



**SIG/Research in Mathematics Education**  
**American Educational Research Association**

**Winter 2004 Newsletter**

**<http://www.sigme.org>**

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**What's Inside**

Election Results	p. 1
Early Career Award Recipient	p. 2
SIG/RME Website	p. 2
Attention Members!	p. 2
AERA Information	p. 2
Senior Scholar Research Portfolio Award	p. 3
NCTM Research Pre-Session Information	p. 3
Graduate Students to Meet at Pre-Session	p. 3
Receive the Newsletter Electronically	p. 3
2004 CPTM Summer Institute	p. 4
AERA Session Information	p. 5
NCTM Research Pre-Session Program	p. 18
Address Correction Form	p. 22

**Election Results**

Congratulations to the newly elected officers:

*Co-Chair*

Judit Moschkovich  
University of California - Santa Cruz

*Treasurer*

Rose Marie Zbiek  
Pennsylvania State University

*Steering Committee*

Eric Knuth  
University of Wisconsin – Madison

We appreciate their willingness to serve the organization for the next two years. We extend our thanks to outgoing officers Dan Chazan, Cindy Langrall, and Vic Cifarelli for their leadership and service to SIG/RME the past two years.

## Early Career Award Recipient

The Special Interest Group for Research in Mathematics Education announces the award of the 2004 Early Career Publication Award to Dr. Andrew Izsák. Dr Izsák received his Ph.D. in mathematics education in 1999 from the University of California, Berkeley, under the direction of Professor Alan Schoenfeld and is now an Assistant Professor of Mathematics Education at the University of Georgia.

The Early Career Award is given to Dr. Izsák as a recognition of the outstanding qualities of his article entitled "We want a statement that is always true": Criteria for good algebraic representations and the development of modeling knowledge, published in 2003 in the *Journal for Research in Mathematics Education*, 34(3), pp. 191-227. The paper by Dr. Izsák contributes important insights on how students learn to model physical data using algebra. The paper distinctively aims at developing theory of how students develop modeling knowledge by coordinating criteria for evaluating, generating, and using algebraic representations. This theoretical contribution is grounded on a detailed and rigorous analysis of two 8<sup>th</sup> grade students' solving problems related to a physical device called the winch. Members of SIG/RME Executive Board concur with the comments in one of the letters of nomination, where the author speaks of Izsák's methodology saying "this article provides one of the best descriptions ... of the analysis process a researcher needs to go through when attempting to make inferences concerning students' understandings from videotaped interviews."

Congratulations Dr. Izsák!

## SIG/RME Website

The SIG/RME has a permanent website located at <http://www.sigrme.org>. Please check the website for information related to SIG/RME announcements, positions available, upcoming conferences, and much more.

If you have any information that you think should be posted on the SIG/RME website, please contact Cengiz Alacaci at [alacaci@fiu.edu](mailto:alacaci@fiu.edu).

## Attention Members!

Please check your name in the upcoming SIG/RME directory, which you should receive in April. If you received this newsletter but do not see your name in the new directory, it means our records indicate your SIG/RME membership has expired. Our records are based on the quarterly membership updates we receive from AERA, as well as the "SIG/RME Only" memberships sent directly to the Treasurer.

If your name is not included in the directory, please renew your SIG/RME membership. If you are sure you have renewed your membership, please contact Bidyut Acharya, [bacharya@aera.net](mailto:bacharya@aera.net), at AERA. Thank you for your support of the SIG/RME!

## AERA Information

The Annual Meeting of AERA will be held in San Diego April 12-16, 2004. The SIG/RME invited speaker is Etienne Wenger. His talk, *Learning in Communities of Practice: A Journey of the Self*, will be presented Tuesday, April 13 at 10:35 a.m.-12:05 p.m. The SIG/RME Business Meeting will be held on Tuesday, April 13 at 6:15 – 7:45 p.m.

Information about SIG/RME, Division C.3, and Division K.1 sponsored sessions at the Annual Meeting can be found later in this newsletter. The complete Annual Meeting program can be found at AERA's website ([www.aera.net](http://www.aera.net)).

Pre-registration for the Annual Meeting can be made at AERA's website ([www.aera.net](http://www.aera.net)) or through U.S. mail with the forms provided in the November issue of *Educational Researcher*. On-site registration will be available.

## **Senior Scholar Research Portfolio Award**

As was discussed at the 2003 SIG/RME Business Meeting, the senior co-chair convened a subcommittee to develop potential procedures for the institution of a Senior Scholar Research Portfolio Award by the SIG. After some internal work, as well as consultation with senior scholars in the field, the subcommittee reported to the complete Executive Board and produced a proposal for its consideration. The Board plans to bring the draft proposal to the membership at the 2004 Business Meeting. An electronic version of the file will be posted on the SIG/RME website ([www.sigrme.org](http://www.sigrme.org)) by March 15. For those who have not had time to review the proposal before the Business Meeting, these same materials will be made available Tuesday evening at AERA. Discussion of the proposal and motions will be expected as part of the agenda of the Business Meeting.

## **NCTM Research Pre-Session Information**

The NCTM Research Pre-Session will be held at the Pennsylvania Convention Center in Philadelphia April 19-21, 2004. The opening session speaker will be Ed Silver, outgoing editor of *JRME*. His talk is titled *My Unfinished Editorial: Reflections on Research In and On Mathematics Education*. The closing session's topic on Wednesday afternoon will be the Research Catalyst Conference, which will include representation from all the working groups. The program for the pre-session can be found later in this newsletter.

Pre-registration for the Research Pre-Session can be made electronically through NCTM's website ([www.nctm.org](http://www.nctm.org)) or through U.S. mail with the registration forms provided by NCTM in the Preview Brochure that was mailed to members in November. On-site registration will occur outside Room 103A of the Convention Center on Monday, April 19, 4:30-7 p.m., Tuesday, April 20, 7 a.m. – 3 p.m., and Wednesday, April 21, 7 a.m. - noon. The registration cost is \$65.00 for the entire pre-

session, \$32.50 for one day registration, and \$32.50 for student registration.

## **Graduate Students to Meet at the NCTM Research Pre-Session**

A graduate student session will be held from 4:45 – 6:00 p.m. on Tuesday, April 20 in Room 108B at the Pennsylvania Convention Center. This session is a follow-up to a call from graduate students, who at the 2003 SIG/RME Annual Business Meeting requested a session where they could become acquainted with each other, discuss important issues related to their developing identities as mathematics education researchers, and share their intellectual work.

This session, which is jointly sponsored by the SIG/RME Board and the NCTM Research Committee, will be hosted by several members of each group who will serve as mentors during the discussions. An outcome of this session might be a proposal for how the SIG/RME and RC could continue to support graduate students at subsequent NCTM research pre-session meetings or AERA meetings.

## **Receive the Newsletter Electronically**

If you would like to receive the SIG/RME newsletter electronically rather than by U.S. mail, please notify Rose Zbiek at [rmz101@psu.edu](mailto:rmz101@psu.edu). You will receive email notification each time the newsletter is published. You can then obtain the newsletter from the SIG/RME website at your convenience. Members who choose to receive the newsletter electronically will receive a hard copy of the SIG/RME membership directory through U.S. mail.

The Center for Proficiency in Teaching Mathematics  
invites you to apply for the

**2004 CPTM Summer Institute**

**DEVELOPING TEACHERS' MATHEMATICAL KNOWLEDGE  
FOR TEACHING**

**June 5-12, 2004**

The 2004 CPTM Summer Institute is designed for mathematicians and mathematics educators who work with K-8 teachers. Participants will develop practical resources and skills for working with K-8 teachers on mathematics for teaching. A central feature of the Institute will be a daily "laboratory" class of preservice teachers that will offer opportunities for participants' observation, study, and analysis.

**FOCUS**

The Institute will focus on the mathematical preparation of K-8 teachers. Two key problems will be addressed:

1. What mathematical knowledge and practices play a central role in the everyday work of teaching?
2. What are promising approaches for helping teachers learn mathematics for teaching and learn to use it in their work?

**VENUE**

Held on the campus of the University of Michigan in Ann Arbor, this CPTM sponsored Institute is being designed and led by faculty from both the University of Michigan (Deborah Ball, Hyman Bass, and Ed Silver) and the University of Georgia (Sybilla Beckmann, Jeremy Kilpatrick, Denise Mewborn, Paola Sztajn, Dorothy Y. White, and Patricia Wilson).

Room, board, and travel will be provided by the CPTM for all participants.

**DETAILS**

Please contact Dr. Teresa McMahon ([teresam@umich.edu](mailto:teresam@umich.edu)) for an application and guidelines or for further information.

Deadline for submission of applications is March 31, 2004.  
Acceptances announced by mid April.

**AERA Session Information**  
**Sessions Sponsored by SIG/RME, Division C.3, & Division K.1**

**Note:** Due to space limitations, only the name of the first person is listed for the majority of the presentations noted below. Please see the final program on AERA's website ([www.aera.net](http://www.aera.net)) for complete listings of presentations.

**Monday, April 12, 2004**

**12:00 – 2:00 p.m.**

***Symposium: Lesson Events as the Basis for International Comparisons of Classroom Practice***

Organizer(s) & Chair: David J. Clarke (University Of Melbourne)

Discussant: Jeremy Kilpatrick (University of Georgia)

Participant(s):

- *Summing Up (Matome)*, Shimizu Yoshinori (Tokyo Gakugei University)
- *Setting the Task*, Christine Keitel (Free University of Berlin)
- *Beginning the Lesson: The First 10 Minutes*, Carmel Mesiti (University of Melbourne)
- *Learning Tasks*, Ida Ah Chee Mok (University of Hong Kong)
- *Guided Development*, Joanne Lobato (San Diego State University)
- *Walking Between Desks (Kikan-Shido)*, David J. Clarke (University of Melbourne)

**12:00 – 2:00 p.m.**

***Symposium: Examining Teaching and Learning in Mathematics and Science from a Models and Modeling Perspective***

Chair: Richard Lesh (Purdue University)

Discussant: Jere Confrey (Washington University at St. Louis)

Participants:

- *Some Foundations of Models and Modeling Perspectives for Teaching and Learning*, Richard Lesh (Purdue University)
- *Mathematical Modeling in the Elementary School*, Lyn D. English (Queensland University of Technology)
- *Students' Models as a Means of Support in Teacher Development*, Kay J. McClain (Vanderbilt University)
- *Some Foundations of Models and Modeling Perspectives for Teaching and Learning*, Helen M. Doerr (Syracuse University)
- *Mathematical Modeling in the Elementary School*, James J. Watters (Queensland University of Technology)
- *The Role of Interest, Identity, and Social Functioning as Central to Learning*, James A. Middleton (Arizona State University)
- *Modeled-Based Reasoning in Mathematics and Science*, Richard Lehrer (Vanderbilt University)
- *Mathematical Modeling in the Elementary School*, Sue Mahoney (Queensland University of Technology)

**1:00 – 1:40 p.m.**

***Paper Discussion Session: Mathematics and Discourse***

- *Mediating Mathematical Meaning Through Discourse*, Mary Truxaw (University of Connecticut)
- *"We" and "They," "Should" and "Shouldn't": The Construction of Moral Discourse and Appropriation of Primary Identity in Mathematics Classroom*, Jae Hoon Lim (The George Washington University)

- *Group-Level Development of Powerful Discourses in Mathematics: Networked Classroom Technologies as Mediating Artifacts*, Nancy Ares (Warner School, University of Rochester)
- *What do Mathematics Teachers Ask Students to Do in Lessons: TIMSS Data Analysis*, Shu-ling Lai (Ling Tung College)
- *Mortgage Loans—Is Racism a Factor?: Teaching Mathematics for Racial Justice*, Eric Gutstein (University Of Illinois - Chicago)
- (Accepted, but will not be presented) *Representations of Mathematics in the Cultural Field: a Discursive Approach*, Jeffrey Evans (Mathematics & Statistics Group, Middlesex University Business School)

**2:15 – 3:45 p.m.**

**Symposium: Developing a Knowledge Base for Teaching: Learning Content and Pedagogy in a Course on Patterns and Functions**

Chair: Margaret Smith (University of Pittsburgh)

Discussant: James Greeno (Stanford University); Miriam Gamoran Sherin (Northwestern University)

Participants:

- *Thinking Through a Lesson: Lesson Planning as a Vehicle for Teacher Learning*, Elizabeth Hughes, Margaret Smith (University of Pittsburgh); Edward Silver (University of Michigan)
- *Accessing Proportionality in the Service of Developing the Concept of Function*, Amy Hillen (University of Pittsburgh)
- *Comparing Knowledge Bases and Reasoning Structures in Discussions of Mathematics and Pedagogy*, Michael Steele (University of Pittsburgh)
- *Capitalizing on Previous Discussions to Deepen Teachers' Engagement with Mathematics and Pedagogy*, Randi Engle (LRDC, University of Pittsburgh)
- *Cases as a Vehicle for Enhancing Teacher Learning of Mathematics Content and Pedagogy*, Margaret Smith (University of Pittsburgh)
- *Functional Representations of Functions for Conceptual Flexibility*, Gaea Leinhardt (University of Pittsburgh)

**2:15 p.m. – 3:45 p.m.**

**Symposium: Small Group Mathematical Modeling in Engineering: A Case of Collaboration**

Organizer(s) & Chair: Judith S. Zawojewski (Illinois Institute Of Technology)

Participant(s):

- *Principles for Studying Transformation of a Freshman Engineering Class*, Heidi Diefes-Dux (Purdue University)
- *Collecting Evaluation Data to Support the Transformation*, Brenda M. Capobianco (Purdue University)

**2:15 – 3:45 p.m.**

**Paper Session: Issues in the Preparation of Mathematics and Science Teachers**

Session Chair: Jeffrey E. Barrett (Illinois State University)

Session Discussant: Juliet A. Baxter (University of Oregon)

- *Learning About Science, Technology, Society and Environment (STSE) Perspectives Through Case Methods in Teacher Education*, Erminia G. Pedretti (University of Toronto)
- *Doing, Observing, and Reflecting: Teaching Future Teachers About Collaboration on Science Tasks*, Alexander W. Chizhik (San Diego State University)
- *Developing the Foundations for Teaching Elementary Mathematics: Challenges for Educating Prospective Teachers*, Jean M. Mitchell (California State University at Monterey Bay)

- *Mathematics Stories: Preservice Teachers' Images and Experiences as Mathematics Learners*, Lisa Kirtman (California State University at Fullerton)
- *Challenges of Teaching Prospective Teachers How to Use Instructional Representations Effectively in Teaching Mathematics*, Rhonda B. Cohen (University of Michigan)

**2:15 – 3:45 p.m**

**Paper Session: Mathematical Reasoning in Secondary School and Beyond**

Session Chair: David Kirshner (Louisiana State University)

Session Discussant: Judith M. Kysh (San Francisco State University)

- *Mathematical Modeling in Everyday Engineering Work and Its Implications for K-12 Math Education*, Julie Gainsburg (California State University at Northridge)
- *Proving and Proof in High School Geometry: What is "it" That is Going On for Students and How Do They Make Sense of It?*, Patricio G. Herbst (University of Michigan)
- *Students' Conceptual Understanding of the Standard Deviation*, Robert C. DelMas (University of Minnesota)
- *The Reflexive Elaboration of Understanding: An Ethnography of Graphing in a Fish Hatchery*, Wolff-Michael Roth (University of Victoria)
- *Images and the Growth of Mathematical Understanding in Workplace Training*, Lyndon Martin (University of British Columbia)

**4:05 – 6:05 p.m.**

**Symposium: On the Effectiveness of Mathematics Curriculum: Examining the Quality of the Evaluations: NAS**

Chair: Martin Orland (The National Academies, Center for Education)

- *Analysis of the Comparative Evaluation Studies*, Jere Confrey (Washington University at St. Louis);
- *Overview of the Effectiveness of Mathematics Curriculum: Examining the Quality of the Evaluations Project*, Carole B. Lacampagne (The National Academies);
- *Analysis of the Comparative Evaluation Studies*, Douglas A. Grouws (University of Iowa);
- *Discussion of the Synthesis, Background, and Informative Studies*, Carolyn Mahoney (Elizabeth City State University);
- *Analysis of the Comparative Evaluation Studies*, William H. Schmidt (Michigan State University);
- *Analysis of the Case Studies*, Patrick W. Thompson (Vanderbilt University)

**4:05 – 6:05 p.m.**

**Symposium: Perspectives on Statistical Literacy**

Chair: Koeno PE Gravemeijer (Freudenthal Institute)

Discussant: George B. Greer (San Diego State University)

- *Cultivating Students' Mathematical Interests: The Case of Statistical Data Analysis*, Paul A. Cobb (Vanderbilt University)
- *Modeling and Tool Use as Catalysts for Developing Statistical Literacy*, Koeno PE Gravemeijer (Freudenthal Institute)
- *Linking "Statistical Numbers" with "Statistical Contexts" in Statistical Education*, Jose Luis Cortina (Vanderbilt University)
- *The Meaning of Statistical Variation in the Context of Work*, Celia M. Hoyles (University of London)

4:55 – 5:35 p.m.

**Paper Discussion Session: The Role of Representation in Mathematics Learning and Teaching: The Case of Fractions**

- *Area Models and Number Lines in the Construction of Equivalent Fractions*, Jennifer Garcia de Osuna (University of California at Berkeley)
- *Children's Multiplicative Partitions of Area in Equal Folding Tasks*, Susan B. Empson (University of Texas at Austin)
- *Students' Responses to Number Lines: A Window into the Relationship Between learning Representation Conventions and Learning Fraction and Rational Numbers*, Yujing Ni (Chinese University of Hong Kong)
- *Teaching and Learning to Add Fractions on Number Lines in One Sixth-Grade Classroom*, Andrew G. Izsák (University of Georgia)
- *Teachers' Frameworks for Assessing Student Understanding of Area Model and Number Line Representations of Fractions*, Maryl Gearhart (University of California at Berkeley)
- *US and Japanese Differences in Rational Number Understanding: A Conceptual Comparison of Multiple and Single Perspective Instructional Approaches*, Bryan J. Moseley (Florida International University)
- *Fostering an Understanding of Ratio and Proportion in the Rational Number System Using Linear Measurement and Percent*, Joan Moss (University of Toronto)

**Tuesday, April 13, 2004**

10:35 a.m. – 12:05 p.m.

**Paper Session: Learning in Communities of Practice: A Journey of the Self – SIG/RME  
Invited Address**

Session Chairs: Rogers Hall (Vanderbilt University), Daniel I. Chazan (University of Maryland)

Session Discussant:

- *Learning in Communities of Practice: A Journey of the Self*, Etienne Wenger (CPSquare)

10:35 a.m. – 12:05 p.m.

**Paper Session: Mathematics Teacher Thinking and Learning**

Session Chair: Jeffrey Shih (University of Nevada – Las Vegas)

Session Discussant: Patricio G. Herbst (University of Michigan)

- *Epistemological and Subject Matter Beliefs of Middle School*, Mara Alagic (Wichita State University)
- *Coordinating Problem-Solving Strategies and Multiplication Knowledge in One Sixth-Grade Classroom*, Andrew G. Izsák (University of Georgia)
- *A Close Look at the Middle School Mathematics Teachers' Implementation of Graphing Calculators*, Beth Herbel-Eisenmann (Iowa State University)
- *How Middle School Mathematics Teachers in Shanghai Use Student Homework as Tool for Teacher Learning in the Workplace*, Yanping Fang (Michigan State University)
- *Are Reform-Oriented Teaching Practices Associated with Improved Mathematics and Science Scores?* Vi-Nhuan Le (RAND)

2:15 – 2:55 p.m.

**Paper Session: Investigating the Learning of Pre-service Mathematics and Science Teachers**

- *Pre-service Teachers' Inquiry into Children's Thinking*, Constance Haack (Wichita State University)



- *Math and Science Preparation of Preservice Elementary Teachers: A Collaboration of Teachers and University Faculty*, Juliet A. Baxter (University of Oregon)
- *Departmental Mentoring: A Community of mathematics Teachers Supporting a Pre-service Teachers' Learning*, Rebekah Elliott (University of Washington)

**2:15 - 3:45 p.m.**

**Symposium: Advancing the Theory and Design of Curriculum Materials that Support Practice**

Organizer & Chair: Matthew W. Brown (University of Illinois at Chicago)

Discussant: Edward A. Silver (University of Michigan)

- *Curriculum Materials as Tools*, Janine Remillard (University of Pennsylvania)
- *Toward a Theory of Curriculum Design and Use*, Matthew W. Brown (University of Illinois at Chicago)
- *Curriculum Materials as Tools*, Elizabeth A. Davis (University of Michigan)
- *Examining the "Voice" of a Mathematics Textbook: How Does the Textbook Speak to and Frame the Teacher and Students?* Beth A. Herbel-Eisenmann (Iowa State University)

**2:15 – 3:45 p.m.**

**Paper Session: Community as a Context for Mathematics and Science Teacher Learning**

Session Chair: Terry L. Wood (Purdue University)

Session Discussant: Doris Ash (University of California at Santa Cruz)

- *So That's What it Means to Teach Quality Mathematics to Urban, Latina/o Students!: A "Community of Practice" Model for Developing Pre-Service Teachers*, Rochelle Gutierrez (University of Illinois at Urbana-Champaign)
- *Understanding Beginning Teachers' Needs: The Effects of RENEW, A Retention and Renewal Mathematics Project*, Stella Erbes (Pepperdine University)
- *Small Learning Communities That Support Teachers in Learning to Teach Science as Inquiry*, Barbara Ann Crawford (Cornell University)
- *Conversations Reflecting Reform: Online Discussion as a Context for Teachers' Professional Development in Elementary Mathematics*, Lisa Wilson Carboni (University of North Carolina at Chapel Hill)
- *Developing and Supporting Elementary Mathematics Teacher's Reform Beliefs*, Lynda E. Colgan (MSTE Group)

**2:15 - 3:45 p.m.**

**Symposium: Mathematics Instruction in Urban Elementary Schools: Evidence on Patterns of Practice**

Discussants: Susanna Loeb (Stanford University); Lorraine McDonnell (University of California – Santa Barbara)

- *Introduction to the Study of Instructional Improvement Mathematics Log*, Jenny DeMonte (University of Michigan)
- *Appraising the Validity of Log Data*, Deborah Ball & Keisha M. Ferguson (University of Michigan)
- *Instructional Time in Mathematics and Students' Opportunities to Learn*, Deborah Ball & Douglas Corey (University of Michigan)
- *Using Instructional Logs to Study Elementary School Mathematics: A Close Look at Curriculum and Teaching in the Early Grades*, Brian P. Rowan (University of Michigan)
- *Influences on Instruction Focused on Complex Mathematical Learning Outcomes*, Douglas Corey (University of Michigan)
- *Using Instructional Logs and Measures of Teacher Content Knowledge to predict Student Performance*, Heather C. Hill (University of Michigan)

4:05 – 6:05 p.m.

**Symposium: Finding Balance: Re-visiting the Relations Between Conceptual and Procedural Knowledge**

Chairs: Bethany Rittle-Johnson (Vanderbilt University); Jon R. Star (Michigan State University)

Discussant: Karen C. Fuson (Northwestern University)

- *The Relation Between Conceptual and Procedural Knowledge: Past, Present, and Future*, Arthur J. Baroody (University of Illinois)
- *The Development of Flexible Procedural Knowledge in Equation Solving*, Jon R. Star (Michigan State University)
- *Using Real-World Contexts to Strengthen Links from Procedural Knowledge to Improved Conceptual Knowledge*, Bethany Rittle-Johnson (Vanderbilt University)
- *Conceptual and Procedural Relationships in Mathematics Teaching Re-examined from an International Perspective*, James Hiebert (University of Delaware)
- *Benefits of Prior Procedural Knowledge for Learning from Conceptually-Oriented Instruction on Functions*, Mindy Kalchman (DePaul University)

4:55 – 5:35 p.m.

**Paper Session: Representation and Assigning Meaning in Mathematics Learning**

- *Comprehending and Solving Word Problems in Mathematics*, Paredes-Dávila Hilda (Universidad Nacional Autónoma de México)
- *Representational Fluency Among Middle School Students Solving Pattern Generalization Problems*, Haggai Kupermintz (University of Colorado at Boulder)
- *Tools for Supporting the Orchestration of Mathematical Conversations: A Case from Proportional Reasoning*, Jose Luis Cortina (Vanderbilt University)
- *What Counts as Statistical Understanding: An Ethnographic Study in an AP Statistics Class*, Yan Liu (Vanderbilt University)
- *When Computers Become Constructivist Learners: Helping Students Understand the Communicative Function of Symbols*, Kristen C. Pilner (Stanford University)
- *Students' and Teachers' Conceptions About What Constitutes a Good Assessment Problem in Mathematics*, Ana Remesal (University of Frankfurt)

6:15-7:45 p.m.

**Annual Business Meeting of SIG/RME**

Chairs: Daniel I. Chazan (University of Maryland), Randolph A. Philipp (San Diego State University)

**Wednesday, April 14, 2004**

8:05 -10:15 a.m.

**Symposium: Making Lesson Structure Visible: Alternative Analysis Techniques Applied to a Large International Mathematics Data Set**

Discussant: Kevin F. Miller (University of Illinois)

- *Lesson Signatures: A Methodology for Examining the Interplay of Variables Across Time*, Karen B. Givvin (LessonLab)
- *Out of Order: Extracting patterns from Sequences of Lesson Codes*, Sujai Kumar (University of Illinois at Urbana-Champaign)
- *Let HOMALS Show You the Story*, Xiaobin Zhou (University of Illinois at Urbana-Champaign)
- *Charting the Course: Navigating Lesson Data Through Visual Representations*, Christopher A. Correa (University of Illinois at Urbana-Champaign)

10:35 a.m. – 12:05 p.m.

**Symposium: *Research Issues in the Improvement of Mathematics Teaching and Learning Through Professional Development***

Organizer(s) & Chair: Jo Ellen Roseman (American Association for The Advancement of Science)

Discussant: Mary C. Shafer (Northern Illinois University)

Participant(s): Linda D. Wilson, George E. Deboer (American Association for The Advancement of Science); Kathleen M. Morris (AAAS Project 2061); Gerald Kulm, Victor L. Willson, Mary Margaret Capraro, Robert M Capraro (Texas A&M University); Jon Manon (University of Delaware)

12:25 – 1: 55 p.m.

**Symposium: *Video-based Analysis of Practice for Teacher Learning in Mathematics***

Chairs: Rossella Santagata (LessonLab & UCLA); Nicole Kersting

Discussant: Ronald Gallimore (University of California); James Hiebert (University of Delaware)

- *What Can Pre-Service Teachers Learn from the Analysis of Videotaped Lessons?* Claudia Zannoni (Universita' di Bologna); James Stigler (LessonLab, Inc.)
- *Using Analysis of Video Clips of Lessons to Assess Mathematics Teachers Analysis of Practice Ability*, Nicole Kersting (UCLA)
- *To Watch, Perchance to Learn: Pitfalls in Learning From Classroom Video and Some Solutions*, Kevin Miller, Linda Sims, Michelle Perry, Xiaobin Zhou (University of Illinois at Urbana-Champaign)
- *An Experimental Model for Analyzing and Improving Classroom Lessons*, Anne Morris (University of Delaware)

12:25 – 1:55 p.m.

**Interactive Symposium: *Examining the Rigor and Applicability of Design Experiments***

Organizer(s) & Chair: James A Middleton - Arizona State University

Discussant: Denis C. Phillips (Stanford University)

Participant(s): James A Middleton, Don Evans, Dale R. Baker, Wilhelmina C. Savenye, Robert Atkinson, Chell Roberts, Stephen Krause, Sharon E. Kurpius, Cumali Oksuz (Arizona State University); Anthony E. Kelly, Brenda Bannan-Ritland (George Mason University); Richard Lesh (Purdue University), Susanne P. Lajoie (McGill University); Teruni de Silva Lamberg (Vanderbilt University); Daniel T. Hickey (University Of Georgia); David Williamson Shaffer (University Of Wisconsin – Madison); Finbarr C. Sloane, James S. Dietz (National Science Foundation); Stephen A. Gorard, Christopher M. Taylor (Cardiff University); Thomas Brush (Indiana University); Terri B. Kurz (Mississippi State University); Steven M. McGee (Center for Educational Technologies)

2:15 – 3:45 p.m.

**Paper Session: *Examining Mathematics and Science Teacher Cognition***

- *Quality Science, Mathematics, and Technology Teaching: The Emerging Landscape of the NSF Teacher Professional Continuum Program*, Patricia K. Freitag (Education Policy Institute)
- *Professional Development of Secondary Mathematics Teachers: What Do We Know and Where Do We Go?*, Francine Cabral Roy (University of Rhode Island)
- *Teachers' Content Knowledge and Associated Confidence During Professional Development in an Authentic Research Environment*, Eva Erdosne Toth (Allegheny – Singer Research Institute)
- *Framing Urban High School Teachers' Professional Development: Modeling a Disposition to Inquiry*, Catherine E. Milne (New York University)

- *Seeing Equity in Video: Identifying Equity Issues That Teachers Recognize in Video Clips from Mathematics Classrooms*, Andrew M. Brantlinger (Northwestern University)
- *“Views of Inclusion, Culture, and Equity” (VOICE): An Instrument to Measure Teachers’ Views of Equity*, Barbara A. Austin
- *Believing All Children Can Learn: What Does It Mean for Mathematics and Is It Enough?* Francine Cabral Roy (University of Rhode Island)
- *A Framework for Studying the Mathematical Knowledge for Teaching: Knowledge of Reasoning and Proof*, Andreas J. Stylianides (University of Michigan)
- *Teacher Reflection and Reflective Abstraction: Viewing Mathematics Teachers’ Change from Two Perspectives*, Patrick W. Thompson
- *Learning to Teach Algebra with Algebra Tiles: Analogical Thinking Spawns Deeper Mathematical Insight Say Teachers*, Barbara M. Kinach (University of Maryland at Baltimore County)
- *Negotiating the Literacy Demands of Reform-Based Mathematics Curricula*, Kelly Chandler-Olcott (Syracuse University)
- *Teacher-Student Interactions in Teacher-Led Groups in Elementary Mathematics Classrooms*, Joanna Higgins (Wellington College of Education)

**Thursday, April 15, 2004**

**8:05 – 10:15 a.m.**

***Symposium: Improved Instruction or Increased Inequities? Multiple Interpretations of Trends in NAEP Mathematics Data***

Organizer(s) & Chair: Sarah T. Lubienski (Iowa State University)

Discussant: Steven Gorman (National Center for Education Statistics)

Participant(s): Sarah T. Lubienski (Iowa State University); Marilyn E. Strutchens (Auburn University); Tom S. Loveless (Brookings Institution); Patricia Ann Kenney (University Of Michigan)

**8:05 -10:15 a.m.**

***Symposium: Using Sociological Theories to Deconstruct a Case of Equitable Mathematics Teaching***

Chair: Kakin M. Brodie (Stanford University)

Discussant: Michael W. Apple (University of Wisconsin)

Participants: Jo Boaler (Stanford University); Robyn Zevenbergen (Griffith University); Stephen Lerman (South Bank University)

**8:05 – 10:15 a.m.**

***Symposium: Attentional Processes, Salience, and “Transfer” of Learning: Perspectives from Neuroscience, Cognitive Science, and Mathematics Education***

Chair: Joanne Lobato (San Diego State University)

Discussant: Ference Marton (Univeristy of Gothenburg)

- *Using the Construct of “Focusing Phenomena” to Explore Links Between Attentional Processes and “Transfer” in Mathematics Classrooms*, Amy Ellis (San Diego State University)
- *An Examination of the Relationships Between Attentional processes and Transfer from Brain Research*, Bruce McCandliss (Sackler Institute for Developmental Psychology)
- *Noticing and Production in Preparation for Future Learning*, Daniel L. Schwartz (Stanford University)
- *Relationships Between Spontaneous Focusing on Numerosity and Early Mathematical Skills*, Minna Hannula (Univeristy of Turku)

**8:05 – 10:15 a.m.**

**Symposium: Supporting Middle School Teachers to Assist Students in Making the Transition from Arithmetic to Algebraic Reasoning**

Chair: Mitchell J. Nathan (University of Colorado)

Discussant: Mindy Kalchman (University of Wisconsin at Madison)

- *Students' Initial and Developing Conceptions of Variable*, Aaron D. Weinberg (University of Wisconsin at Madison)
- *Developmental Differences in Representational Fluency: Evidence for Relational and Instance-Based Methods for Reasoning About Patterns*, Haggai Kupermintz (University of Colorado at Boulder)
- *Teachers' knowledge and Beliefs About Students' Development of Algebraic Reasoning*, Kenneth R. Koedinger (Carnegie Mellon University); Pamela Asquith
- *Connecting Teachers' Views of Their Own Learning of Mathematics with That of Their Students*, Eric Eiteljorg (University of Colorado at Boulder)
- *Developing Teachers' Attention to Students' Algebraic Thinking*, Ana C. Stephens (University of Wisconsin at Madison)
- *STELLAR Teacher Professional Development: Design and Research*, David W. Wortham (Neo Dat Ta)
- *Students' Initial and Developing Conceptions of Variable*, Nicole M. McNeil (University of Wisconsin at Madison)
- *Developing Teachers' Attention to Students' Algebraic Thinking*, Laura J. Grandau (University of Wisconsin at Madison)
- *Online Teacher Professional Development in the STELLAR System: Design and Research*, David K. Woods (University of Wisconsin at Madison)
- *Connecting Teachers' Views of Their Own Learning of Mathematics with That of Their Students: A Program for Teacher Professional Development*, Mary E. Pittman (University of Colorado at Boulder)
- *Teachers' Knowledge and Beliefs About Students' Development of Algebraic Reasoning*, Mitchell J. Nathan (University of Colorado at Boulder)

**9:05 – 9:45 a.m.**

**Paper Discussion Session: Mathematics Teacher Development**

- *Leadership and Learning in Mathematics Education: Cases of Collaboration Among Principals, Teacher Leaders, and Teachers*, Cathy Grant (Rivendell Interstate School District)
- *Prospective Teachers' Design of Academic Tasks as Exhibited in Their Lesson Planning*, Cynthia Anhalt (University Of Arizona)
- *Can Grading Homework Enhance Math Teachers' Understanding of Students' Thinking in Cultural and Linguistically Diverse Mathematics Classrooms?* Shuhua An (California State University, Long Beach)
- *Early Childhood Teachers of Mathematics: A Formative Instrument for Reflection*, Verónica Carlan (The University of Texas at Brownsville)
- *Using a Change Process Research Measure to Assess the Effectiveness of Professional Development*, Jeanne Klockow (University Of Las Vegas, Nv)
- *Indexing Distributions of Data: Preservice Teachers' Notions of Representativeness*, Aisling Leavy (University of Maryland, College Park)
- *Teacher Attitudes and Beliefs in Elementary and Middle School Settings*, Regina Mistretta (St. John's University)

10:35 a.m. – 12:05 p.m.

**Symposium: Learning to Learn to Teach: Implementing and Assessing an Experiment" Model for Teacher Preparation"**

Organizer(s) & Chair: James Hiebert (University Of Delaware)

Discussants: Deborah Ball, Hyman Bass (University of Michigan)

- *A Process of Continuing Research-Based Improvement*, Laura S. Kincaid (University of Delaware)
- *Early Changes in Mathematics Performances of Pre-service Teachers*, Christine Gorowara (University of Delaware)
- *Can Pre-service Teachers Treat Lessons as Experiments?* Anne Morris (University of Delaware)
- *Developing and Testing New Measures of Teachers' Ability to Learn from Studying Teaching*, Dawn M. Berk (University of Delaware)

10:35 a.m. – 12:05 p.m.

**Symposium: Articulating Effective Design Principles in Professional Development: A Focus on Interactions**

Chair: Deborah Schifter (Educational Development Center)

Discussant: Suzanne Wilson (Michigan State University)

- *The Role of Content Domain as a Tool for Professional Development*, Megan Franke (University of California-Los Angeles)
- *Representations of Classroom Practice as Tools for Professional Development*, Elham Kazemi (University of Washington)
- *A Focus on Mathematics Content as a Tool for Professional Development*, Kay McClain (Vanderbilt University)
- *Case Writing as a Tool for Professional Development*, Deborah Schifter (Education Development Center) and Virginia Bastable (Mount Holyoke College)

10:35 a.m. – 12:05 p.m.

**Symposium: Using Classroom Artifacts to Measure Instructional Practice in Middle School Mathematics: A Two-State Field Test**

Chair: Hilda Borko (University of Colorado)

Discussants: Joan L. Herman (University of California, Los Angeles); Brian P. Rowan (University of Michigan)

- *A Classroom Artifact Package for Measuring Instructional Practice: Validity of Ratings*, Brian Stecher (Rand Corporation)
- *Instructional Practice and Student Learning: What We Learn from the Analysis of Classroom Discourse*, Elizabeth Dorman (University of Colorado)
- *A Classroom Artifact Package for Measuring Instructional Practice: Reliability of Ratings*, Karin Kuffner (University of Colorado)
- *Data Collection Methods and Procedures: The Scoop Notebook*, Alice Wood (Rand Corporation)
- *The Scoop Notebook Project: Current Issues and Future Steps*, Mary Lou Gilbert (Rand Corporation)

10:35 – 12:05 p.m

**Paper Session: Curriculum, Assessment and School Reform in Mathematics Education**

Session Chair: Beth A. Herbel-Eisenmann (Iowa State University)

Session Discussant: Eric R. Hamilton (United States Air Force Academy)

- *An Analysis of Concurrent and Predictive Validity of Curriculum-Based Mathematical Word Problem Solving Measures*, Edward Sczesniak (Lehigh University)
- *Credible Tools for Formative Assessment: Measurement and Qualitative Research Needed for Practice*, Julian S. Williams (University of Manchester)

- *Curriculum Research: Toward a Framework for “Research-Based Curricula”*, Douglas H. Clements (University of Buffalo, SUNY)
- *Implementing Standards-Based Mathematics Curricula: Instructional Practices Versus Reform Vision in the Middle and High School*, David C. Wilson (Buffalo State, SUNY)
- *Teacher and Principal Beliefs About Teaching Mathematics in an Urban Setting*, Judith McVarish (New York University)

**10:35 a.m. – 12:05 p.m**

**Paper Session: Prior Knowledge, Bridging Activities and Mathematics Learning**

Session Chair: Terry L. Wood (Purdue University)

Session Discussant: David K. Pugalee (University of North Carolina at Charlotte)

- *A Second Grade Rough Transition from Verbal Explanations to Number Sentences*, Marcela Perlwitz (Wabash College)
- *A Tool as “Functional Prior Knowledge” in a Mathematics Game*, Randy Rall (Azusa Pacific University)
- *Developing the Math Skills of Adolescents With and Without Disabilities in Inclusive Settings*, Brian Bottge (University of Wisconsin at Madison)
- *Preschoolers’ Understanding of Subtraction-Related Principles*, Arthur J. Baroody (University of Illinois)
- *Preservice Elementary School Teachers’ Conceptions of Multidigit Whole Numbers in Our Base-Ten Numeration System*, Eva P. Thanheiser (San Diego State University)

**12:25 – 1:05 p.m.**

**Paper Discussion Session: Examining Innovations in Mathematics Teaching**

- *Interpreting Unfamiliar Graphs: A Generative, Activity-theoretic Model*, Wolff-Michael Roth (University Of Victoria)
- *Mathematical Modeling and Metacognitive Instruction*, Bracha Kramarski (Bar-Ilan University, School of Education)
- *The effects of an Infusion Art-Based Curriculum on the Mathematics Proficiency of Economically and Academically At-Risk Elementary School Students*, Richard Luftig (Miami University)
- *Transformation Geometry from an Embodied Perspective*, Laurie Edwards (Saint Mary’s College Of California)
- *Teaching Arithmetic to Low-Performing, Low-SES First Graders*, Constance Kamii (University Of Alabama)
- *Investigating Fairness in Ranking Commonwealth Games Performance: Collaborative Mathematical Modeling in a Grade 5/6 Classroom*, Susan Jane McNab (University Of Toronto)
- *Standards Based Curriculum and Hispanic Middle School Students*, James Telese (University Of Texas At Brownsville)

**12:25 – 1:55 p.m**

**Paper Session: Equity, Diversity, Self Concept and Mathematics Learning**

Session Chair: Carol Fry Bohlin (California State University at Fresno)

Session Discussant: Lena L. Khisty (University of Illinois at Chicago)

- *Factors Influencing Mathematics Problem Solving Ability of Culturally and Linguistically Exceptional Students*, Rene S. Parmar (St. Johns University)
- *Low-Income African-American Second Grade Students’ Engagement in Currency Exchange: The Relationship to Mathematical Development*, Edward V. Taylor (University of California at Berkeley)
- *Number Sense: An Exploration of Urban Middle School Students’ Numerical Reasoning*, Angela I. McIver (University of Pennsylvania)
- *The Relationship Between Bilingual Students’ Growth of Mathematical Understanding and Their Language Switching*, Sitaniselao Stan Manu (University of British Columbia)

- *Framing Participation: Meaningful Mathematical Activity in Reform-Based Classrooms with Diverse Populations of Students*, Victoria M. Hand (Stanford University)

**4:05 – 6:05 p.m.**

**Paper Session: Examining the Development of Mathematical Thinking**

Session Chair: Jeffrey C. Shih (University of Nevada-Las Vegas)

Session Discussant: Patrick W. Thompson (Vanderbilt University)

- *An Interpretive Framework for Making Sense of Student Thinking within the Context of Classroom Interactions*, Teruni de Silva Lamberg (Vanderbilt University)
- *Development of young children's mathematical abilities*, Robert Reeve (University of Melbourne)
- *The Unfolding of a Path of Mathematical Understandings*, Jennifer Thom (University of Victoria)
- *Mechanisms of Transfer*, Joseph Wagner (Xavier University)
- *Conceptual Understanding and Computational Efficiency: Children's Strategies for Multiplying Multidigit Numbers*, Jae-meon Baek (Arizona State University)

**4:05 – 6:05 p.m.**

**Symposium: The Use of Learning Trajectories in Research-Based Mathematics Curriculum Development, Assessment, and Professional Development**

Chair: Douglas H. Clements (University at Buffalo, SUNY)

Discussant: Arthur J. Baroody (University of Illinois)

- *Local Instruction Theories as Means of Support for Teachers in Reform Mathematics Education*, Martin A. Simon (Pennsylvania State University)
- *Young Children's Composition of Geometric Figures: A Learning Trajectory*, Julie Sarama (SUNY at Buffalo)
- *Terrains of Conceptual Development-Where Evolution Does Not Occur Along a Single Path*, Richard Lesh (Purdue University)
- *Learning Trajectories and Local Instruction Theories as Means of Support for Teachers in Reform Mathematics Education*, Koeno PE Gravemeijer (Freudenthal Institute)
- *The Cognition-Based Assessment System (CBAS)*, Michael T. Battista (Michigan State University)
- *On the Construction of Learning Trajectories of Children: The Case of Commensurate Fractions*, Leslie Steffe (University of Georgia)
- Doug Clarke (Australian Catholic University)
- Barbara Clarke (Monash University)

**Friday, April 16, 2004**

**8:05 – 10:15 a.m.**

**Paper Session: Investigating the Professional Development of Mathematics and Science Teachers**

Session Chair: Victoria R. Jacobs (San Diego State University)

Session Discussant: Llana S. Horn (University of Washington)

- *Confronting Teachers' Beliefs About Algebra Development: Investigating an Approach for Professional Development*, Mitchell J. Nathan (University of Colorado)
- *Mathematics Teachers Learning to Notice in the Context of a Video Club*, Elizabeth A. Van Es (Northwestern University)
- *Tensions and Challenges in Designing Videocase Based Professional Development Curriculum for Teachers of Mathematics*, Deidre M. LeFevre (Washington State University)



- *Using Scientists and Real-World Scenarios in Professional Development for Middle School Science Teachers*, Judith A. Morrison (Washington State University)
- *The Impact of Long-Term Professional Development on Teachers' Beliefs and Practice*, Theresa J. Grant (Western Michigan University)

**8:05 – 10:15 a.m.**

**Symposium: Rethinking Abstraction and Decontextualization in Relationship to the “Transfer Dilemma”**

Chair: Joanne Lobato (San Diego State University)

Discussants: Anthony E. Kelly (George Mason University); Etienne Wenger (CPSquare)

- *Exploring the Construct of Collective Abstraction*, Paul A. Cobb (Vanderbilt University)
- *Abstraction, Situativity, and the “Actor-Oriented Transfer” Perspective*, Joanne Lobato (San Diego State University)
- *The Recontextualization of Inscriptions: An Activity-Theoretical Approach to the Transferability of Abstractions*, Bert Van Oers (Free University of Amsterdam)
- *“I Also Remember:” The Re-Encounter of Past Experiences*, Ricardo Nemirovsky (TERC)
- *The Emergence of Knowledge Structures in the Context of the Classroom*, Baruch C. Schwarz (Tel Aviv University)

**10:35 a.m. – 12:05 p.m.**

**Paper Session: Assessing Learning in Mathematics Classrooms**

Session Chair: Beth Herbel-Eisenmann (Iowa State University)

Session Discussant: Kenneth Ruthven (University of Cambridge)

- *How Will We Know What They Learned?: Designing a Longitudinal Study of Elementary Mathematics Curriculum*, Paul Kehle (Indiana University)
- *Making Sense of Simple Equations: How Students Using IMP and CPM Curricula Understand Equivalence*, Nancy O'Rode (UC Santa Barbara)
- *Implementing an Experimental Rational Number Curriculum in 7th and 8th Grade Classrooms in an Urban School*, Joan Moss (University Of Toronto)
- *A Portrait of a Feminist Mathematics Classroom: What Adolescent Girls Say about Mathematics, Themselves, and Their Experiences in a “Unique” Learning Environment*, Dawn Leigh Anderson (California State University- Fullerton)

**12:25 – 1:55 p.m**

**Paper Session: Algebraic Reasoning**

Session Chair: Kevin A. Clark (George Mason University)

Session Discussant: Jon R. Star (Michigan State University)

- *Deepening Our Understanding of Algebraic Generalization: Examining Changes in Student Strategies*, John Kirk Lanning (University of Missouri at Columbia)
- *How Students Learn to Reason Mathematically: Insights from a Large-Scale Longitudinal Study*, Celia M. Hoyles (Institute of Education, University of London)
- *Language and Mathematics: Improving Algebra Instruction for English Language Learners*, Carl A. Lager (Vermont Department of Education)
- *Listening to Student Talk as They Work with Linear Functions*, Diane K. Masarik (San Diego State University)
- *The Development of Students' Algebraic Thinking in Earlier Grades: Cross-Cultural Comparative Perspectives*, Jinfa Cai (University of Delaware)

## NCTM Research Pre-Session Program

**All sessions will be in the Pennsylvania Convention Center.**

**Note:** Due to space limitations and the need to distinguish the following information from AERA sessions, the institutional affiliation of presenters is not listed below. Please see the Research Pre-Session Final Program for a complete listing of presentations.

### **Monday, April 19, 2004**

#### **7:00 – 8:30 p.m. (Opening Speaker)**

*My Unfinished Editorial: Reflections on Research in and on Mathematics Education*  
Edward A. Silver

### **Tuesday, April 20, 2004**

#### **8:00 – 10:30 a.m.**

*Standards Impact Research Group: Setting a Research Agenda*  
Joan Ferrini-Mundy, Frank Lester

#### **9:00 - 10:30 a.m.**

*Improving the Mathematics Learning of Indigenous Australian Students*

Annette R. Baturo, Elizabeth Warren, Thomas J. Cooper

*An Analysis of Mathematics Textbooks and Courses for Prospective Elementary Teachers*

Raven Wallace, Helen Siedel, Andreas Stylianides

*Leadership and Learning in Elementary Schools: Assessment and Rubrics*

Linda Davenport, Michael Andrew Carter, MaryJo Tavormina Porn, Cathy Miles Grant, Kay McClain (discussant)

*Multiple Perspectives on Negotiating Mathematics Reform in Urban Schools*

Natasha M. Murray, Janine T. Remillard, Kimberly L. Blagmon, Valerie Klein, Angela McIver, Lanette Waddell, Jacqueline Leonard (discussant)

*Improving Mathematics Proficiency – Chinese Mathematics Lesson Study*

Zhonghe Wu, Shuhua An, Chunxia Qi, Li Yu, Lanying Li

*Collaboration as a Foundation for the Design and Usage of Technology Rich Problems*

K. Ann Renniger, Christopher J. DiGiano, Wesley Shumar, Suzanne Alejandre, Leslie Nielsen

#### **11:00 a.m. - 12:30 p.m.**

*Developing Strategic Leadership: Insights from Research and Practice*

Barbara Miller, Iris Weiss, Judi Fonzi (discussant)

*Research on Students' Learning of Probability: Implications and Connections*

Hollylynne Stohl, Carolyn Maher, Lyn English, Betsy Berry, James E. Tarr, Dave Pratt, J. Michael Shaughnessy (discussant)

*International Project on Mathematical Attainment: Four Perspectives*

Denisse R. Thompson, David N. Burghes, Noreen O'Loughlin, Berinderjeet Kaur, Jerry P. Becker (discussant)

*What Are They Learning? Designing Studies of Elementary Math Curricula*

Paul E. Kehle, Diana V. Lambdin, Nancy K. Essex, Kelly McCormick

*Mentoring Novice Teachers of Mathematics: What Methods Do We Use to Determine Success*

Sandy J. Dawson, Joseph Zilliox

*What Works Clearinghouse: Its Purpose and Progress Relative to Mathematics Education*

Stephanie Baldi

**(NCTM Research Pre-Session)**

**1:30 – 2:30 p.m.**

*Mentoring Session for Novice Researchers*

James Middleton, Robert Reys, Marilyn Carlson, Daniel Chazan, Marta Civil, James T. Fey, Richard Lesh, Rose Mary Zbiek

*A Math Projects' Impact on Preservice Teachers' Notions of Student Thinking*

Stephanie L. Behm

*Strange Attractors and the Dynamics of Student Attitudes Toward Mathematics*

Zaur Berkaliyev

*Voices of Successful African American Male Middle School Mathematics Students*

Robert Q. Berry, III

*How Intensive Field-Based Programs Affect Student Teaching And Beyond*

Joanne C. Caniglia, Barbara Leopard

*Teacher Decision-Making: Discourse in the Elementary Mathematics Classroom*

Tutita M. Casa

*Mathematics Faculty Collaborate: Learning from Classroom Video*

Julie Cwikla

*Teacher Development Through Research-Based Curricular Materials*

Donna P. Diaz

*Students' Algebraic Understandings of the Concepts of Variable and Function*

Angeles Dominguez, Ernesto Colunga

*Preservice Mathematics Teachers' Knowledge of High School Trigonometry*

Cos D. Fi

*Balanced Approach to Mathematics: Developing Number Sense Through Reasoning*

Shawn Garnett, Kimla Johnson-Koziuk

*Preservice Teachers' Use of Student Work as Warrant for Claims to Professional Knowledge*

Christopher Hartmann

*An Analysis of Preservice Teacher Written Explanations*

Drew K. Ishii

*Using Standards-Based K-12 Materials in Preservice Teacher Education: Issues and Questions*

Gwendolyn Lloyd

*InterMath: Five Implementations*

Chandra Orrill, Sarah Ledford, Polly Drew, Ayhan Kursat Erbas

*Research Findings Involving Number Operations and Algebraic Thinking Games*

Enrique Ortiz

*The Impact of a Professional Development Program on Teachers' Self-Efficacy*

Anne Papakonstantinou

*The Difference of Computational Methods in the Contexts*

Sung Sun Park

*An Analysis of Pre-Service Teachers' Knowledge of Technology*

Diana S. Perdue

*What Can We Learn from Lesson Study Debriefing Sessions?*

Rebecca R. Perry, Mary N. Leer

*South Texas Mathematics Teachers – Survey Data About Preparation*

Olga Ramirez, John E. Bernard, Walter J. Leite

*A Comparison of Teaching Frequentist and Subjective Probability in Elementary Grades*

Jeanne Rast

*Toward a Model of Mathematics Reform in Urban Secondary Schools*

Celia Rousseau

*Black-White Mathematics Achievement Gap: Teacher Beliefs and Practices*

Laurie Rubel, Tonya Gau, Marian Slaughter, Laura Grandau

*The Parent-Child Self-Efficacy Connection in Mathematics*

Robb Sinn

*Preservice Teachers' Observations of Children's Mathematical Thinking*

Laura Jacobsen Spielman

*Proportional Reasoning: Hypothetical Learning Trajectory*

Olof Steinhorsdottir

*Three Major Forms of Lesson Study: Rigidity and Flexibility of Lesson Study*

Akihiko Takahaski, George Rose, Jesse Ragent, Jacob Disston, Marjory Learned

**(NCTM Research Pre-Session)**

**1:30 p.m. (continued)**

*Examining Perceptions and Quality of Alternately Prepared Teachers*

Christine D. Thomas, Nikita D. Patterson, Clara N. Okoka

*Preservice Teachers' Use of Representation in Math and Science Lesson Plans*

Robin Ward, Elisabeth Roberts, Cynthia Anhalt

*Modeling Children's Early Developmental Patterns in Mathematics*

Jesse Wilkins

*Preservice Teachers' Knowledge of Functions and Its Effect on Lesson Plans*

Mathew S. Winsor

*The Impact of Locale and Looping on Mathematics Achievement in Tennessee*

Joseph Jeremy Winters

*Enhancing Students' Understanding Through Effective Use of the Blackboard*

Makoto Yoshida

**3:00 – 4:30 p.m.**

*Parents of Color Speak on Math Education: Equity and Social Justice Issues*

Eric Gutstein, Danny Bernard Martin, Marta Civil, Beatriz Quintos, Jill Bratton, Martha Allexsaht-Snider (discussant)

*NSF Investment in Mathematics Education: Past History and Future Directions*

Janice Earle, Robeert E. Floden, Anna Sfard & Joan Ferrini-Mundy (discussants)

*Some Aspects of Students' and Teachers' Conceptions of Variability*

J. Michael Shaughnessy, Daniel Canada, Matthew Ciancetta, Kate Best, Cynthia Langrall (discussant)

*Assessing Mathematical Reasoning by Embedding Tasks in Contexts*

Beatriz D'Ambrosio, Marja van den Heuvel-Panhuizen, Signe Kastberg, George McDermott, Nivan Saada, Jan de Lange (discussant)

*Studying Teacher Development Through the Lenses of Community and Identity*

Rebecca McGraw, Kathleen Lynch, Fran Arbaugh, Laura Van Zoest (discussant)

*Using Classroom Videos as a Vehicle for Teacher/Research Dialogue*

Kathleen Morris, Jon Manon, Dana Griffith, Mary Koster, Karen Madden, Linda Dager Wilson (discussant)

**4:45 – 6:00 p.m.**

*Identifying Issues to Support the Graduate Student Community*

SIG/RME Board and NCTM Research Committee

**Wednesday, April 21, 2004**

**8:00 – 9:30 a.m.**

*Student Achievement and Reform Curricula*

Thomas Post, Kathleen Cramer, Terry Wyberg, Barbara Reys, Harold Schoen, Jon D. Davis, Yukiko Maeda

*The Dialectic Relationship Between Undergraduate and K-12 Research*

Chris Rasmussen, Oh Nam Kwon, Mark Burtch, Karen Marrongelle, Michelle Stephan (discussant)

*Preservice Lesson Study: Dialogue, Challenged Beliefs, Reflective Thinking*

Blake Peterson, Julie Stafford-Plummer, Thomas E. Ricks, Brad Glass (discussant)

*A National Study of Leadership in Mathematics Education*

Gail Burrill, Joan Ferrini-Mundy, Robert Reys, Glenda Lappan (discussant)

*New Conceptions and Strategies for Doctoral Preparation of Researchers*

James Fey, Kathy Heid, James Hiebert, Patricia Campbell

**(NCTM Research Pre-Session)**

**8:00 – 10:30 a.m.**

*From Tools to Knowledge and From Knowledge to Tools*

Barbara Pence, Colette Laborde, Carolyn Kieran, Jean-Marie Laborde, Patrick Thompson  
(discussant)

*Measure Up: A Research Perspective on Algebra for Young Children*

Barbara Dougherty, Hannah Sloven Lena Licon Khisty, Lesley Lee

*Representational Models for the Teaching and Learning of Mathematics*

Robert Capraro, Gerald Kulm, Vic Willson, Mary Margaret Capraro, Judy Taylor, Laura Sebesta, Ye Sun, Tau Gamba Kadhi

**10:00 – 11:30 a.m.**

*Refocusing on Mathematical Modeling to Account for Learning and Discourse*

Rose Mary Zbiek, AnnaMarie Connor, Gina M. Foletta, Tom Evitts (discussant)

*Students' Perceptions of Engagement with Mathematics Reform Practices*

Carol Malloy, Mark W. Ellis, Jon Star, Amanda Jansen Hoffman, Gary Lewis, John P. Smith III,  
Barbara Reys (discussant)

*Examining Parent-Child-School Relationships in Teaching and Learning Mathematics in Low-Income Communities*

Janine Remillard, Kara Jones Jackson, Emily Bernier, David Baker, Eva Gold, Diane Anderson,  
Jean Anyon (discussant)

*Writing About Research for a General Practitioner*

Sandy Berger

*Publishing in the Journal for Research in Mathematics Education*

JRME Editorial Panel

**10:30 – 12:00 noon**

*Perspectives on Oral History: Teachers, Historians, and Community Memory*, David L. Roberts,  
Penelope H. Dunham, Karen Dee Michalowicz, James D. Gates

**1:30 – 3:00 p.m.**

*"Theory" in Mathematics Education Scholarship*

Patricio Herbst, Edward A. Silver, Jill Adler, Anna Sfard, Frank Lester, James Greeno

*Building Practice from the Ground Up: Potential of Early Field Experiences*

Denise Mewborn, Laura Van Zoest, Tracey Smith, David W. Stinson, Lew Romagnano (discussant)

*On the Effectiveness of Mathematics Curriculum: Examining the Evaluations*

Jere Confrey, Vicki Stohl, Douglas Grouws, Carolyn Mahoney, Patrick Thompson

*Coordinating Research on Student Learning, Teacher Cognition and Practices*

John Olive, Kay McClain, Megan Loef Franke, Andrew G. Izsák, Randolph Philipp (discussant)

*Impact of Standards-Based Middle-School Mathematics Curricula-Three Studies*

Robert Reys, Gerald Kulm, Mary Shafer, Denisse R. Thompson, Oscar Chavez, James Tarr

*Improving Student Achievement in Mathematics in Low-Income, High Minority Schools Through  
Teacher Learning and Access to Computer Technology*

Karma Nelson, Jennifer Kosiak, David R. Erickson, Helen Gerretson, Jeff Farmer, Lori Reinsvold,  
Roy Chambers, Cheryl Rectanus

*Wireless Technology in Mathematics Education: Reflections and Directions*

Michael Meagher, Louis Abrahamson, Marlana Herman, Douglas Owens, Frank Demana

**1:30 – 2:30 p.m.**

*In What Ways Do Students Meaningfully Generalize Algebraic Relationships?*

Diana Steele

**3:30 – 4:45 p.m.**

*An Agenda for Studying the Impact of the Standards*

Robert Floden, Joan Ferrini-Mundy, Frank Lester, Diane Briars & Margaret Goetz & Barry Sloane  
(discussants)

**Address Correction Requested!**

If your newsletter did not reach you at the correct address, please e-mail Rose Zbiek ([rmz101@psu.edu](mailto:rmz101@psu.edu)) with updated information, or mail the form below to her. If any of your contact information has changed since the last SIG/RME directory (e-mail address, phone number, etc.), please provide the corrected information.

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Rose Marie Zbiek The Pennsylvania State University 272 Chambers Building University Park, PA 16802 <a href="mailto:rmz101@psu.edu">rmz101@psu.edu</a>	

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