*  
**Igor Krichever**, Columbia University

**Special Session on Elementary and Analytic Number Theory, II**

2:30 PM – 6:20 PM Room 245, Altgeld Hall

Organizers: **Harold G. Diamond**, University of Illinois at Urbana-Champaign  
**A. J. Hildebrand**, University of Illinois at Urbana-Champaign

- 2:30PM *The Brun-Hooley sieve. Preliminary report.*  
 ▶ (63) **Kevin Ford**, Univ. of South Carolina, and **Heini Halberstam\***, Univ. of Illinois (941-11-221)
- 3:00PM *Primes in short arithmetic progressions with widely spaced moduli.*  
 (64) **Peter D. T. A. Elliott**, University of Colorado at Boulder. (941-11-88)
- 3:30PM *Primes in short intervals.*  
 (65) **Roger C. Baker**, BYU (941-11-91)
- 4:00PM *On exponential sums with multiplicative coefficients.*  
 (66) **Gennady Bachman**, University of Nevada, Las Vegas (941-11-89)
- 4:30PM *An asymptotic formula for the number of smooth values of a polynomial.*  
 (67) **Greg Martin**, University of Toronto (941-11-142)

- 5:00PM *The prime element theorem on additive formations.*  
 (68) **Wen-Bin Zhang**, University of the West Indies, Jamaica (941-11-47)
- 5:30PM *Exponential sums over multiplicative groups of residues.*  
 (69) **Sergei Vladimirovich Konyagin**, Moscow State University (941-11-161)
- 6:00PM *Lattice points close to a smooth curve and distribution of squarefull numbers in short intervals. Preliminary report.*  
 (70) **Ognian T. Trifonov**, University of South Carolina (941-11-41)

**Special Session on Diophantine Equations, Inequalities and Related Arithmetic Problems, II**

2:30 PM – 4:50 PM Room 143, Altgeld Hall

Organizers: **Michael Bennett**, University of Illinois at Urbana-Champaign  
**Trevor Wooley**, University of Michigan

- 2:30PM *Some powerful determinants. Preliminary report.*  
 ▶ (71) **Alfred J. van der Poorten**, Centre for Number Theory Research, Macquarie University, Sydney, Australia (941-11-203)
- 3:00PM *New transcendence results for function fields.*  
 (72) **W. Dale Brownawell\***, Penn State, and **Laurent Denis**, University of Lille, France (941-11-312)
- 3:30PM  *$S$ -unit equations in function fields via the ABC-theorem.*  
 (73) **Julia Mueller**, Fordham University (941-11-280)
- 4:00PM *Criteria of algebraic independence and approximation by hypersurfaces.*  
 ▶ (74) **Damien Roy\***, University of Ottawa, and **Michel Laurent**, Institut de Mathématiques de Luminy, CNRS (941-11-155)
- 4:30PM *Norm form inequalities in three variables.*  
 (75) **Jeffrey L. Thunder**, Northern Illinois University (941-11-260)

**Special Session on Integrable Equations, II**

2:30 PM – 4:50 PM Room 147, Altgeld Hall

Organizers: **Igor Krichever**, Columbia University  
**Kirill Vaninsky**, Kansas State University

- 2:30PM *Pole dynamics for elliptic solutions of the Korteweg-deVries equation.*  
 ▶ (76) **Bernard Deconinck**, MSRI (941-35-50)
- 3:00PM *Higher genus Whitham hierarchies and solutions to the WDVV equations. Preliminary report.*  
 (77) **Anton Dzhamay**, Columbia University (941-35-309)
- 3:30PM *Hamiltonian structure of nonabelian Toda lattice.*  
 (78) **Michael Gekhtman**, University of Notre Dame (941-58-48)
- 4:00PM *Difference equations in the complex domain: Extending the Painlevé property.*  
 (79) **Rod Halburd\***, U. Colorado, **Mark Ablowitz** and **Ben Herbst**, U. Colorado (941-35-68)
- 4:30PM *Eigenvectors of the transfer matrix of solid-on-solid models and vanishing conditions for solutions of  $q$ KZB equations. Preliminary report.*  
 ▶ (80) **Sasha Varchenko**, UNC (941-35-59)

**Special Session on Recent Progress in Elementary Geometry, II**

3:00 PM – 5:45 PM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign

Clark Kimberling, University of  
Evansville

- 3:00PM *Patterns on a spherical surface.*  
▶ (81) **Magnus J. Wenninger** (941-51-79)
- 4:00PM *Variations of uniform polyhedra.* Preliminary report.  
▶ (82) **Vincent J. Matsko**, Quincy University, Quincy, IL  
(941-51-140)
- 4:30PM *Constructing polytopes that have a many-faceted  
(83) projection.* Preliminary report.  
**Steven W. Knox**, University of Illinois at  
Urbana-Champaign (941-52-209)
- 5:00PM *Cubing the square: A progress report on the Rupert  
(84) problems.*  
▶ **Gregory Huber**, University of Arizona (941-51-84)

### Special Session on Nonstandard Analysis, II

3:00 PM – 6:25 PM Room 269, Everitt Laboratory

Organizers: **C. Ward Henson**, University of Illinois  
at Urbana-Champaign  
**Peter Loeb**, University of Illinois at  
Urbana-Champaign

- 3:00PM *Some examples of stable Banach space structures.*  
(85) Preliminary report.  
**C. Ward Henson**, University of Illinois (941-03-320)
- 3:30PM *A geometric characterization of double-dual  
(86)  $n$ -types.* Preliminary report.  
**Markus Pomper**, University of Illinois at  
Urbana-Champaign (941-46-237)
- 4:00PM *Degree theory in non-standard hulls of hyperfinite  
(87) dimensional Banach Spaces.*  
**Joao P. Teixeira**, UW-Madison (941-46-308)
- 4:30PM *Uniform versions of infinitary properties in Banach  
(88) spaces.* Preliminary report.  
**Carlos E. Ortiz**, Beaver College, Glenside, PA  
(941-03-199)
- 5:00PM *Near-isometries of  $CK$ -spaces.  
(89) **G. Beate Zimmer**, Mississippi University for Women  
(941-46-28)*
- 5:30PM *Measures of non-compactness and essential spectra  
(90) of positive operators.* Preliminary report.  
**Vladimir G. Troitsky**, University of Illinois  
(941-47-37)
- 6:00PM *Discrete approximation of operators and  
(91) convergence of spectra.*  
**Manfred P. H. Wolff**, University of Tübingen  
(941-47-250)

### Special Session on Galois Representations, II

3:00 PM – 5:50 PM Room 141, Altgeld Hall

Organizers: **Nigel Boston**, University of Illinois at  
Urbana-Champaign  
**Michael Larsen**, University of Missouri

- 3:00PM *Deformations of three-dimensional Galois  
(92) representations.* Preliminary report.  
**Darrin M. Doud**, University of Illinois at  
Urbana-Champaign (941-11-290)
- 3:30PM Discussion
- 4:15PM *Conductors and local Galois representations.  
(93) Preliminary report.*  
**Romyar T. Sharifi**, The University of Chicago  
(941-11-299)
- 4:45PM *Galois representations and unramified covers.  
(94) Preliminary report.*  
**Georgios Pappas**, Michigan State University  
(941-11-259)
- 5:30PM *Congruences of Selmer groups.  
(95) **Li Guo**, Rutgers University-Newark (941-11-29)*

### Special Session on Martingales and Analysis, II

3:00 PM – 5:20 PM Room 161, Everitt Laboratory

Organizers: **Joseph Max Rosenblatt**, University of  
Illinois at Urbana-Champaign  
**Renming Song**, University of Illinois at  
Urbana-Champaign  
**Richard B. Sowers**, University of  
Illinois at Urbana-Champaign

- 3:00PM *Burkholder's biconcave functions and connections  
(96) to quasiconvexity and rank one convexity .*  
**Rodrigo Banuelos**, Purdue University (941-60-97)
- 3:30PM *lim sup random fractals.* Preliminary report.  
▶ (97) **Davar Khoshnevisan**, University of Utah, **Yuval  
Peres**, University of California, Berkeley, and **Yimin  
Xiao\***, University of Utah (941-60-100)
- 4:00PM *Banach principle in the space of measurable  
▶ (98) operators.*  
**Michael Sh. Goldstein**, University of Toronto and  
Princeton University, and **Semyon N. Litvinov\***,  
North Dakota State University (941-46-56)
- 4:30PM *Stochastic volatility modeling in financial  
(99) mathematics.*  
**Ronnie Sircar\***, **Jean-Pierre Fouque** and **George  
Papanicolaou**, Stanford University (941-60-116)
- 5:00PM *A new stochastic PDE with measure-valued  
(100) solutions.* Preliminary report.  
**Carl E. Mueller**, University of Rochester (941-60-45)

### Special Session on Graph Theory, II

3:00 PM – 5:50 PM Room 243, Altgeld Hall

Organizer: **Douglas B. West**, University of Illinois  
at Urbana-Champaign

- 3:00PM *Two-factors with exactly two cycles in Hamiltonian  
▶ (101) Graphs.*  
**Michael S. Jacobson\***, University of Louisville,  
**Ralph J. Faudree**, University of Memphis, **Ronald J.  
Gould**, Emory University, **Linda Lesniak**, Drew  
University, and **Akira Saito**, Nihon University  
(941-05-126)
- 3:30PM *Two-factors containing specified edges.  
(102) **Ralph Faudree\***, University of Memphis, **Ervin Gy,**  
Hungarian Academy of Sciences, and **Richard  
Schelp**, University of Memphis (941-05-71)*
- 4:00PM *Graph connectivity after path removal.  
(103) **Guantao Chen**, Georgia State University, **Ronald J.  
Gould\***, Emory University, and **Xingxing Yu**,  
Georgia Tech (941-05-70)*
- 4:30PM *The computation of, and relationships among,  
▶ (104) graph invariants involving orientations (preliminary  
report).* Preliminary report.  
**Luis A. Goddyn**, Simon Fraser University  
(941-05-241)
- 5:00PM *On dependent arcs in acyclic orientations and cover  
(105) graphs.*  
**Vojtech Rodl**, Emory University, and **Lubos  
Thoma\***, Carnegie Mellon University (941-05-239)
- 5:30PM *Nice graphs and their generalizations.* Preliminary  
(106) report.  
**Alexandr V. Kostochka**, Institute of Mathematics of  
the Russian AS and the University of Memphis  
(941-05-170)

### Special Session on Operator Spaces and Their Applications, II

3:00 PM – 5:50 PM Room 165, Everitt Laboratory

Organizers: **Gilles Pisier**, Texas A&M

**Zhong-Jin Ruan**, University of Illinois at Urbana-Champaign

- 3:00PM (107) *Dual injective operator spaces.*  
**Edward G. Effros\***, UCLA, and **Zhong-Jin Ruan**, University of Illinois (941-46-273)
- 3:30PM (108) *p-norms of independent random matrices and non-commutative  $\ell_p$ -spaces.*  
**Marius Junge**, University of Kiel (941-46-85)
- 4:00PM (109) *Extendable local reflexivity.* Preliminary report.  
**William Johnson**, Texas A&M University, and **Timur Oikhberg\***, The University of Texas at Austin (941-46-200)
- 4:30PM (110)  *$C_1$  does not Banach embed in the predual of a finite von Neumann algebra.*  
**U. Haagerup**, University of Odense, Denmark, **H. Rosenthal\***, University of Texas at Austin, and **F. A. Sukochev**, Flinders University (941-46-128)
- 5:00PM (111) *Derivations from von Neumann algebras into trace class operators.* Preliminary report.  
**Corran Webster\*** and **Roger Smith**, Texas A&M University (941-46-339)
- 5:30PM (112) *Cohomology for finite index inclusions of factors.*  
**Allan M. Sinclair**, Univ. of Edinburgh, and **Roger R. Smith\***, Texas A&M Univ. (941-46-268)

**Special Session on Symplectic Geometry and Topology, I**

3:00 PM – 4:45 PM Room 145, Altgeld Hall

Organizers: **Eugene M. Lerman**, University of Illinois at Urbana-Champaign  
**Susan Tolman**, University of Illinois at Urbana-Champaign

- 3:00PM (113) *Projections of coadjoint orbits and the Hilbert-Mumford criterion.*  
**Arkady Berenstein** and **Reyer Sjamaar\***, Cornell University (941-58-129)
- 4:00PM Discussion

**Special Session on Holomorphic Vector Bundles and Complex Geometry, II**

3:00 PM – 5:50 PM Room 343, Altgeld Hall

Organizers: **Maarten Bergvelt**, University of Illinois at Urbana-Champaign  
**Steven Bradlow**, University of Illinois at Urbana-Champaign  
**John P. D'Angelo**, University of Illinois at Urbana-Champaign  
**Lawrence Ein**, University of Illinois-Chicago

- 3:00PM (114) *Higgs bundles and holomorphic forms.*  
**Walter I. Seaman**, University of Iowa (941-53-11)
- 3:30PM (115) *Twisted Higgs pairs and the fundamental group*  
**Oscar Garcia-Prada\***, University of Madrid, and **S. Ramanan**, Tata Institute (941-14-160)
- 4:00PM (116) *Restriction of the Poincare bundle to Calabi Yau subvarieties.*  
**Leticia Brambila Paz\***, CIMAT, and **Indranil Biswas**, TIFR (941-14-144)
- 4:30PM (117) *Parabolic G-bundles on  $\mathbb{P}_C^1$  and moduli spaces of polygons in Lie algebras of compact groups.* Preliminary report.  
**Jonathan A. Poritz**, Georgetown University (941-32-348)
- 5:00PM (118) *Cohomology of moduli spaces and representations of the mapping class group.*  
**Hans U. Boden\***, Ohio State University, and **Andrew Nicas**, McMaster University (941-14-264)

- 5:30PM (119) *Eigenvalues of products of unitary matrices, parabolic vector bundles and quantum schubert calculus.* Preliminary report.  
**Prakash Belkale**, University of Chicago (941-14-255)

**Special Session on Combinatorial Designs, II**

3:00 PM – 5:50 PM Room 241, Altgeld Hall

Organizers: **Ilene H. Morgan**, University of Missouri-Rolla  
**Walter D. Wallis**, Southern Illinois University-Carbondale

- 3:00PM (120) *Arcs and curves over a finite field.*  
**James W. P. Hirschfeld\***, University of Sussex, and **Gabor Korchmaros**, University of Basilicata (941-51-109)
- 4:00PM (121) *From algebraic-geometric codes to limited bias and dependence.*  
**Jürgen Bierbrauer**, Michigan Technological University (941-05-196)
- 4:30PM (122) *Intersection numbers.* Preliminary report.  
**Vera Pless**, University of Illinois at Chicago (941-05-182)
- 5:00PM (123) *Strongly regular graphs and designs with three intersection numbers.*  
**Yury J. Ionin** and **Mohan S. Shrikhande\***, Central Michigan University (941-05-21)
- 5:30PM (124) *A new family of symmetric designs.*  
**Yury J. Ionin**, Central Michigan University (941-05-14)

**Special Session on Low-dimensional Topology, II**

3:00 PM – 5:50 PM Room 341, Altgeld Hall

Organizers: **Mark Brittenham**, University of North Texas  
**Charles Delman**, Eastern Illinois University  
**Rachel Roberts**, Washington University

- 3:00PM (125) *Abelian subgroup separability: Kleinian groups, closed hyperbolic n-manifolds, Haken 3-manifolds.* Preliminary report.  
**Emily Hamilton**, Emory University (941-57-222)
- 4:00PM (126) *Deformation problems in hyperbolic and Lorentzian geometry.*  
**Kevin P. Scannell**, Saint Louis University (941-57-229)
- 4:30PM (127) *Quantum obstruction theory.* Preliminary report.  
**Charles Frohman**, University of Iowa, and **Joanna Kania-Bartoszyńska\***, Boise State University (941-57-234)
- 5:30PM (128) *Surface groups in some surgered 3-manifolds.*  
**Anneke Bart**, Saint Louis University (941-57-133)

**Special Session on Commutative Algebra, II**

3:00 PM – 6:20 PM Room 345, Altgeld Hall

Organizers: **Joseph Brennan**, North Dakota State University  
**Sankar Dutta**, University of Illinois at Urbana-Champaign  
**Robert Fossum**, University of Illinois at Urbana-Champaign  
**Phillip Griffith**, University of Illinois at Urbana-Champaign

- 3:00PM (129) *A class of sheaves satisfying Kodaira's vanishing theorem.* Preliminary report.  
**Donu Arapura**, Purdue Univ. (941-14-213)

- 3:30PM (130) *Galois embedding for linear groups.*  
**Shreeram S. Abhyankar**, Purdue University (941-14-25)
- 4:00PM (131) *Normal forms of mappings.* Preliminary report.  
**Steven D. Cutkosky**, University of Missouri-Columbia (941-13-338)
- 4:30PM (132) *Rank three vector bundles on Projective 4-space.* Preliminary report.  
**Mohan N. Kumar\***, Washington University in St. Louis, **Chris Peterson**, Washington University in St. Louis, and **Prabhakar A. Rao**, University of Missouri in St. Louis (941-14-166)
- 5:00PM (133) *Bezout's theorem and Cohen-Macaulay modules.* Preliminary report.  
**Uwe Nagel**, Universität-Gesamthochschule Paderborn (941-13-214)
- 5:30PM (134) *Resolutions of subsets of finite sets of points in projective space.* Preliminary report.  
**Stephen P. Diaz**, Syracuse University, **Anthony V. Geramita**, Queen's Univ./Univ. Genova, and **Juan C. Migliore\***, University of Notre Dame (941-13-117)
- 6:00PM (135) *A local cohomology module with infinitely many associated prime ideals.*  
**Anurag K. Singh**, University of Illinois (941-13-242)

**Special Session on Wavelet Analysis and Multiresolution Methods, II**

3:00 PM – 6:20 PM Room 151, Everitt Laboratory

Organizer: **Tian-Xiao He**, Illinois Wesleyan University

- 3:00PM (136) *The behaviour at zero of a class of bandlimited wavelets.*  
**Guido L. Weiss**, Washington University (941-42-36)
- 3:30PM (137) *On positive scaling vectors.*  
**David K. Ruch**, Sam Houston State University, and **Patrick J. Van Fleet\***, University of St. Thomas (941-41-263)
- 4:00PM (138) *On some shift invariant multivariate integral operators, revisited.* Preliminary report.  
**George A. Anastassiou\***, University of Memphis, and **Sorin Gal**, University of Oradea (941-41-07)
- 4:30PM (139) *On multiwavelets on the interval.* Preliminary report.  
**Joseph D. Lakey\***, NMSU, and **Maria C. Pereyra**, UNM (941-42-139)
- 5:00PM (140) *Constructing orthogonal nonseparable wavelets.*  
**Eugene Belogay\***, Purdue University, and **Yang Wang**, Georgia Institute of Technology (941-42-124)
- 5:30PM (141) *On wavelets construction over triangulations.* Preliminary report.  
**Don Hong\*** and **Yuchun Anna Mu**, East Tennessee State University (941-41-219)
- 6:00PM (142) *Calculating the Hölder exponent of compactly supported wavelets.* Preliminary report.  
**Mohsen Maesumi**, Lamar University (941-26-281)

**General Session**

3:00 PM – 5:55 PM Room 443, Altgeld Hall

- 3:00PM (143) *Foliations with Kazhdan's Property T.*  
**Michelle Y. Penner**, Albion College (941-58-282)
- 3:15PM (144) *Homotopy normal Lie subgroups.*  
**Yasukuni Furukawa**, Aichi Univ. of Education (941-57-30)
- 3:30PM (145) *A fixed point theorem for weakly inward multivalued contractions.*  
**Teck-Cheong Lim**, George Mason University (941-47-174)

- 3:45PM (146) *Yet another zero-one law for Gaussian processes.*  
**Milan N. Lukić**, University of Wisconsin-Oshkosh (941-60-06)
- 4:00PM (147) *Maximal sets of Hamilton cycles in complete multipartite graphs.* Preliminary report.  
**Mike Daven**, Auburn University (941-05-254)
- 4:15PM (148) *Resolvable cycle decompositions of complete multipartite graphs.* Preliminary report.  
**Sarah Heuss**, Auburn University (941-05-258)
- 4:30PM (149) *An extremal family of graphs.* Preliminary report.  
**K. J. Roblee**, Auburn University (941-05-272)
- 4:45PM (150) *On the lattice of relationships of property  $B_{d,i,j}$ .* Preliminary report.  
**Michael C. Ackerman**, University of Memphis (941-05-350)
- 5:00PM (151) *Apollonius' tenth problem revisited.*  
**Marina Gavrilova\*** and **Jon G Rokne**, The University of Calgary (941-51-32)
- 5:15PM (152) *The beginnings of algebra and a solution result for a famous equation.* Preliminary report.  
**C. S. Felicitas**, C.F.C.T.E., Inc, and **Sudhangshu B. Karmakar\***, International Committee for Arab-Israeli Reconciliation (941-01-108)
- 5:30PM (153) *A continued fraction of Ramanujan.*  
**Robert L. Lamphere**, Elizabethtown Community College (941-33-83)
- 5:45PM (154) *Embedding of incomplete latin squares of order  $n$  in an idempotent latin squares of order  $2n$ .* Preliminary report.  
**Atif Abueida**, Auburn University (941-05-275)

**Special Session on Recent Progress in Elementary Geometry, III**

7:00 PM – 7:45 PM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign  
**Clark Kimberling**, University of Evansville

- 7:00PM (155) *A philosophy of maximally enlightening proof, illustrated in the case of Feuerbach's Theorem.* Preliminary report.  
**Douglas Hofstadter**, Indiana University (941-51-358)

**Video Presentation**

8:00 PM – 10:00 PM Room 314, Altgeld Hall

Organizer: **John Sullivan**, University of Illinois at Urbana-Champaign

**Saturday, March 20**

**Meeting Registration**

8:00 AM – 2:30 PM Second Floor, Altgeld Hall

**AMS Exhibit and Book Sale**

8:00 AM – 2:30 PM Library, Altgeld Hall

**Special Session on Nonstandard Analysis, III**

8:30 AM – 10:55 AM Room 269, Everitt Laboratory

Organizers: **C. Ward Henson**, University of Illinois at Urbana-Champaign  
**Peter Loeb**, University of Illinois at Urbana-Champaign

- 8:30AM (156) *Nonstandard methods in  $o$ -minimal structures.* Preliminary report.  
**H. Jerome Keisler**, University of Wisconsin (941-03-321)
- 9:00AM (157) *Asymptotic numbers, asymptotic functions and a solution of the problem of multiplication of Schwartz distributions.* Preliminary report.  
**Todor D. Todorov**, Cal Poly. SLO (941-46-74)
- 9:30AM (158) *Hahn field representation of A. Robinson's asymptotic numbers.* Preliminary report.  
**Robert S. Wolf\*** and **Todor D. Todorov**, Cal Poly State University (941-03-42)
- 10:30AM (159) *Non-cooperative games on hyperfinite Loeb spaces.*  
**Mohammed A. Khan\***, The Johns Hopkins University, and **Yeneng Sun**, The National University of Singapore (941-90-188)

### Special Session on Elementary and Analytic Number Theory, III

8:30 AM – 10:50 AM Room 245, Altgeld Hall

Organizers: **Harold G. Diamond**, University of Illinois at Urbana-Champaign  
**A. J. Hildebrand**, University of Illinois at Urbana-Champaign

- 8:30AM (160) *On an irreducibility theorem of A. Schinzel associated with coverings of the integers.*  
**Michael Filaseta\***, **Kevin Ford**, University of South Carolina, and **Sergei Konyagin**, Moscow State University (941-11-87)
- 9:00AM (161) *Congruence properties of the Stern sequence.*  
**Bruce Reznick**, University of Illinois at Urbana-Champaign (941-11-279)
- 9:30AM (162) *Wythoff pairs, semigroups, and recurrences.* Preliminary report.  
**Kenneth Stolarsky**, University of Illinois at Urbana-Champaign (941-11-90)
- 10:00AM (163) *Expressing a positive integer as the sum of a given number of odd squares.* Preliminary report.  
**Paul T. Bateman**, University of Illinois at Urbana-Champaign (941-11-80)
- 10:30AM (164) *The distribution of generalized  $q$ -additive functions modulo 1.* Preliminary report.  
**Abigail Hoit**, University of Illinois at Urbana-Champaign (941-11-341)

### Special Session on Diophantine Equations, Inequalities and Related Arithmetic Problems, III

8:30 AM – 10:50 AM Room 143, Altgeld Hall

Organizers: **Michael Bennett**, University of Illinois at Urbana-Champaign  
**Trevor Wooley**, University of Michigan

- 8:30AM (165) *Systems of quadratic forms defined over the  $p$ -adic numbers.* Preliminary report.  
**David B. Leep**, University of Kentucky (941-11-284)
- 9:00AM (166) *Artin's conjecture for forms of degree 7 and 11.*  
**Michael P. Knapp**, University of Michigan (941-11-39)
- 9:30AM (167) *Rational lines on hypersurfaces.*  
**Scott T. Parsell**, University of Michigan (941-11-40)
- 10:00AM (168) *Values of positive definite quadratic forms.*  
**D. Eric Freeman**, University of Michigan (941-11-23)
- 10:30AM (169) *Recursion, cubic irrationals and Pell-type equations.* Preliminary report.  
**Karl Dilcher**, Dalhousie University (941-11-197)

### Special Session on Integrable Equations, III

8:30 AM – 10:50 AM Room 147, Altgeld Hall

Organizers: **Igor Krichever**, Columbia University  
**Kirill Vaninsky**, Kansas State University

- 8:30AM (170) *Knot types and spectra for multi-phase solutions of vortex filament flow.* Preliminary report.  
**Thomas A. Ivey\***, Ball State University, and **Annalisa Calini**, College of Charleston (941-35-195)
- 9:00AM (171) *The determinant representations for correlation functions of quantum completely integrable models.* Preliminary report.  
**Vladimir Korepin**, SUNY Stony Brook (941-35-69)
- 9:30AM (172) *Quantum field theory on algebraic curves.* Preliminary report.  
**Leon A. Takhtajan**, SUNY at Stony Brook (941-81-18)
- 10:00AM (173) *Symplectic structures for the cubic Schrodinger equation in periodic and scattering case.* Preliminary report.  
**Kirill L. Vaninsky**, Kansas State (941-35-342)
- 10:30AM (174) *Integration of the Gauss-Codazzi equations.*  
**Vladimir E. Zakharov**, University of Arizona (941-51-298)

### Special Session on Operator Spaces and Their Applications, III

8:30 AM – 10:50 AM Room 165, Everitt Laboratory

Organizers: **Gilles Pisier**, Texas A&M  
**Zhong-Jin Ruan**, University of Illinois at Urbana-Champaign

- 8:30AM (175) *Quasidiagonality and  $K$ -theory.*  
**Marius Dadarlat**, Purdue University (941-46-66)
- 9:00AM (176)  *$K$ -theory of certain  $C^*$ -algebras associated with free products of cyclic groups.*  
**Shuang Zhang\***, University of Cincinnati, and **Wojciech Szymanski**, The University of Newcastle (941-46-352)
- 9:30AM (177) *Pure states on  $\mathcal{O}_d$ .*  
**Ola Bratteli**, University of Oslo, **Palle E. T. Jorgensen\***, The University of Iowa, **Akitaka Kishimoto**, University of Hokkaido, and **Reinhard F. Werner**, Universität Braunschweig (941-46-156)
- 10:00AM (178) *Some minimization problems for the free analogue of the Fisher information.*  
**Nica M. Alexandru\***, University of Waterloo, **Dimitri Shlyakhtenko**, UCLA, and **Speicher Roland**, University of Heidelberg (941-46-204)
- 10:30AM (179) *Unbounded operators affiliated to some II-1 factors.*  
**Florin G. Radulescu**, Univ of Iowa (941-46-346)

### Special Session on Combinatorial Designs, III

8:30 AM – 10:50 AM Room 241, Altgeld Hall

Organizers: **Ilene H. Morgan**, University of Missouri-Rolla  
**Walter D. Wallis**, Southern Illinois University-Carbondale

- 8:30AM (180) *On the construction of compound orthogonal arrays.*  
**Samad Hedayat\***, University of Illinois at Chicago, and **John Stufken**, Iowa State University (941-05-162)
- 9:30AM (181) *Constructing starters with holes.* Preliminary report.  
**Rolf Rees\*** and **Nabil Shalaby**, Memorial Univ. of Newfoundland (941-05-291)

- 10:00AM *On algebraic designs in association schemes.*  
(182) Preliminary report.  
**Sung Y. Song**, Iowa State University (941-05-175)
- 10:30AM *Constructing orthomorphisms of  $GF(3)^+ \times GF(q)^+$ .*  
(183) **Anthony B. Evans**, Wright State University  
(941-05-215)

### Special Session on Commutative Algebra, III

8:30 AM – 10:50 AM Room 345, Altgeld Hall

Organizers: **Joseph Brennan**, North Dakota State University  
**Sankar Dutta**, University of Illinois at Urbana-Champaign  
**Robert Fossum**, University of Illinois at Urbana-Champaign  
**Phillip Griffith**, University of Illinois at Urbana-Champaign

- 8:30AM *Core of ideals and modules.*  
(184) **Alberto Corso**, Michigan State University  
(941-13-324)
- 9:00AM *Intersection multiplicities over Gorenstein rings.*  
(185) **Claudia M. Miller\***, University of Michigan, and  
**Anurag K. Singh**, University of Illinois at Urbana-Champaign (941-13-293)
- 9:30AM *The Serre positivity conjecture and associated graded rings.*  
(186) **Paul C. Roberts**, University of Utah (941-13-235)
- 10:00AM *Extremal Betti numbers and applications to monomial ideals.*  
(187) **Dave Bayer**, Barnard College, Columbia University,  
**Hara Charalambous\***, University at Albany, SUNY, and  
**Sorin Popescu**, Columbia University (941-13-351)
- 10:30AM *Toric Hilbert schemes.*  
(188) **Irena V. Peeva\*** and **Mike Stillman**, Cornell University (941-13-310)

### Special Session on Wavelet Analysis and Multiresolution Methods, III

8:30 AM – 10:50 AM Room 151, Everitt Laboratory

Organizer: **Tian-Xiao He**, Illinois Wesleyan University

- 8:30AM *Squeezable orthogonal bases.*  
(189) **George C. Donovan**, Princeton University, **Jeffrey S. Geronimo**, Georgia Institute of Technology, and  
**Douglas P. Hardin\***, Vanderbilt University (941-41-349)
- 9:00AM *A robust construction of wavelets.*  
(190) **Thomas A. Hogan\*** and **Douglas P. Hardin**,  
Vanderbilt University (941-39-354)
- 9:30AM *Time-domain methods for nonhomogeneous refinement.*  
▶ (191) **Thomas B. Dinsbacher\*** and **Douglas P. Hardin**,  
Vanderbilt University (941-39-257)
- 10:00AM *Refinement equations, joint spectral radius and wavelets.* Preliminary report.  
(192) **Ding-Xuan Zhou**, City University of Hong Kong  
(941-42-111)
- 10:30AM *A geometric approach to ergodic non-homogeneous Markov chains.* Preliminary report.  
▶ (193) **Jianhong Shen**, UCLA (941-15-54)

### Special Session on Optimization Problems in Geometry, I

8:45 AM – 10:50 AM Room 447, Altgeld Hall

Organizers: **Robert Kusner**, University of Massachusetts, Amherst  
**John M. Sullivan**, University of Illinois at Urbana-Champaign

- 8:45AM *A general variational method for crystalline triple junction motion.*  
(194) **Jean E. Taylor**, Rutgers University (941-53-75)
- 9:30AM *Discrete minimal surfaces on non-conforming triangulations.*  
(195) **Konrad Polthier**, Technical University Berlin  
(941-53-322)
- 10:15AM *Conjectured minimal surfaces derived from Hamiltonian polyhedra in the cubic lattice.*  
(196) Preliminary report.  
**Chaim Goodman-Strauss**, Univ. Arkansas  
(941-53-169)

### Special Session on Recent Progress in Elementary Geometry, IV

9:00 AM – 10:50 AM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign  
**Clark Kimberling**, University of Evansville

- 9:00AM *Enumerative triangle geometry.*  
▶ (197) **Clark H. Kimberling**, University of Evansville  
(941-51-72)
- 10:00AM *On the Ajima-Malfatti problem.* Preliminary report.  
▶ (198) **Peter Yff**, American University of Beirut  
(941-51-208)
- 10:30AM *Remarks on triangles inscribed in a cubic curve.*  
▶ (199) **Lawrence S. Evans**, none (941-51-118)

### Special Session on Galois Representations, III

9:00 AM – 10:50 AM Room 141, Altgeld Hall

Organizers: **Nigel Boston**, University of Illinois at Urbana-Champaign  
**Michael Larsen**, University of Missouri

- 8:30AM Discussion
- 9:00AM *Twisted Galois representations and elliptic curves.*  
(200) **Brian Conrad\***, Harvard University, and **Siman Wong**, Brown University (941-11-244)
- 9:45AM *Lifts of mod  $p$  Galois representations with large image.*  
(201) **Yihsiang Liow**, University of Arizona (941-11-300)
- 10:15AM *Iwasawa invariants for elliptic curves.*  
(202) **Ralph Greenberg**, University of Washington  
(941-11-146)

### Special Session on Martingales and Analysis, III

9:00 AM – 10:50 AM Room 161, Everitt Laboratory

Organizers: **Joseph Max Rosenblatt**, University of Illinois at Urbana-Champaign  
**Renming Song**, University of Illinois at Urbana-Champaign  
**Richard B. Sowers**, University of Illinois at Urbana-Champaign

- 9:00AM *Wavelet theory for probabilists.*  
(203) **Richard Gundy**, Rutgers University (941-60-248)

- 9:30AM (204) *The B. Davis' inequality for orthogonal martingales under differential subordination.* Preliminary report. **Gang Wang\***, DePaul University, and **Rodrigo Banuelos**, Purdue University (941-60-110)
- 10:00AM (205) *Dispersion under stochastic flows.* **Michael C. Cranston\***, University of Rochester, **Michael Scheutzow**, Technische Universität, and **David Steinsalz**, University of California (941-60-106)
- 10:30AM (206) *From boundary crossing of non-random functions to first passage times of random processes.* Preliminary report. **Victor H. de la Pena\*** and **Ming Yang**, Columbia University (941-60-115)

### Special Session on Graph Theory, III

- 9:00 AM – 10:50 AM **Room 243, Altgeld Hall**  
Organizer: **Douglas B. West**, University of Illinois at Urbana-Champaign
- 9:00AM (207) *A distance property of  $2m$  points.* Preliminary report. **Andre E. Kezdy\***, University of Louisville, **Mark J. Nielsen** and **Hunter S. Snevily**, University of Idaho (941-05-226)
- 9:30AM (208) *Strengthening distance-hereditary graphs.* **Terry A. McKee**, Wright State University (941-05-10)
- 10:00AM (209) *Generalizing the Ramsey problem through diameter.* **Dhruv Mubayi**, Georgia Tech (941-05-125)
- 10:30AM (210) *Edge-maximal triangle-free point-determining graphs.* Preliminary report. **Richard H. Schelp\***, University of Memphis, and **Alex Scott**, University College London (941-05-105)

### Special Session on Symplectic Geometry and Topology, II

- 9:00 AM – 10:45 AM **Room 145, Altgeld Hall**  
Organizers: **Eugene M. Lerman**, University of Illinois at Urbana-Champaign  
**Susan Tolman**, University of Illinois at Urbana-Champaign
- 9:00AM (211) *Contact homologies for Legendrian tangles.* Preliminary report. **Lisa M. Traynor**, Bryn Mawr College (941-58-236)
- 10:00AM (212) *Blowing up on symplectic orbifolds.* **Leonor Godinho**, SUNY at Stony Brook (941-51-296)

### Special Session on Holomorphic Vector Bundles and Complex Geometry, III

- 9:00 AM – 10:50 AM **Room 343, Altgeld Hall**  
Organizers: **Maarten Bergvelt**, University of Illinois at Urbana-Champaign  
**Steven Bradlow**, University of Illinois at Urbana-Champaign  
**John P. D'Angelo**, University of Illinois at Urbana-Champaign  
**Lawrence Ein**, University of Illinois-Chicago
- 9:00AM (213) *Brill-Noether theory for holomorphic vector bundles on Riemann surfaces.* Preliminary report. **Ivona Grzegorczyk**, University of Massachusetts Dartmouth (941-14-270)
- 9:30AM (214) *Brill-Noether reflections for moduli spaces of sheaves on  $K3$  surfaces.* **Eyal Markman**, University of Massachusetts (941-14-302)

- 10:00AM (215) *Some new analysis on the  $K$ -trivial extremal contractions of smooth threefolds.* Preliminary report. **Kenji Matsuki\*** and **Csilla Tamas**, Purdue University (941-14-163)
- 10:30AM (216) *Quotient and moduli in differential and complex geometry.* Preliminary report. **Yi Hu**, UT (941-14-333)

### Special Session on Low-dimensional Topology, III

- 9:00 AM – 10:50 AM **Room 341, Altgeld Hall**  
Organizers: **Mark Brittenham**, University of North Texas  
**Charles Delman**, Eastern Illinois University  
**Rachel Roberts**, Washington University
- 9:00AM (217) *The universal circle for foliations and transverse laminations.* Preliminary report. **Sergio R. Fenley**, Washington University and Princeton University (941-57-230)
- 10:00AM (218) *Palmeira's theorem for laminations.* **David Gabai**, Caltech, and **William H Kazez\***, UGA (941-57-317)
- 10:30AM (219) *Alexander and Thurston norms of fibered 3-manifolds.* Preliminary report. **Nathan M. Dunfield**, University of Chicago (941-57-134)

### Session on Number Theory, II

- 9:30 AM – 10:55 AM **Room 443, Altgeld Hall**
- 9:30AM (220) *Multiplier systems of complex weight on the Hecke groups.* **Paul C. Pasles**, Saint Joseph's University (941-11-27)
- 9:45AM (221) *A transformation on the space of rational functions.* Preliminary report. **Victor H. Moll\***, Tulane University, **George Boros**, University of New Orleans, and **Michael Joyce**, Tulane University (941-11-93)
- 10:15AM (222) *On modified  $r$ -regular partitions.* Preliminary report. **Neville Robbins**, San Francisco State Univ. (941-11-138)
- 10:30AM (223) *Continued fraction expansions of Pell polynomials.* Preliminary report. **James G. Mc Laughlin**, University of Illinois at Urbana-Champaign (941-11-334)
- 10:45AM (224) *Constructing regular polygons with your favorite number of sides.* Preliminary report. **Florian Luca**, Bielefeld University (941-11-12)

### Invited Address

- 11:00 AM – 11:50 AM **Room 314, Altgeld Hall**  
(225) *Automorphic descent from  $GL(N)$  to classical groups* **Stephen Rallis**, Ohio State University (941-11-04)

### Invited Address

- 1:30 PM – 2:20 PM **Room 314, Altgeld Hall**  
(226) *Affine Grassmannians and the Bernstein center* **Alexander Beilinson**, University of Chicago

**Special Session on Elementary and Analytic Number Theory, IV**

2:30 PM – 6:20 PM Room 245, Altgeld Hall

Organizers: **Harold G. Diamond**, University of Illinois at Urbana-Champaign  
**A. J. Hildebrand**, University of Illinois at Urbana-Champaign

- 2:30PM (227) *Applications of number theory to cyclic codes and difference sets.*  
**Ronald J. Evans\***, UCSD, **Henk Hollman**, Philips Research Labs, Eindhoven, **Christian Krattenthaler**, University of Vienna, and **Qing Xiang**, University of Delaware (941-11-202)
- 3:00PM (228) *New results in comparative prime number theory.*  
**Kevin Ford\*** and **Richard H. Hudson**, University of South Carolina (941-11-122)
- 3:30PM (229) *Distribution of the RSA generator.* Preliminary report.  
**John B. Friedlander\***, Univ. of Toronto, **Daniel Lieman**, Univ. of Missouri, and **Igor Shparlinski**, Macquarie University (941-11-301)
- 4:00PM (230) *The cubic moment of central values of automorphic L-functions.* Preliminary report.  
**Brian Conrey\***, American Institute of Mathematics, and **Henryk Iwaniec**, Rutgers University (941-11-231)
- 4:30PM (231) *The geometry of badly approximable vectors.* Preliminary report.  
**Doug Hensley**, Texas A&M University (941-11-223)
- 5:00PM (232) *On sums of four smooth squares.*  
**Gergely Harcos**, Princeton University (941-11-332)
- 5:30PM (233) *Sums of nonnegative multiplicative functions over  $\gamma$ -smooth numbers.* Preliminary report.  
**Joung M. Song**, University of Illinois at Urbana-Champaign (941-11-73)
- 6:00PM (234) *Inverse problems for partition functions.* Preliminary report.  
**Yifan Yang**, University of Illinois (941-11-233)

**Special Session on Diophantine Equations, Inequalities and Related Arithmetic Problems, IV**

2:30 PM – 4:50 PM Room 143, Altgeld Hall

Organizers: **Michael Bennett**, University of Illinois at Urbana-Champaign  
**Trevor Wooley**, University of Michigan

- 2:30PM (235) *Integer apollonian circle packings.*  
**Jeffrey Lagarias**, AT&T Labs (941-11-297)
- 3:00PM (236) *Higher-order Carmichael numbers.*  
**Everett W. Howe**, Center for Communications Research, La Jolla (941-11-192)
- 3:30PM (237) *A Diophantine problem arising in the use of Galois descent.* Preliminary report.  
**Kristin E. Lauter**, University of Michigan (941-11-201)
- 4:00PM (238) *Exponential sums with applications to codes over rings.*  
**Judy L. Walker**, University of Nebraska (941-11-227)
- 4:30PM (239) *Schmidt's matrix normality conjecture.* Preliminary report.  
**Gavin Brown**, Sydney University, **William Moran**, Flinders University, and **Andrew D. Pollington\***, BYU (941-11-288)

**Special Session on Recent Progress in Elementary Geometry, V**

3:00 PM – 5:20 PM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign  
**Clark Kimberling**, University of Evansville

- 3:00PM (240) *The geometry of the cardiac cycle.*  
**Dennis F. Cudia**, none (941-52-43)
- 3:30PM (241) *The solution to the isoperimetric problem in 3-dimensional Minkowski space.*  
**Anthony C. Thompson**, Dalhousie University (941-52-49)
- 4:00PM (242) *The smallest convex cover for triangles of perimeter two.*  
**Zoltan Füredi** and **John E. Wetzel\***, University of Illinois at Urbana-Champaign (941-52-207)
- 4:30PM (243) *Planar packings and mappings related to minmax problems.*  
**Seon-Hong Kim**, University of Illinois (941-52-217)
- 5:00PM (244) *Packing problems with congruent polygons.*  
**Heiko Harborth**, TU Braunschweig, Germany (941-52-211)

**Special Session on Nonstandard Analysis, IV**

3:00 PM – 5:55 PM Room 269, Everitt Laboratory

Organizers: **C. Ward Henson**, University of Illinois at Urbana-Champaign  
**Peter Loeb**, University of Illinois at Urbana-Champaign

- 3:00PM (245) *Foundations of infinitesimal calculus.*  
**Keith D. Stroyan**, U. of Iowa (941-99-178)
- 3:30PM (246) *Verification of numerical software using nonstandard methods.* Preliminary report.  
**Ian Sutherland**, Bell Laboratories, and **Curtis Tuckey\***, Motorola (941-68-359)
- 4:00PM (247) *Nonstandard topologies with standard bases.* Preliminary report.  
**Nader Vakil**, Western Illinois University (941-46-24)
- 4:30PM (248) *Some results in nonstandard topology.*  
**Hermann Render**, University of Duisburg (941-54-113)
- 5:00PM (249) *Combinatorial formulations of strong saturation principles.* Preliminary report.  
**Mauro DiNasso**, University of Pisa, and **Karel Hrbacek\***, City College of New York (941-03-177)
- 5:30PM (250) *Nonstandard applications to problems from combinatorial number theory: A survey and update.*  
**Steven C. Leth**, University of Northern Colorado (941-03-327)

**Special Session on Galois Representations, IV**

3:00 PM – 5:50 PM Room 141, Altgeld Hall

Organizers: **Nigel Boston**, University of Illinois at Urbana-Champaign  
**Michael Larsen**, University of Missouri

- 3:00PM (251) *Automorphic induction and Leopoldt type conjectures for  $GL(n)$ .*  
**Haruzo Hida**, UCLA (941-11-145)
- 3:45PM (252) *On  $p$ -adic Galois representations associated to automorphic forms and applications.*  
**Eric J. P. Urban**, UCLA (941-11-261)
- 4:30PM (253) *Even Galois representations and group cohomology.* Preliminary report.  
**Avner D. Ash**, Ohio State Univ. (941-11-67)

5:15PM *The Monodromy pairing.*  
(254) **Robert F. Coleman**, University of California  
(941-14-205)

3:00PM *K(K).*  
(265) **Henri Gillet**, University of Illinois at Chicago  
(941-19-228)

4:30PM *K-theory and geometric Galois representations.*  
(266) **Wieslawa Niziol**, University of Utah (941-19-313)

**Special Session on Martingales and Analysis, IV**

3:00 PM – 4:50 PM Room 161, Everitt Laboratory

Organizers: **Joseph Max Rosenblatt**, University of Illinois at Urbana-Champaign  
**Renming Song**, University of Illinois at Urbana-Champaign  
**Richard B. Sowers**, University of Illinois at Urbana-Champaign

3:00PM *Sharp estimates for the spectral gap of biconvex domains. Sharp estimates for the spectral gap of doubly symmetric convex domains.* Preliminary report.  
(255) **Rodrigo Banuelos** and **Burgess Davis\***, Purdue University (941-00-123)

3:30PM *Local time flow related to skew Brownian motion.*  
(256) **Krzysztof Burdzy** and **Zhen-Qing Chen\***, University of Washington (941-60-107)

4:00PM *Long-time asymptotics of the stochastic parallel transport on hyperbolic space.* Preliminary report.  
(257) **Robert O. Bauer**, Georgia Institute of Technology (941-60-131)

4:30PM *Oscillation inequalities for singular integrals.* Preliminary report.  
(258) **James T. Campbell**, University of Memphis, **Roger L. Jones\***, DePaul University, **Karin Reinhold**, University at Albany, and **Máté Wierdl**, University of Memphis (941-26-65)

**Special Session on Graph Theory, IV**

3:00 PM – 5:50 PM Room 243, Altgeld Hall

Organizer: **Douglas B. West**, University of Illinois at Urbana-Champaign

3:00PM *Game coloring number.*  
(259) **H. A. Kierstead**, Arizona State University (941-05-262)

3:30PM *Dimension, graph and hypergraph coloring.*  
(260) **William T. Trotter\***, Arizona State University, and **Stefan Felsner**, Freie Universität Berlin (941-05-212)

4:00PM *Testing bipartiteness efficiently.*  
(261) **Noga Alon**, Tel Aviv University, and **Michael Krivelevich\***, DIMACS Center, Rutgers University (941-05-185)

4:30PM *On the power of LBFS.* Preliminary report.  
▶ (262) **Derek G. Corneil**, University of Toronto (941-05-103)

5:00PM *Improved algorithms for weakly triangulated graphs.* Preliminary report.  
(263) **Ryan B. Hayward**, University of Lethbridge, **R. Sritharan**, Indiana State University, and **Jeremy P. Spinrad\***, Vanderbilt University (941-05-132)

5:30PM *Low dilation embeddings of grids into hypercubes.*  
(264) **Zevi Miller\***, Miami University, and **Dan Pritikin**, Miami (941-05-318)

**Special Session on Algebraic K-Theory (and the 5th Annual Great Lakes K-Theory Conference), I**

3:00 PM – 5:15 PM Room 347, Altgeld Hall

Organizers: **Daniel Grayson**, University of Illinois at Urbana-Champaign  
**Randy McCarthy**, University of Illinois at Urbana-Champaign

**Special Session on Operator Spaces and Their Applications, IV**

3:00 PM – 5:20 PM Room 165, Everitt Laboratory

Organizers: **Gilles Pisier**, Texas A&M  
**Zhong-Jin Ruan**, University of Illinois at Urbana-Champaign

3:00PM *Some new properties of injective envelopes.* Preliminary report.  
(267) **Vern I. Paulsen**, University of Houston (941-47-278)

4:00PM *Higher order Hankel forms, factorization and derivations.* Preliminary report.  
(268) **William Cohn**, **Sarah Ferguson\***, Wayne State University, and **Richard Rochberg**, Washington University (941-47-224)

4:30PM *When do the norm and the cb-norm of elementary operators coincide?*  
(269) **Robert J. Archbold**, University of Aberdeen, **Martin Mathieu\***, The Queen's University of Belfast, and **Douglas W. B. Somerset**, University of Aberdeen (941-46-22)

5:00PM *Decomposition properties and an invariant for the free group \*-algebra.* Preliminary report.  
(270) **Marius B. Stefan**, University of Iowa (941-46-335)

**Special Session on Symplectic Geometry and Topology, III**

3:00 PM – 4:45 PM Room 145, Altgeld Hall

Organizers: **Eugene M. Lerman**, University of Illinois at Urbana-Champaign  
**Susan Tolman**, University of Illinois at Urbana-Champaign

3:00PM *Gromov invariants of  $S^2$  bundles over 4-manifolds.*  
(271) **Haydee Herrera**, SUNY at Stony Brook (941-53-130)

4:00PM *Cohomological splitting of symplectic fibrations.*  
(272) **François Lalonde**, Université du Québec a Montréal (941-53-328)

**Special Session on Holomorphic Vector Bundles and Complex Geometry, IV**

3:00 PM – 5:50 PM Room 343, Altgeld Hall

Organizers: **Maarten Bergvelt**, University of Illinois at Urbana-Champaign  
**Steven Bradlow**, University of Illinois at Urbana-Champaign  
**John P. D'Angelo**, University of Illinois at Urbana-Champaign  
**Lawrence Ein**, University of Illinois-Chicago

3:00PM *Moduli of sheaves on surfaces and action of the oscillator algebra.*  
(273) **Vladimir Baranovsky**, University of Chicago (941-14-158)

3:30PM *Global quantum cohomology of the complex projective plane.* Preliminary report.  
(274) **Jan Segert**, University of Missouri (941-53-173)

4:00PM *The Verlinde formula for moduli spaces of parabolic bundles.*  
(275) **Lisa C. Jeffrey**, University of Toronto (941-58-179)

- 4:30PM (276) *Cohomology of line bundles over the moduli space of  $G$ -bundles over a smooth curve.*  
**Constantin Teleman**, Stanford University (941-14-305)
- 5:00PM (277)  *$G$ -bundles on Abelian surfaces, hyperkahler manifolds, and stringy Hodge numbers.* Preliminary report.  
**Jim A. Bryan\***, Tulane University, **Ron Donagi**, University of Pennsylvania, and **Conan Leung**, University of Minnesota (941-14-247)
- 5:30PM (278)  *$PU(2)$  monopoles and a conjecture of Moore, Marino, and Peradze.*  
**Paul M. N. Feehan\***, Institute for Advanced Study, **Peter B. Kronheimer**, Harvard University, **Thomas G. Leuess**, Florida International University, and **Tomasz S. Mrowka**, Massachusetts Institute of Technology (941-58-267)

**Charles Delman**, Eastern Illinois University  
**Rachel Roberts**, Washington University

- 3:00PM (288) *Critical shapes of knots.*  
**Gregory Buck**, St. Anselm College, **Eric Rawdon**, Chatham College, **Jonathan Simon\*** and **Joshua Tokle**, University of Iowa (941-57-277)
- 3:30PM (289) *Automorphisms of handlebodies and compression bodies.*  
**Ulrich Oertel**, Rutgers University (941-57-153)
- 4:00PM (290) *Minimal handle presentations for 4-manifolds.* Preliminary report.  
**Robert Craggs**, University of Illinois at Urbana-Champaign (941-57-157)
- 4:30PM (291) *Surgery on knots which yield the same 3-manifold.*  
**John K. Osoinach Jr.**, Eureka College (941-57-345)
- 5:00PM Discussion

**Special Session on Combinatorial Designs, IV**

3:00 PM – 5:50 PM Room 241, Altgeld Hall

Organizers: **Ilene H. Morgan**, University of Missouri-Rolla  
**Walter D. Wallis**, Southern Illinois University-Carbondale

- 3:00PM (279) *Designing for experimental results that arise sequentially.*  
**Deborah J. Street**, UTS (941-05-243)
- 4:00PM (280) *On a balanced incomplete split-block design.*  
**K. Ozawa**, Gifu University, Japan, **M. Jimbo\***, Keio University, Japan, **S. Kageyama**, Hiroshima University, and **S. Mejza**, Agricultural University of Paznan, Poland (941-05-326)
- 4:30PM (281) *On  $c$ -Bhaskar Rao Designs.*  
**Spencer P. Hurd**, The Citadel, and **Dinesh G. Sarvate\***, University of Charleston (941-05-114)
- 5:00PM (282) *Cyclic difference packings.* Preliminary report.  
**Christopher N. Swanson**, University of Michigan - Ann Arbor (941-05-35)
- 5:30PM (283) *Constructing balanced nested designs.* Preliminary report.  
**Ying Miao**, University of Tsukuba (941-05-198)

**Special Session on Optimization Problems in Geometry, II**

3:00 PM – 5:50 PM Room 447, Altgeld Hall

Organizers: **Robert Kusner**, University of Massachusetts, Amherst  
**John M. Sullivan**, University of Illinois at Urbana-Champaign

- 3:00PM (284) *Instability of the wet cube cone soap film.*  
**Kenneth A. Brakke**, Susquehanna University (941-49-77)
- 3:45PM (285) *On the free boundary variational problem for minimal disks.*  
**Ailana M. Fraser**, New York University (941-53-276)
- 4:30PM (286) *The Willmore energy of quaternionic line bundles.* Preliminary report.  
**George I. Kamberov**, Washington University (941-58-294)
- 5:15PM (287) *Connected sums of constant mean curvature surfaces in Euclidean 3-space.* Preliminary report.  
**Frank Pacard**, ENS Cachan (941-53-357)

**Special Session on Low-dimensional Topology, IV**

3:00 PM – 5:30 PM Room 341, Altgeld Hall

Organizers: **Mark Brittenham**, University of North Texas

**Special Session on Commutative Algebra, IV**

3:00 PM – 6:50 PM Room 345, Altgeld Hall

Organizers: **Joseph Brennan**, North Dakota State University  
**Sankar Dutta**, University of Illinois at Urbana-Champaign  
**Robert Fossum**, University of Illinois at Urbana-Champaign  
**Phillip Griffith**, University of Illinois at Urbana-Champaign

- 3:00PM (292) *On the localization of tight closure.* Preliminary report.  
**Craig L. Huneke**, University of Kansas (941-13-325)
- 3:30PM (293) *Some conditions for the equivalence of weak and strong  $F$ -regularity.*  
**Ian M. Aberbach**, University of Missouri (941-13-220)
- 4:00PM (294) *The tight integral closure of a set of ideals.*  
**Melvin Hochster**, University of Michigan, Ann Arbor (941-13-344)
- 4:30PM (295) *Normal ideals in regular rings.*  
**Sam Huckaba\***, Florida State University, and **Craig Huneke**, University of Kansas (941-13-165)
- 5:00PM (296) *Permanental ideals and Zarankiewicz problem.* Preliminary report.  
**Irena Swanson**, New Mexico State University (941-13-252)
- 6:00PM (297) *A survey of obstruction theory for projective Modules of top rank.*  
**M. Pavaman Murthy**, University of Chicago (941-13-355)
- 6:30PM (298) *The LCM lattice.*  
**Vesselin N. Gasharov\***, **Irena V. Peeva**, Cornell University, and **Volkmar Welker**, Technische Universität Berlin (941-13-307)

**Special Session on Wavelet Analysis and Multiresolution Methods, IV**

3:00 PM – 6:50 PM Room 151, Everitt Laboratory

Organizer: **Tian-Xiao He**, Illinois Wesleyan University

- 3:00PM (299) *Sampling and stability.* Preliminary report.  
**Joseph M. Rosenblatt**, University of Illinois (941-42-55)
- 3:30PM (300) *Wavelets and multiwavelets for signal denoising.*  
**Vasily Strela**, Dartmouth College (941-94-343)

- 4:00PM (301) *Design of rational wavelet filter.*  
**Cheng Peng** and **Lizhong Peng\***, School of Mathematical Sciences, Peking University, Beijing, P. R. China (941-42-206)
- 4:30PM (302) *Best  $m$ -term approximation of functions with bounded mixed derivative or difference by Haar wavelets.* Preliminary report.  
**Alexander V. Andrianov**, University of South Carolina (941-42-171)
- 5:00PM (303) *On periodic wavelets and frames.*  
**Hrushikesh N. Mhaskar**, Cal. St. Univ., L. A. (941-41-135)
- 5:30PM (304) *Nonseparable scaling function interpolation and approximation.*  
**EnBing Lin**, University of Toledo (941-41-245)
- 6:00PM (305) *Applications of wavelets in industry: Simulations, prototypes and products.*  
**Mei Kobayashi**, Tokyo Research Laboratory, IBM Japan, Ltd. (941-33-78)
- 6:30PM (306) *Biorthogonal wavelets with certain regularities.* Preliminary report.  
**Tian-Xiao He**, Illinois Wesleyan University (941-41-266)

**Special Session on Recent Progress in Elementary Geometry, VI**

7:00 PM – 9:00 PM Room 445, Altgeld Hall

Organizers: **John E. Wetzel**, University of Illinois at Urbana-Champaign  
**Clark Kimberling**, University of Evansville

- 7:00PM (307) *Convex illumination problems.* Preliminary report.  
**Gregory Galperin**, Eastern Illinois University (941-51-232)
- 8:00PM (308) *A generalization of Post's theorem.*  
**John M. Sullivan**, Univ. of Illinois (941-52-143)
- 8:30PM (309) *Dynamic geometry of polygons.*  
**Richard L. Hitt** and **Xin-Min Zhang\***, University of South Alabama (941-51-09)

**Sunday, March 21**

**Special Session on Elementary and Analytic Number Theory, V**

8:30 AM – 12:20 PM Room 245, Altgeld Hall

Organizers: **Harold G. Diamond**, University of Illinois at Urbana-Champaign  
**A. J. Hildebrand**, University of Illinois at Urbana-Champaign

- 8:30AM (310) *Elementary methods and effective results for twin primes.* Preliminary report.  
**Kent D. Boklan**, Baltimore, Maryland (941-11-356)
- 9:00AM (311) *Nested series and iterated integrals.*  
**David M. Bradley**, University of Maine (941-11-101)
- 9:30AM (312) *The partition function modulo  $N$ .*  
**Scott D. Ahlgren**, Penn State University (941-11-265)
- 10:00AM (313) *Gap unification theory: Comments on the treatment of partitions via their gaps.*  
**Dennis A. Eichhorn**, University of Illinois (941-11-193)

- 10:30AM (314) *Computing 134 million coefficients of a series.* Preliminary report.  
**Dennis Eichhorn**, **William F. Galway\***, U. of IL. at Urbana-Champaign, and **James A. Sellers**, Cedarville College (941-11-340)
- 11:00AM (315) *New relations between the rank and the crank of partitions.* Preliminary report.  
**Frank G. Garvan**, University of Florida (941-11-283)
- 11:30AM (316) *Algorithmic solution of Thue equations.*  
**Robert F. Tichy**, Technical University Graz (941-11-64)
- NOON (317) *Smooth approximations to the Riemann zeta function.* Preliminary report.  
**Eugenio P. Balanzario**, Instituto de Matemáticas (941-11-362)

**Special Session on Diophantine Equations, Inequalities and Related Arithmetic Problems, V**

8:30 AM – 10:50 AM Room 143, Altgeld Hall

Organizers: **Michael Bennett**, University of Illinois at Urbana-Champaign  
**Trevor Wooley**, University of Michigan

- 8:30AM (318) *On the central derivative of certain Hecke  $L$ -series.*  
**Tonghai Yang**, SUNY at Stony Brook (941-11-361)
- 9:00AM (319) *Siegel modular forms, Hecke operators and theta series.*  
**Lynne H. Walling**, University of Colorado, Boulder (941-11-186)
- 9:30AM (320) *Cantor sets and numbers with small partial quotients.*  
**Stephen J. Astels**, University of Waterloo (941-11-274)
- 10:00AM (321) *Equivariant compactifications of vector groups and heights.*  
**Yuri Tschinkel**, Univ. of Illinois at Chicago (941-11-154)
- 10:30AM (322) *The Brauer-Manin obstruction for curves.*  
**Victor Scharaschkin**, University of Michigan (941-11-38)

**Special Session on Optimization Problems in Geometry, III**

8:45 AM – 10:50 AM Room 447, Altgeld Hall

Organizers: **Robert Kusner**, University of Massachusetts, Amherst  
**John M. Sullivan**, University of Illinois at Urbana-Champaign

- 9:30AM (323) *Optimal contact structures.* Preliminary report.  
**Jason H. Cantarella**, University of Pennsylvania (941-51-353)
- 10:15AM (324) *The optimal domains with least-perimeter and given area in surfaces of variable curvature.*  
**Jianguo Cao**, University of Notre Dame (941-53-82)

**Special Session on Galois Representations, V**

9:00 AM – 10:50 AM Room 141, Altgeld Hall

Organizers: **Nigel Boston**, University of Illinois at Urbana-Champaign  
**Michael Larsen**, University of Missouri

- 9:00AM (325) *Finite subgroups of  $GL_n$  and applications to Galois representations.*  
**Michael J. Larsen**, Indiana University, and **Richard Pink\***, Mannheim University (941-11-251)

## Program of the Sessions – Urbana, IL, Sunday, March 21 (cont'd.)

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- 9:45AM (326) *Galois representations ramified only at a single small prime.* Preliminary report.  
**Sharon A. Brueggeman**, Univ. of Illinois at Urbana-Champaign (941-11-336)
- 10:15AM (327) *The unramified Fontaine-Mazur conjecture.*  
**Nigel Boston**, Univ. of Illinois (941-11-289)

- NOON (338) *Non-archimedean Arakelov theory.*  
**Christophe Soulé**, CNRS and IHES (941-19-119)

**Susan J. Friedlander**  
Associate Secretary  
Chicago, Illinois

### ***Special Session on Symplectic Geometry and Topology, IV***

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9:00 AM – 11:45 AM **Room 145, Altgeld Hall**

- Organizers: **Eugene M. Lerman**, University of Illinois at Urbana-Champaign  
**Susan Tolman**, University of Illinois at Urbana-Champaign
- 9:00AM (328) *Localization for group valued equivariant cohomology.*  
**Eckhard Meinrenken**, University of Toronto (941-53-256)
- 10:00AM (329) *Singular Lagrangian fibrations.* Preliminary report.  
**Nai-Chung Conan Leung**, University of Minnesota, and **Margaret F. Symington\***, University of Texas at Austin (941-57-246)
- 11:00AM (330) *Moduli spaces of flat connections on Riemann surfaces.* Preliminary report.  
**Lisa C. Jeffrey**, University of Toronto (941-58-180)

### ***Special Session on Graph Theory, V***

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9:30 AM – 11:50 AM **Room 243, Altgeld Hall**

- Organizer: **Douglas B. West**, University of Illinois at Urbana-Champaign
- 9:30AM (331) *Independent sets and spanning trees with many leaves.* Preliminary report.  
▶ **Jerrold R. Griggs**, University of South Carolina (941-05-159)
- 10:00AM (332) *Two simultaneous coloring problems.*  
**Yue Y. Zhao**, Benedict College (941-05-86)
- 10:30AM (333) *Generalized list coloring of planar and outerplanar graphs.*  
**Glenn G. Chappell**, Southeast Missouri State University (941-05-286)
- 11:00AM (334) *The sub-chromatic number of a graph.* Preliminary report.  
**Chris M. Hartman**, University of Alaska Fairbanks (941-05-187)
- 11:30AM (335) *Collision and percolation.*  
**Peter Winkler**, Lucent Technologies (941-05-46)

### ***Special Session on Algebraic K-Theory (and the 5th Annual Great Lakes K-Theory Conference), II***

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9:30 AM – 12:45 PM **Room 347, Altgeld Hall**

- Organizers: **Daniel Grayson**, University of Illinois at Urbana-Champaign  
**Randy McCarthy**, University of Illinois at Urbana-Champaign
- 9:30AM (336) *Mixed Tate motives with finite coefficients and the Koszulity conjecture.*  
**Leonid Positselski**, Institute for Advanced Study (941-19-120)
- 10:45AM (337) *The Chern character in equivariant K-homology.*  
**Peter Schneider**, Westfälische Wilhelms-Universität Münster, and University of Illinois at Chicago (941-19-121)