Program for the Research Presession
April 7–9, 2008

NCTM 2008 Annual Meeting and Exposition
Becoming Certain about Uncertainty
April 9–12, 2008 • Salt Lake City, Utah
# Research Pre/session Planning Committee

## NCTM Research Committee

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<tr>
<th>Name</th>
<th>Institution/Address</th>
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<tr>
<td>Michael Battista</td>
<td>Michigan State University, East Lansing, Michigan</td>
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<td>Timothy A. Boerst</td>
<td>South Redford School District; University of Michigan</td>
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<td>Jere Confrey</td>
<td>North Carolina State University, Raleigh, North Carolina</td>
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<td>Karen King</td>
<td>New York University, New York</td>
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<td>Judith Reed</td>
<td>NCTM Headquarters Office, Reston, Virginia</td>
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<td>Margaret (Peg) Smith</td>
<td>University of Pittsburgh, Pittsburgh, Pennsylvania</td>
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<td>Marilyn E. Strutchens</td>
<td>Chair, Auburn University, Auburn, Alabama</td>
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<td>John Sutton</td>
<td>RMC Research Corporation, Denver, Colorado</td>
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## AERA-SIG/RME Executive Board

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<tr>
<td>Catherine Brown</td>
<td>Cochair, Indiana University, Bloomington, Indiana</td>
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<td>Patricia F. Campbell</td>
<td>Cochair, University of Maryland, College Park, Maryland</td>
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<td>Beth Herbel-Eisenmann</td>
<td>Michigan State University, East Lansing, Michigan</td>
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<tr>
<td>Jeffrey Choppin</td>
<td>University of Rochester, Rochester, New York</td>
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<tr>
<td>Miriam Sherin</td>
<td>Northwestern University, Evanston, Illinois</td>
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<tr>
<td>Gwen Lloyd</td>
<td>Virginia Polytechnic Institute and State University, Blacksburg, Virginia</td>
</tr>
<tr>
<td>Sandra Crespo</td>
<td>Michigan State University, East Lansing, Michigan</td>
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Announcements

• Registration will be held in the North Foyer on the lower level of the Salt Palace Convention Center. The times are Monday, 4:30 p.m. to 7:00 p.m., and Tuesday, 7:00 a.m. to 3:00 p.m. Registration is required for attendance, and badges must be worn for all sessions.

• On Wednesday, the Research Presession is open to all registered attendees to the NCTM Annual Meeting and the Annual NCSM Conference. Badges from these conferences will be required for attendance for all sessions on Wednesday.

• A light reception will be held on Monday evening in the North Foyer from 8:30 p.m. to 10:00 p.m. following the opening session at 7:00 p.m. in Grand Ballroom A.

• Research posters will be available for viewing and discussion with the presenters in the North Foyer from 4:45 p.m. to 6:00 p.m. on Tuesday.

• The Call for Papers for the next Research Presession, to be held in Washington, D.C., in 2009, will be available online in June 2008.

• Be sure to visit the Exhibit Hall for the NCTM Bookstore, which has a special table on research.

The publications and programs of the National Council of Teachers of Mathematics present a variety of viewpoints. The views expressed or implied in this publication, unless otherwise noted, should not be interpreted as official positions of the Council. Reference to particular commercial products by a speaker should not be construed as an NCTM endorsement of said product(s). NCTM reserves the right to change speakers, change facilities, or modify program content.

NCTM does not sell or distribute member e-mail addresses in compliance with Federal privacy policies. However, some speakers on this program have elected to print their e-mail addresses as a means for individual correspondence with conference attendees. Unsolicited commercial e-mail or unsolicited bulk e-mail, whether or not that e-mail is commercial in nature, is expressly prohibited. Any use of e-mail addresses beyond personal correspondence is not authorized by NCTM.
On behalf of the Research Committee of the National Council of Teachers of Mathematics (NCTM) and the Special Interest Group/Research in Mathematics Education of the American Educational Research Association, we welcome you to NCTM’s Research Presession. The Research Presession serves multiple purposes. First, the Research Presession annually brings researchers together to examine and discuss current issues in mathematics education. Second, it is an opportunity for researchers to receive feedback on their work and to benefit from exposure to alternative points of view. Third, the Research Presession is an opportunity to capitalize on the collective wisdom available when researchers and practitioners come together to discuss mathematics education and research. Finally, the Research Presession affords beginning scholars opportunities to interact and network with veteran researchers in the field.

The Presession program includes 38 Individual Sessions, 23 Research Symposia, 18 Work Sessions, and 14 Poster Sessions. Overall there were 233 proposals submitted for the Presession, including 135 for Individual Sessions, 28 for Research Symposia, 25 for Work Sessions, and 45 for Poster Sessions.

We would like to thank the members of NCTM’s Research Committee, members of the executive board for the SIG/RME, and other members of the research community who served as reviewers. Your work is greatly valued and appreciated. Moreover, we would like to thank the staff at NCTM for helping us with the logistics of the conference, registration, printing the program, and other details. Also, we would like to thank all the presenters for agreeing to participate. Finally, we would like to thank everyone in attendance, and we hope that you will find the conference helpful to you in a number of ways.

Sincerely,

Marilyn E. Strutchens  
Chair of the Research Committee  
Auburn University, Auburn, Alabama

Patricia F. Campbell  
Chair of SIG/RME –AERA  
University of Maryland, College Park, Maryland

Judith Reed  
Director of Research  
NCTM, Reston, Virginia
Salt Palace; © Courtesy the Salt Lake Convention & Visitors Bureau
Salt Palace Convention Center
Lower Level
1. Exploring the Mathematics in Mathematics Education

OPENING SESSION

Beliefs about the nature of mathematics, whether explicit or hidden, lie at the center of nearly every aspect of our professional lives. In my talk I will outline a framework for examining the different mathematical cultures represented in our field and the implications for providing all students access to mathematics.

Steven Williams
williams1@mathed.byu.edu
Brigham Young University, Provo, Utah
Grand Ballroom A, Capacity: 700
2. Policy Influences on Four Districts’ CMP Implementations

**Individual Papers (30-minute session)**

This study investigates four districts’ resource commitments and instructional priorities in their efforts to implement the Connected Mathematics Program (CMP). These results outline the impact of multiple initiatives on the mix of resources necessary to implement CMP effectively, suggesting that a more dynamic view is required to articulate districts’ resource commitments.

Jeffrey Choppin  
*University of Rochester, Rochester, New York*  
**Grand Ballroom A, Capacity: 120**

3. Using Prediction in the Mathematics Classroom

**Individual Papers (30-minute session)**

This session will present the results of a study on how prediction can be used as an instructional practice to develop students’ mathematical understanding and reasoning in a middle school algebra context. Students’ predictions and reasoning will be described, and the effectiveness of using prediction will be addressed.

Ok-Kyeong Kim  
*ok-kyeong.kim@wmich.edu*  
*Western Michigan University, Kalamazoo, Michigan*  

Lisa Kasmer  
*Western Michigan University, Kalamazoo, Michigan*  
**Grand Ballroom B, Capacity: 120**
4. Analyzing High-Stakes Assessments: Implications for Mathematics Educators

**Work Session (90-minute session)**

An in-depth, state-by-state analysis of high-stakes high school tests suggests that it might be useful to focus attention on (1) concepts that emerge as “tough to teach” because students’ scores indicate they are tough to learn, and (2) the relationship of cognitive demand to achievement.

**Tom Dick**  
*Oregon State University, Portland, Oregon*

**Gail Burrill**  
*Mичigan State University, East Lansing, Michigan*

Grand Ballroom C, Capacity: 100

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5. Research Paradigms on Teaching and Learning Proof across the Grades

**Work Session (90-minute session)**

This work session is designed to identify research paradigms on teaching and learning proof across grades K–16 and what we have learned within these paradigms. Understanding this should facilitate communication among researchers and help us build on one another’s work, thus addressing a major challenge in mathematics education research on proof.

**Maria Blanton**  
mblanton@umassd.edu  
*Kaput Center, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts*

**Patricio Herbst**  
*University of Michigan, Ann Arbor, Michigan*

**Eric Knuth**  
*University of Wisconsin—Madison, Madison, Wisconsin*

**Chris Rasmussen**  
*San Diego State University, San Diego, California*

**Despina Stylianou**  
*City University of New York—City College of New York, New York, New York*

**Keith Weber**  
*Rutgers University, New Brunswick, New Jersey*

Grand Ballroom D, Capacity: 100
6. Deepening Teachers’ Knowledge and Using Teacher-Leaders: What Do We Know?

**Research Symposium (90-minute session)**

Synthesizing what we know from empirical research and from practice-based insights is crucial for a more complete understanding of the existing knowledge base about deepening teachers’ content knowledge in mathematics and using teacher-leaders. This symposium outlines a methodology for knowledge synthesis and describes the results in these two areas.

**Barbara Miller**  
bmiller@edc.org  
*Education Development Center, Newton, Massachusetts*

**Dan Heck**  
*Horizon Research, Inc., Chapel Hill, North Carolina*

**Grand Ballroom E, Capacity: 120**

7. A Longitudinal Investigation of Curricular Effect on Algebra Learning

**Research Symposium (90-minute session)**

This symposium presents initial findings from a longitudinal project that examined the effects of the Connected Mathematics Program and more traditional middle school mathematics curricula. The impact on students’ learning of algebra will be reported along with the implementation conditions that arise in an urban setting.

**Jinfa Cai**  
jcai@math.udel.edu  
*University of Delaware, Newark, Delaware*

**John Moyer**  
*Marquette University, Milwaukee, Wisconsin*

**Bikai Nie**  
*University of Delaware, Newark, Delaware*

**Jeffrey Shih**  
*University of Nevada, Las Vegas, Las Vegas, Nevada*

**Ning Wang**  
*Widener University, Chester, Pennsylvania*

**Janice Earle**  
*National Science Foundation, Arlington, Virginia*

**Discussant: Robert Reys**  
*University of Missouri—Columbia, Columbia, Missouri*

**Grand Ballroom F, Capacity: 120**
8. Learning and Teaching Generalization in Algebra

**Research Symposium (90-minute session)**

This research symposium draws on research from varied studies on students’ thinking, providing a framework to guide the teaching and learning of algebraic generalization. We focus on the processes of statement clarifying, domain defining, and justifying to assist students in recognizing the general nature of their algebraic generalizations.

**John Kirk Lannin**  
LanninJ@missouri.edu  
University of Missouri—Columbia, Columbia, Missouri

**Brian E. Townsend**  
University of Northern Iowa, Cedar Falls, Iowa

**David D. Barker**  
Illinois State University, Normal, Illinois

Grand Ballroom G, Capacity: 120

9. Learning Practice through Practice: Designing a Practice-Based Course

**Work Session (90-minute session)**

This session explores theoretical and pragmatic dimensions of designing a methods course about practice. We will collectively analyze and discuss artifacts from a practice-based methods course to conceptualize better what it means for a course to be focused on practice and to understand better the ramifications of these concepts.

**Timothy A. Boerst**  
University of Michigan, Ann Arbor, Michigan; South Redford Public Schools, Redford, Michigan

**Laurie Sleep**  
University of Michigan, Ann Arbor, Michigan

**Deborah Loewenberg Ball**  
University of Michigan, Ann Arbor, Michigan

**Yaa Cole**  
University of Michigan, Ann Arbor, Michigan

Grand Ballroom H, Capacity: 100
10. Visions for Equity and Social Justice in Elementary School Mathematics

Research Symposium (90-minute session)

This symposium will feature three educators’ studies that focus on integrating issues of equity and social justice into elementary school mathematics education courses and professional development. The findings highlight activities and course design that support preservice and in-service teachers as they broaden their conceptions of teaching mathematics to diverse students.

Anita A. Wager
*University of Wisconsin—Madison, Madison, Wisconsin*

Courtney Koestler
*University of Wisconsin—Madison, Madison, Wisconsin*

Ryan Flessner
*University of Wisconsin—Madison, Madison, Wisconsin*

Julia Aguirre
*University of Washington, Tacoma, Washington*

Grand Ballroom I, Capacity: 120
11. Inducting New Researchers: Mentoring Session

**Work Session (90-minute session)**

Graduate students and new faculty members, please come share your research and career plans with those veterans of the field listed below. They will help you to think about your plans and provide you with some suggestions for your next steps.

**M. Kathleen Heid**  
*Pennsylvania State University, University Park, Pennsylvania*

**Margaret Smith**  
*Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania*

**Patricia S. Wilson**  
*University of Georgia, Athens, Georgia*

**Dorothy Y. White**  
*University of Georgia, Athens, Georgia*

**Marilyn Elaine Strutchens**  
*Auburn University, Auburn, Alabama*

**Janine Remillard**  
*University of Pennsylvania, Philadelphia, Pennsylvania*

**Marjorie M. Petit**  
*Vermont Mathematics Partnership, Montpelier, Vermont*

**Edward Silver**  
*University of Michigan, Ann Arbor, Michigan*

**Arthur Baroody**  
*University of Illinois at Urbana—Champaign, Champaign, Illinois*

**Marilyn Paula Carlson**  
*Arizona State University, Tempe, Arizona*

**Martin Simon**  
*New York University, New York, New York*

**J. Michael Shaughnessy**  
*Portland State University, Portland, Oregon*

**Magdalene Lampert**  
*University of Michigan, Ann Arbor, Michigan*

**Arthur B. Powell**  
*Rutgers University, Newark, New Jersey*

**Hyman Bass**  
*University of Michigan, Ann Arbor, Michigan*
12. What Can We Learn from U.S. and Chinese Classroom Instruction in Algebra?

**Individual Papers (30-Minute Session)**

A fine-grained analysis of ten Chinese and ten U.S. consecutive lessons on linear equations found that the Chinese students are more aware of the intended teaching goal than the U.S. students. Remarkable differences between these two classrooms exist in the ways they facilitate students’ understanding.

**Rongjin Huang**  
rjhuang@graduate.hku.hk  
Texas A&M University, College Station, Texas

**Yeping Li**  
Texas A&M University, College Station, Texas

Grand Ballroom A, Capacity: 120
13. Alternatively Certified Teachers in Urban Education: Case Studies from New York City

**Individual Papers (30-minute session)**

This study will report on a set of parallel case studies of teachers training under the auspices of the New York City Teaching Fellows (NYCTF) alternative certification program. We will outline three particular aspects of the NYCTF experience, each of which exemplifies the overall nature of the program and its teachers.

**Michael Meagher**  
*mmmeagher@brooklyn.cuny.edu*  
*City University of New York–Brooklyn College, Brooklyn, New York*

**Laura M. Gellert**  
*City University of New York–Graduate Center, New York, New York*

**Lidia Gonzalez**  
*City University of New York, New York, New York*

**Shana Henry**  
*City University of New York–Graduate Center, New York, New York*

**Grand Ballroom B, Capacity: 120**

14. Teachers’ Evolving Beliefs: From Certainty to Uncertainty

**Individual Papers (30-minute session)**

As one matures, epistemic beliefs evolve from the acceptance of knowledge as certain to an integration of expert knowledge with personal experiences. This session describes changes in teachers’ beliefs and practices as they participated in online professional development in the form of integrated mathematics content and pedagogy courses.

**JoAnn Cady**  
*University of Tennessee, Knoxville, Tennessee*

**Thomas E. Hodges**  
*University of Tennessee, Knoxville, Tennessee*

**Grand Ballroom A, Capacity: 120**
15. Teachers’ Beliefs of SES and Their Effects on Students’ Mathematics Achievement

**Individual Papers (30-Minute Session)**

Our study investigates how teachers’ beliefs about the socioeconomic status (SES) of their students relate to their mathematical instructional practices and how these practices affect students’ achievement. Results demonstrated a moderate relationship between teachers’ beliefs and students’ achievement, implying that education interventions should focus on changing teachers’ beliefs.

**Alejandra Salinas**
*AleSalinas9@aol.com*
*University of Miami, Miami, Florida*

**Gabriel Quintana**
*University of Miami, Miami, Florida*

**Karen Adamson**
*University of Miami, Miami, Florida*

Grand Ballroom B, Capacity: 120

16. Defining and Assessing Teachers’ Mathematical and Pedagogical Knowledge

**Work Session (90-Minute Session)**

This session will describe assessments that measure the mathematical and pedagogical content knowledge of grades 4–8 teachers in a study investigating the potential relationship between teachers’ knowledge and students’ achievement. The presenters will engage participants in examining frameworks and items and in discussing the use of these two types of assessments.

**Anna Graeber**
*annagrae@umd.edu*
*University of Maryland, College Park, Maryland*

**Patricia F. Campbell**
*University of Maryland, College Park, Maryland*

**Toni Michelle Smith**
*University of Maryland, College Park, Maryland*

**Amber H. Rust**
*University of Maryland, College Park, Maryland*

**Darcy L. Conant**
*University of Missouri—Columbia, Columbia, Missouri*

**Jill DePiper**
*University of Maryland, College Park, Maryland*

Grand Ballroom C, Capacity: 100
17. Experiences of African Americans in Mathematics Classrooms

Research Symposium (90-minute session)

This symposium highlights current research on the experiences of African American students in mathematics education. Although different conceptual frameworks and research methodologies guided each of the studies, all the studies seek to understand the experiences of African American students in mathematics education from middle school to postsecondary institutions.

Roni Ellington
Morgan State University, Baltimore, Maryland

Grand Ballroom I, Capacity: 100

18. Transformation from Student to Teacher: A Challenge for Preservice Education

Research Symposium (90-minute session)

To become teachers who can learn from practice and improve over time, preservice teachers must shift their focus from teacher to students, from their own cultural background to the diverse backgrounds of their students, and from conventional mathematics to mathematics-for-teaching. New findings will reveal insights into this process.

James Hiebert
University of Delaware, Newark, Delaware

Anne Morris
University of Delaware, Newark, Delaware

Sandy M. Spitzer
University of Delaware, Newark, Delaware

Amanda Jansen
University of Delaware, Newark, Delaware

Delayne Johnson
University of Delaware, Newark, Delaware

Tonya Bartell
University of Delaware, Newark, Delaware

Discussant: Magdalene Lampert
University of Michigan, Ann Arbor, Michigan

Discussant: Ruth Heaton
University of Nebraska—Lincoln, Lincoln, Nebraska

Grand Ballroom E, Capacity: 120
19. Measuring Implementation Fidelity of Secondary School Mathematics Textbooks

**Research Symposium (90-minute session)**

We will report the implementation fidelity of two program types, integrated and subject-specific, in grade 9 classrooms. We will discuss how classroom-visit protocols were developed from examinations of curricular materials and interviews with textbook authors. We will share online instruments used to document curriculum implementation.

**James E. Tarr**  
Tarrj@missouri.edu  
University of Missouri—Columbia, Columbia, Missouri

**Douglas A. Grouws**  
University of Missouri—Columbia, Columbia, Missouri

**Melissa McNaught**  
University of Missouri—Columbia, Columbia, Missouri

**Angela Sutter**  
University of Missouri—Columbia, Columbia, Missouri

Grand Ballroom F, Capacity: 120

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20. Contrasting Perspectives on Connecting Important Ideas in Probability

**Research Symposium (90-minute session)**

We will present three contrasting views on how to develop the link between theoretical and empirical probabilities in middle school students. Building from this specific example, we will explore the benefits of three different software tools for developing important ideas in probability and linking them to more general statistical reasoning.

**Hollylynne Lee**  
Hollylynne@ncsu.edu  
North Carolina State University, Raleigh, North Carolina

**Andee Rubin**  
TERC, Cambridge, Massachusetts

**Clifford Konold**  
University of Massachusetts Amherst, Amherst, Massachusetts

**Dor Abrahamson**  
University of California Berkeley, Berkeley, California

**J. Todd Lee**  
North Carolina State University, Raleigh, North Carolina

**Sibel Kazak**  
University of Massachusetts Amherst, Amherst, Massachusetts

**Discussant: Philip James Vahey**  
SRI International, San Francisco, California

Grand Ballroom G, Capacity: 120
21. Getting Published: Conversations with JRME

Panel Members

WORK SESSION (90-MINUTE SESSION)

The JRME Editor and Editorial Panel members will facilitate large- and small-group discussions to answer participants’ questions about publishing their work. Topics to be discussed include (1) the types of manuscripts JRME accepts, (2) the manuscript review process, and (3) pitfalls common to rejected manuscripts. Bring ideas and questions!

Beatriz D’Ambrosio  
Board of Directors, National Council of Teachers of Mathematics; Miami University of Ohio, Oxford, Ohio

Edward Esty  
SRI International, Chevy Chase, Maryland

M. Kathleen Heid  
Pennsylvania State University, University Park, Pennsylvania

Heather Hill  
Harvard University, Cambridge, Massachusetts

Signe Kastberg  
Indiana University Purdue University Indianapolis, Indianapolis, Indiana

Peter Kloosterman  
Indiana University Bloomington, Bloomington, Indiana

Denise S. Mewborn  
University of Georgia, Athens, Georgia

Joan Moss  
Ontario Institute for Studies in Education, University of Toronto, Toronto, Ontario

Jeffrey Shih  
University of Nevada, Las Vegas, Las Vegas, Nevada

Paola Sztajn  
National Science Foundation, Arlington, Virginia

Gwendolyn M. Lloyd  
Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Grand Ballroom H, Capacity: 100
22. Publishing Your Research in Teacher-Friendly Articles

Work Session (90-minute session)

The editorial panels of Teaching Children Mathematics, Mathematics Teaching in the Middle School, Mathematics Teacher, and ON-Math will present tips and techniques for writing about research for a teacher audience, followed by a question-and-answer period. Participants are encouraged to bring specific ideas for discussion individually or in small groups.

Grand Ballroom J, Capacity: 100

23. Assessing What Counts: Opportunities and Outcomes in Elementary School Math

Individual Paper Session (30-minute session)

This study uses a longitudinal, mixed-methods design to examine how teacher education prepares preservice teachers to teach reform-oriented mathematics, how the school context hinders or helps first-year teachers to enact reformed practices, and how their practices shape students’ learning opportunities.

Cindy Jong
jongc@bc.edu
Boston College, Boston, Massachusetts

Grand Ballroom A, Capacity: 120

24. An Analysis of the Alignment between the Written and Intended Curricula

Individual Paper Session (30-minute session)

This session will give an overview of a research study that examined the alignment between state grade-level learning expectations (GLEs) from ten populous states and four popular mathematics textbook series regarding the topic of fraction concepts and computation. The methodology, results, and implications of the study will be discussed.

Shannon Wayne Dingman
sdingman@uark.edu
University of Arkansas, Fayetteville, Arkansas

Grand Ballroom B, Capacity: 120
25. Supports for Urban Math Teachers and Equity for Urban Math Students

**INdIvIDuAl PaPERSeSSiOn (30-MINUTe SSeSSiOn)**

This paper discusses the supports for New York City Teaching Fellows, both (a) to develop the deep understanding of mathematics that they need in order to teach mathematics conceptually, and (b) to support them in understanding and reaching students who are different from them in their background and cultural experiences.

**Mary Q. Foote**
mary.foote@qc.cuny.edu
*City University of New York–Queens College, New York, New York*

**Laurel Cooley**
*City University of New York–Brooklyn College, New York, New York*

Grand Ballroom A, Capacity: 120

26. Exploring Parents’ Experiences with Standards-Based Curricula

**INdIvIDuAl PaPERSeSSiOn (30-MINUTe SSeSSiOn)**

Mathematics curricula designed to focus on conceptual understanding engage students in activities that are different from those their parents experienced. In this presentation we report on a study in which we explored how parents make sense of reformed curricula and how previous experiences with mathematics affect parents’ sense-making processes.

**Joanna Rachel Bartlo**
*Portland State University, Portland, Oregon*

**Ann Sitomer**
*Portland Community College, Portland, Oregon*

Grand Ballroom B, Capacity: 120
27. The Spatial Reasoning and Visualization of Secondary School Mathematics Teachers

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This study reports on the spatial reasoning and visualization of secondary school mathematics teachers using interview and observation data focusing on how they externally represent and work with important geometric concepts and relations typically examined only in 2-D when presented the same concepts and relations in a 3-D environment.

Deborah Moore-Russo
dam29@buffalo.edu
*University at Buffalo, State University of New York, Buffalo, New York*

**Grand Ballroom A, Capacity: 120**

28. The Demands of State Contexts on Mathematics Materials Selection

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

The pressures of No Child Left Behind, state testing, and meeting state standards place great demands on textbook adoption processes. We will illustrate how state contexts affect school districts’ selection of mathematics instructional materials, and we will draw attention to similarities and differences in adoption and open-territory states.

Julie Koehler Zeringu
*Education Development Center, Newton, Massachusetts*

Katherine Schwinden
*Education Development Center, Newton, Massachusetts*

**Grand Ballroom B, Capacity: 120**
29. Building Teacher Leadership in Mathematics: A District Case Study

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This study explores factors that facilitate or hinder the development of teacher-leaders in mathematics and their ability to scale up the work of mathematics reform at the district level, following three years of a three-week residential summer institute that combines rigorous mathematics content coursework with leadership development.

**Karen Marie Higgins**  
higginsk@oregonstate.edu  
Oregon State University, Corvallis, Oregon

**Nicole Rigelman**  
n.rigelman@worldnet.att.net  
George Fox University, Newberg, Oregon

Grand Ballroom A, Capacity: 120

30. Mathematics and Gender: A Study of Parents and Children Playing a Board Game

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This exploratory study of twenty-eight parent-child dyads playing a board game shows that these parents provide many more opportunities for their sons to do mathematics actively than for their daughters, although they scaffold mathematics to approximately the same degree for both daughters and sons. They also enact executive autonomy more often over their daughters.

**Ann Anderson**  
ann.anderson@ubc.ca  
University of British Columbia, Vancouver, British Columbia

**Jim Anderson**  
University of British Columbia, Vancouver, British Columbia

**Lyndsay Moffat**  
University of British Columbia, Vancouver, British Columbia

**Jon Shapiro**  
University of British Columbia, Vancouver, British Columbia

Grand Ballroom B, Capacity: 120
31. Designing and Using Problems to Teach Mathematical Knowledge for Teaching

**Work Session (90-minute session)**

What kinds of tasks develop mathematical knowledge for teaching (MKT)? How are these tasks different from “regular” mathematics activities? In this session, participants explore these types of questions through the analysis of materials that have been designed to develop MKT and discuss a preliminary framework created by the presenters.

Deborah Loewenberg Ball  
*University of Michigan, Ann Arbor, Michigan*

Kara Suzuki  
*University of Michigan, Ann Arbor, Michigan*

Laurie Sleep  
*University of Michigan, Ann Arbor, Michigan*

Hyman Bass  
*University of Michigan, Ann Arbor, Michigan*

Jennifer Lewis  
*University of Michigan, Ann Arbor, Michigan*

Mark Thames  
*University of Michigan, Ann Arbor, Michigan*

Grand Ballroom C, Capacity: 100

32. Surfacing the Explicit: Abductive Strategies in Pattern Generalization

**Work Session (90-minute session)**

This session addresses issues relevant to sixth graders’ ability to generalize algebraic patterns. We explore factors that assist or deter students in constructing and justifying algebraic generalizations. We explore activities that assist students in obtaining algebraically useful generalizations, including instruction that facilitates the appropriation and internalization of effective abductive strategies.

Joanne Rossi Becker  
becker@math.sjsu.edu  
*San Jose State University, San Jose, California*

Ferdinand Rivera  
*San Jose State University, San Jose, California*

Grand Ballroom D, Capacity: 100
33. Affecting Teachers’ Images of What and Who They Teach

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We address two interrelated themes: (1) Difficulties American teachers face in teaching high-quality, conceptually coherent mathematics, and (2) reconceptualizing goals and methods of mathematics teachers’ professional development as we gain greater insight into those difficulties while conducting design experiments aimed at that transformation.

Patrick Wilfred Thompson
pat.thompson@asu.edu
Arizona State University, Tempe, Arizona

Christina Miller
Arizona State University, Tempe, Arizona

Ana Lage Ramirez
Arizona State University, Tempe, Arizona

Carlos Castillo-Garsow
Arizona State University, Tempe, Arizona

Sharon Lima
Arizona State University, Tempe, Arizona

Grand Ballroom E, Capacity: 120

34. Understanding Statistical Variability: Present and Future

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium will examine the cutting edge of knowledge on understanding statistical variability and consider an agenda for research over the next decade. A specific focus will be understandings of variability that can provide conceptual support for understanding the role of variability in making inferences from a sample to a population.

Luis Saldanha
Portland State University, Portland, Oregon

J. Michael Shaughnessy
Portland State University, Portland, Oregon

Andee Rubin
TERC, Cambridge, Massachusetts

Robert delMas
University of Minnesota, Minneapolis, Minnesota
Discusant: Martin Simon  
New York University, New York, New York  
Grand Ballroom F, Capacity: 120

35. Research Preparation for Doctorates in Mathematics Education

Research Symposium (90-minute session)

This session will examine how different institutions in the United States prepare their doctoral students in mathematics education for research. Attention to, and different components in, the research preparation will be discussed, including core coursework, research internships, dissertations, and alternatives to dissertations.

Robert Reys  
University of Missouri—Columbia, Columbia, Missouri

James Middleton  
Arizona State University, Tempe, Arizona

Barbara Dougherty  
University of Mississippi, University, Mississippi

Grand Ballroom G, Capacity: 120

36. Mathematics Specialists and Coaches: Research and Issues from the Field

Work Session (90-minute session)

In this session we will present an overview of research on coaching, identifying issues and challenges. Researchers from three projects using mathematics specialists or coaches will describe how they dealt with the challenges in their projects. Participants will be involved in small-group discussions focused on the challenges.

Maggie B. McGatha  
maggie.mcgatha@louisville.edu  
University of Louisville, Louisville, Kentucky

Robert Q. Berry III  
University of Virginia, Charlottesville, Virginia

Douglas H. Clements  
University at Buffalo, State University of New York, Buffalo, New York

Nan Dempsey  
Upstate Regional Mathematics and Science Center, Duncan, South Carolina

Julie Sarama  
University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom H, Capacity: 100
37. Mathematics Education Research and Development in NSF-DRL

Research Symposium (90-minute session)

In this presentation, we will discuss four NSF division programs that offer a set of complementary approaches for advancing research, development, and field-based improvement strategies: Discovery Research K–12, Research and Evaluation on Education in Science and Engineering, Informal Science Education, and Information Technology Experiences for Students and Teachers.

Paola Sztajn
psztajn@nsf.gov
National Science Foundation, Arlington, Virginia

Karen Marrongelle
National Science Foundation, Arlington, Virginia

Grand Ballroom I, Capacity: 120

38. Issues in Case-Study Research on Teaching in Urban Algebra Classrooms

Work Session (90-minute session)

In this work session, participants will engage in data from case-study research of high school algebra teachers in one urban school district in order to explore what constitutes effective teaching practice and teachers’ knowledge for effective teaching in the context of state and district accountability pressures.

Ann Edwards
University of Maryland, College Park, Maryland

Daniel Chazan
University of Maryland, College Park, Maryland

Lawrence Clark
University of Maryland, College Park, Maryland

Whitney Johnson
University of Maryland, College Park, Maryland

Steven Jones
University of Maryland, College Park, Maryland

Carolina Napp
University of Maryland, College Park, Maryland

Farhaana Nyamekye
University of Maryland, College Park, Maryland

Grand Ballroom J, Capacity: 100
39. Effects of a Research and Professional Development Model on Teachers’ Learning

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This study is part of a larger research program examining the trajectory of students’ emergent algebraic understanding and the development of related curriculum materials. Fourteen teachers participated in a research and professional development program designed to bridge research and classroom practice. Teachers’ outcomes were increased content and pedagogical content knowledge in early algebra.

*Catherine Diane Bruce*

cathybruce@trentu.ca

*Trent University, Peterborough, Ontario*

*Ruth Anne Beatty*

*University of Toronto, Toronto, Ontario*

*Pat Millot*

*District School Board of Niagara, Saint Catharines, Ontario*

*Sue Wilson*

*District School Board of Niagara, Saint Catharines, Ontario*

*Glynnis Flemming*

*District School Board of Niagara, Saint Catharines, Ontario*

*Sean Hanna*

*District School Board of Niagara, Saint Catharines, Ontario*

**Grand Ballroom A, Capacity: 120**

40. High School Teachers’ Evolving Understanding of Comparing Distributions

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

Results will be presented of a design experiment involving the development and implementation of innovative statistical professional development to support high school mathematics teachers’ developing understanding of comparing distributions.

*Sandra R. Madden*

sandra.madden@wmich.edu

*Western Michigan University, Kalamazoo, Michigan*

**Grand Ballroom B, Capacity: 120**
41. Beginning Teachers’ and Students’ Mathematical Errors

**Individual Paper Session (30-minute session)**

This presentation will report on findings about what influences students’ mathematical errors over two years of teaching and how beginning teachers view and respond to the errors.

**Hanna N. Haydar**  
Haydar@brooklyn.cuny.edu  
City University of New York–Brooklyn College, Brooklyn, New York

**Nieves Angulo**  
City University of New York–Hostos Community College, Bronx, New York

**Sunita Vatuk**  
MetroMath, City University of New York Graduate Center, New York, New York

Grand Ballroom A, Capacity: 120

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42. Toward a Theory of Young Children’s Understanding of Spatial Decomposition

**Individual Paper Session (30-minute session)**

Insights will be presented from a study of kindergartners’ understandings of spatial decomposition. Results showed surprising fluidity between holistic and analytic thinking. Children showed evidence of understanding several principles of splitting spatial wholes into parts. The nature of these understandings and implications for teaching fractions and division will be explored.

**Mary Elaine Spitler**  
mspitler@buffalo.edu  
University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom B, Capacity: 120

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43. The Final Chapter of the CSMC K–8 State Standards Analyses: Statistics

**Work Session (90-minute session)**

This session will summarize the latest state standards analysis conducted by the Center for the Study of Mathematics Curriculum (CSMC), which highlights what students are expected to know and be able to do in statistics. Reflections from this and previous analyses of the state standards will be shared.
44. Meaningful Mathematical Discourse in Mathematics Learning Communities

**Research Symposium (90-minute session)**

This session will present the results of a study that investigated the mathematical discourse of professional learning communities (PLCs) of secondary school mathematics teachers. Videos will be discussed that illustrate differences in the PLC facilitators’ mathematical knowledge and ability to decenter when interacting with other PLC members.

**Marilyn Paula Carlson**
marilyn.carlson@asu.edu
*Arizona State University, Tempe, Arizona*

**Kevin Charles Moore**
*Arizona State University, Tempe, Arizona*

**Stacey Andrew Bowling**
*Arizona State University, Tempe, Arizona*

**Discussant: Dick Lesh**
*Indiana University, Bloomington, Indiana*

**Discussant: Chris Rasmussen**
*San Diego State University, San Diego, California*

**Discussant: Patrick Wilfred Thompson**
*Arizona State University, Tempe, Arizona*

Grand Ballroom E, Capacity: 120
45. Restructuring Field Experiences to Focus on Students’ Mathematical Thinking

**Research Symposium (90-minute session)**

This symposium highlights three research projects, at different stages of research development, that have endeavored to alter the structure of field experiences in order to sharpen the focus of such experiences on students’ mathematical thinking.

**Keith Rigby Leatham**  
kleatham@mathed.byu.edu  
Brigham Young University, Provo, Utah

**Anderson Hassell Norton III**  
Virginia Polytechnic Institute and State University, Blacksburg, Virginia

**Patricia S. Wilson**  
pswilson@uga.edu  
University of Georgia, Athens, Georgia

**Blake E. Peterson**  
Brigham Young University, Provo, Utah

**Enrique Galindo**  
Indiana University Bloomington, Bloomington, Indiana

Grand Ballroom F, Capacity: 120

46. Keeping a Social-Justice Focus in a Grades K–6 Mathematics Coaching Program

**Research Symposium (90-minute session)**

This session will give the K–6 Mathematics Coaching Program’s background and findings from research on a social-justice agenda in the program. The speakers will share evidence on the relationship between social justice and coach-teacher interactions, students’ disposition, and teachers’, coaches’, and program personnel’s growth. Discussion and feedback are expected.

**Diana Erchick**  
Ohio State University at Newark, Newark, Ohio

**Patti Brosnan**  
Ohio State University, Columbus, Ohio

**Cynthia Tyson**  
Ohio State University, Columbus, Ohio

**Melva Grant**  
Ohio State University, Columbus, Ohio
47. Mathematics Capstone Courses for Preservice Mathematics Teachers

**WORK SESSION (90-MINUTE SESSION)**

This presentation uses perspectives on teachers’ planning to illuminate issues about the nature and purposes of mathematics capstone courses for prospective secondary school mathematics teachers. We will highlight distinctions among pedagogical content knowledge, mathematical knowledge for teaching, and secondary school mathematics from an advanced standpoint.

**Karen D. King**
*New York University, New York, New York*

**Natasha Speer**
*Michigan State University, East Lansing, Michigan*

**Brennan Bardige**
*New York University, New York, New York*

**Heather Howell**
*New York University, New York, New York*

**John Tapper**
*New York University, New York, New York*

**Grand Ballroom H, Capacity: 100**
48. Managing Mathematics Instruction: Policy, School Management, and Teaching

RESEARCH SYMPOSIUM (90-MINUTE SESSION)
I explore how relations among policy, school management, and classroom teaching differ depending on the school subject. Focusing on both the designed and the lived organization, the presentation examines arrangements for managing mathematics instruction in elementary and middle schools with particular attention to how organizational routines structure school practice.

James P. Spillane
j-spillane@northwestern.edu
Northwestern University, Evanston, Illinois

Discussant: Magdalene Lampert
University of Michigan, Ann Arbor, Michigan

Grand Ballroom I, Capacity: 120

49. Synthesizing Research on Rational-Number Reasoning

WORK SESSION (90-MINUTE SESSION)
We will describe the conduct of the synthesis of rational-number reasoning and its database (n > 500). Groups will discuss multiplication and division; area and volume; fractions, ratios and rates; decimals and percents; and scaling and similarity, along with associated learning trajectories. Groups will report back, and the discussant will summarize.

Jere Confrey
jconfrey@gmail.com
North Carolina State University, Raleigh, North Carolina

Alan Maloney
North Carolina State University, Raleigh, North Carolina

Kenny Nguyen
North Carolina State University, Raleigh, North Carolina

Holt Wilson
North Carolina State University, Raleigh, North Carolina

Discussant: Martin Simon
New York University, New York, New York

Grand Ballroom J, Capacity: 100
50. Preservice Teachers’ Conceptions of Fair Cylindrical Dice

**Individual Paper Session (30-minute session)**

Prospective teachers hypothesized about the dimensions of a cylinder that, when tossed, had an equal likelihood of landing on the lateral surface or either base. Their conceptions before and after an experiment of tossing different sizes of cylinders, as well as the effect of the experiment on their thinking, will be discussed.

**Dustin L. Jones**  
DLJones@shsu.edu  
Sam Houston State University, Huntsville, Texas

**Grand Ballroom A, Capacity: 120**

51. What Goes into “Installing” a Theorem: A Study of Practical Rationality

**Individual Paper Session (30-minute session)**

What work must teachers do to consider a theorem “installed,” to be able to hold their class responsible for knowing and using a proposition as true? We will investigate the perspective of experienced geometry teachers on that question by examining their reactions to animated stories of teaching.

**Patricio Herbst**  
University of Michigan, Ann Arbor, Michigan

**Takeshi Miyakawa**  
University of Michigan, Ann Arbor, Michigan

**Talli Nachlieli**  
Levinsky College of Education, Israel, Tel Aviv, Israel

**Grand Ballroom B, Capacity: 120**
52. Out-of-School Mathematics Practices in Urban Youth Development Programs

**Individual Paper Session (30-minute session)**

This session will present findings from a study of the mathematics practices used by urban youth in out-of-school youth development programs. We will describe how young people combine previous learning from home, school, and community to produce hybrid mathematical practices during the course of informal activity and the role that setting structure plays.

**Janine Remillard**  
janiner@gse.upenn.edu  
University of Pennsylvania, Philadelphia, Pennsylvania

**John Baker**  
University of Pennsylvania, Philadelphia, Pennsylvania

**Lynda Ginsburg**  
Rutgers University, Newark, New Jersey

**Grand Ballroom A, Capacity: 120**

53. Preservice Secondary School Teachers’ Knowledge and Confidence with Content

**Individual Paper Session (30-minute session)**

This session will share results of a study that investigated preservice secondary school mathematics teachers’ mathematics content knowledge and their confidence in teaching this content. The assessment instrument that comprised questions from a state’s assessment anchors will be shared along with implications for university secondary mathematics education programs.

**Jane Murphy Wilburne**  
jmw41@psu.edu  
Penn State Harrisburg, Middletown, Pennsylvania

**Mike Long**  
malong@ship.edu  
Shippensburg University, Shippensburg, Pennsylvania

**Grand Ballroom B, Capacity: 120**
54. Child Vendors on the Trains in Mumbai, India: A Comparative Case Study

Poster Session

This proposal highlights the mathematical strategies and problem-solving skills of children participating in the culturally based practice of vending on trains in Mumbai, India, and contrasts their strategy use with nonsellers. The case-study analysis suggests the strategies used by sellers are related to the practice of vending.

Yasmin A. Sitabkhan
ysitabkhan@berkeley.edu
University of California Berkeley, Berkeley, California

North Foyer (Table 1), Capacity: 800

55. Quality Conversations in the Classroom: Support That Teachers’ Manuals Provide

Poster Session

As teachers’ primary resource, manuals should provide support for facilitating high-quality mathematics discussions. This study examined four manuals to determine the supports included. Results demonstrated wide variety in quantity and types of supports. Implications for districts include matching content in teachers’ manuals and professional development to teachers’ skills and knowledge levels.

Lori Williams
jimtown@sbcglobal.net
University of Wisconsin—Milwaukee, Milwaukee, Wisconsin

North Foyer (Table 2), Capacity: 800
56. Research Connections between Secondary School and College Mathematics Achievement

**Poster Session**

This study examines the influence of Standards-based and conventional secondary school mathematics curricula on students’ postsecondary placement exams, first college mathematics course taking, and first college mathematics grade point average, when other factors like gender, ethnicity, socioeconomic status, opportunity to learn, and high school mathematics grade point average are considered.

**Jon Davis**  
*Western Michigan University, Kalamazoo, Michigan*

**Jeffrey Shih**  
*University of Nevada, Las Vegas, Las Vegas, Nevada*

North Foyer (Table 3), Capacity: 800

57. Secondary School Mathematics Teachers’ Understanding of Functional Representations

**Poster Session**

Research in the domain of functions and functional representations supports the notion that demonstrating understanding in this domain means both making connections across representations and using different perspectives regarding the functions themselves. To what extent do in-service secondary school mathematics teachers have the ability to demonstrate this type of understanding?

**LuAnn Malik**  
*luann.malik@aiu3.net*  
*Southwest Pennsylvania Math Science Partnership, Homestead, Pennsylvania*

North Foyer (Table 4), Capacity: 800

58. Standards-Based Instruction through Professional Development Partnerships

**Poster Session**

Participants will learn about the preliminary results of a mathematics and science partnership designed to support teachers in changing toward standards-based instruction in grades K–5 classrooms. Research also investigates the construct of “teacher lust” as an influence for, or barrier to, change.
59. Students’ Understanding of Magnitude on the Number Line: The Use of Vectors

**Poster Session**

Magnitude is central to understanding generative principles of the number line, yet it often remains implicit. The goal of this session is to consider an intervention that makes explicit magnitude and interval size: the use of vectors. Results of an interview study with grade 5 students are presented and analyzed.

**Darrell Earnest**  
dearnest@berkeley.edu  
University of California Berkeley, Berkeley, California

North Foyer (Table 6), Capacity: 800

60. Students Create Instructional Adaptations for Learning Division

**Poster Session**

Fourth-grade students with learning disabilities cooperatively explored multiplication and division and communicated their mathematical ideas with other members of the class. We will give examples of how students adapted the group learning activities to their individual interests and knowledge. We will also describe resulting changes in individual students’ mathematical knowledge.

**Susan B. Taber**  
taber@rowan.edu  
Rowan University, Glassboro, New Jersey

**Michele Canonica**  
Monroe Township School District, Williamstown, New Jersey

North Foyer (Table 7), Capacity: 800
61. Teachers Engaged in Research: Details of Teachers’ Curriculum Making

**Poster Session**

Following from the 2007 NCTM research symposium “Teachers Engaged in Research,” elementary and middle school teachers in the southeastern United States are currently engaged in action research. This poster session will highlight the scope of research done by these teachers and highlight preliminary findings related to teachers’ learning in mathematics.

**Stephanie L. Behm**

sbehm@vt.edu

*Virginia Polytechnic Institute and State University, Blacksburg, Virginia*

**North Foyer (Table 8), Capacity: 800**

62. The Cultural Context of Mathematics Instruction

**Poster Session**

This presentation will look at the use of a culturally based mathematics curriculum, a model for evaluating implementing this approach, and its implications for professional development. Participants will have the opportunity to try out a geometry activity from the curriculum in order to experience mathematics grounded in cultural knowledge.

**Melissa Kagle**

mkagle@wested.org

*Learning Innovations at WestEd, Boston, Massachusetts*

**North Foyer (Table 9), Capacity: 800**

63. Effects of Learning Mathematics through Measurement and Algebra Contexts

**Poster Session**

Preliminary data show a significant, positive correlation between introducing young children to mathematics through measurement and algebraic conceptions and their understanding of generalized arithmetic. We hypothesize that this is an indication of their readiness to study a formal Algebra 1 course immediately following their primary school experience.

**Linda Venenciano**

*University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii*
64. The Impact of Measurement Models in Developing Rational-Number Concepts

Poster Session
This study investigated models students used to solve problems involving the comparison of rational-number quantities. One hundred ninety-one fifth-, sixth-, and seventh-grade students were given three rational-number problems, and their responses were analyzed to determine what diagrammatic representations were used to support students’ reasoning for their answers.

Melfried Olson
melfried@hawaii.edu
University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

Hannah Slovin
University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

Fay Zenigami
University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

North Foyer (Table 10), Capacity: 800

65. Increasing Engagement and Learning in Undergraduate Mathematics Classrooms

Poster Session
Higher degrees of engagement in learning activities are expected to result in increases in the quality of learning. The research reported here seeks to measure increases in engagement and learning in undergraduate mathematics courses as a function of the use of tablet personal computers and collaborative classroom software.

Andy Hurford
United States Air Force Academy, Colorado Springs, Colorado

North Foyer (Table 13), Capacity: 800
66. Math Interactive Learning Experience for Alcohol-Affected Children

**Poster Session**

Deficits in mathematical functioning have been consistently reported among individuals prenatally affected by alcohol. A metacognitive mathematics program, Math Interactive Learning Experience, was developed to improve mathematical skills in young alcohol-affected children. Participants in the treatment group demonstrated greater short- and long-term gains than a comparison sample.

**Elisabeth Taddeo**  
*Marcus Institute, Atlanta, Georgia; Emory University, Atlanta, Georgia*

**Julie A. Kable**  
*Marcus Institute, Atlanta, Georgia; Emory University School of Medicine, Atlanta, Georgia*

**Claire D. Coles**  
*Marcus Institute, Atlanta, Georgia; Emory University, Atlanta, Georgia*

North Foyer (Table 15), Capacity: 800

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67. Networking High Schools to Support Mathematics Improvement

**Poster Session**

In 2003, the COMPASS Center launched a national network of strong implementation in high schools. All use one of the five NSF-funded mathematics programs. We will present preliminary findings from our multiyear study of the COMPASS POINTS network.

**Kasi Allen Fuller**  
*Lewis and Clark College, Portland, Oregon*

**Eric Robinson**  
*Ithaca College, Ithaca, New York*

**Margaret Robinson**  
*Ithaca College, Ithaca, New York*

North Foyer (Table 16), Capacity: 800
68. Preservice Teacher Content Knowledge: Realizing the Potential of Graphs

**POSTER SESSION**

This session will report on a study of preservice teachers’ use of graphical representations in communicating aspects of data. Results indicate an overemphasis on technical aspects of graph construction, poor understanding of the functionality of graphs, and particular difficulties associated with box-and-whiskers plots.

**Aisling Leavy**
*Mary Immaculate College–University of Limerick, Limerick, Ireland*

**Finnbarr Sloane**
*Arizona State University, Tempe, Arizona*

**North Foyer (Table 17), Capacity: 800**
69. PLENARY SESSION: Language(s) and Learning Mathematics

Research Symposium

The speaker will address claims and questions about language(s) and learning mathematics, including what mathematical discourse practices are, what common language practices in mathematics classrooms exist among students who are bilingual or learning English, and what resources bilingual learners use to communicate mathematically.

Judit Moschkovich
jmoschko@ucsc.edu
University of California, Santa Cruz, Santa Cruz, California

Grand Ballroom A, Capacity: 120

70. Connecting Arithmetic and Algebra to Support a Range of Learners

Work Session (90-minute session)

Participants will examine classroom situations in which a range of learners, including students who appear to be struggling and students who appear to need additional challenge in relation to their peers, are engaged in articulating, representing, and justifying general claims and applying this work to developing computational fluency.

Susan Jo Russell
Education Research Collaborative, TERC, Cambridge, Massachusetts

Deborah Schifter
Education Development Center, Newton, Massachusetts

Virginia Bastable
SummerMath for Teachers, Mount Holyoke College, South Hadley, Massachusetts

Grand Ballroom C, Capacity: 100
71. Practitioner-Centered Research: Practices Worthy of Attention

**Work Session (90-minute session)**

Participants will discuss strategies for conducting mathematics education research that specifically focuses on practitioners’ questions and needs, as illustrated through three major projects. Our goal is to open up a conversation about this type of research to learn about changes needed to sustain and further a practitioner-centered research agenda.

Pamela L. Paek
pamela.paek@mail.utexas.edu
Charles A. Dana Center, University of Texas at Austin, Austin, Texas

Philip Uri Treisman
Charles A. Dana Center, University of Texas at Austin, Austin, Texas

Grand Ballroom D, Capacity: 100

72. A Discussion of Conceptual and Procedural Knowledge in Mathematics

**Research Symposium (90-minute session)**

We will discuss, and engage the audience in discussing, issues surrounding the notions of conceptual and procedural knowledge in mathematics. How exactly should these types of knowledge be defined, how might they be connected, how are they acquired, and how are they used in fluent and powerful mathematical performance?

Michael Battista
Michigan State University, East Lansing, Michigan

Arthur Baroody
University of Illinois at Urbana-Champaign, Champaign, Illinois

Jon Star
Harvard University, Cambridge, Massachusetts

**Discussant: Edward Silver**

University of Michigan, Ann Arbor, Michigan

Grand Ballroom E, Capacity: 120
73. Homework: Window on Perceptions and Interactions

**Research Symposium (90-minute session)**

Mathematics homework is one activity that straddles school and home, engaging students, parents, and teachers. Analyses of interview data from the perspectives of school organization and culture, teachers and classrooms, and parents offer insights into how urban parents view themselves and are viewed by others in relation to mathematics.

- **Lynda Ginsburg**  
  *Rutgers University, Newark, New Jersey*

- **Janine Remillard**  
  *University of Pennsylvania, Philadelphia, Pennsylvania*

- **Enakshi Bose**  
  *University of Pennsylvania, Philadelphia, Pennsylvania*

- **Traci English-Clarke**  
  *University of Pennsylvania, Philadelphia, Pennsylvania*

- **Wendy Green**  
  *University of Pennsylvania, Philadelphia, Pennsylvania*

- **Hanin Rashid**  
  *Rutgers University, Newark, New Jersey*

- **Emily Schnee**  
  *Rutgers University, Newark, New Jersey*

- **Discussant: Sukey Blanc**  
  *Research for Action, Philadelphia, Pennsylvania*

**Grand Ballroom F, Capacity: 120**

74. Interactive Development of Mathematical Reasoning in a Virtual Space

**Research Symposium (90-minute session)**

Our symposium presents an emergent research area designed to understand the interactive development of mathematical reasoning of learners collaborating online to solve open-ended mathematics problems. The participants are urban and suburban American and Brazilian high school students and preservice teachers. Our studies contribute understanding about learning in virtual environments.

- **Arthur B. Powell**  
  *Rutgers University, Newark, New Jersey*

- **Marcelo A. Bairral**  
  *Universidade Federal Rural do Rio de Janeiro, Seropédica, Rio de Janeiro, Brazil*
75. Elementary School Students’ Discourse Practices

Work Session (90-minute session)

We will trace students’ learning by charting changes in fifth-grade students’ mathematical discourse and argumentation across one school year, and we will present an analysis of the features of tasks that led to, or constrained, discourse.

Denise S. Mewborn
University of Georgia, Athens, Georgia

Hulya Kilic
University of Georgia, Athens, Georgia

Filyet Asli Ersoz
University of Georgia, Athens, Georgia

Dionne Idera Cross
Indiana University Bloomington, Bloomington, Indiana

Diana Kathleen May
University of Georgia, Athens, Georgia

Jisun Kim
University of Georgia, Athens, Georgia

Grand Ballroom H, Capacity: 100
76. Examining TEAM-Math’s Success: A Look into the Multifaceted Partnership

Research Symposium (90-minute session)
Constituency representatives of TEAM-Math, a National Science Foundation–funded mathematics and science partnership, will present their perspectives on the partnership’s success. Institutional partners include Auburn University, Tuskegee University, and fifteen school districts. A knowledge of teacher change and the development and sustainment of meaningful partnerships between schools and colleges can be gained.

Marilyn Elaine Strutchens
strutme@auburn.edu
Auburn University, Auburn, Alabama

W. Gary Martin
Auburn University, Auburn, Alabama

Stephen Stuckwisch
Auburn University, Auburn, Alabama

Mohammed Qazi
Tuskegee University, Tuskegee, Alabama

Tommy Bice
Alexander City Schools, Alexander City, Alabama

Lisa Lishak
Loachapoka High School, Loachapoka, Alabama

Grand Ballroom I, Capacity: 120

77. Professional Development for Teaching Math in K-5 Inclusion Classrooms

Individual Paper Session (30-minute session)
We will report quantitative and qualitative findings from the field-testing of the Math for All professional development program. This program uses a case-based approach to professional development and is designed to enhance elementary school teachers’ preparation to provide all students, including those with disabilities, with a standards-based education in mathematics.

Babette Moeller
bmoeller@edc.org
Education Development Center, New York, New York
**78. A Study of Laptop Use in Math Classrooms in a Low-Performing Middle School**

**Individual Paper Session (30-minute session)**

This study explores the influences of a one-to-one laptop program on mathematics teaching and learning processes in a low-performing middle school. Findings suggest that the program can serve as a powerful instructional resource; specific contextual complexities, however, demand attention to numerous considerations prior to and during program implementation.

**Lawrence Clark**  
lclark66@umd.edu  
University of Maryland, College Park, Maryland

**Grand Ballroom B, Capacity: 120**

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**79. Increasing the Cognitive Demand of Mathematical Tasks**

**Individual Paper Session (30-minute session)**

We provide evidence that it is possible for the cognitive demand of mathematical tasks not just to decline or be maintained but also to grow as students work on them. Using examples from a calculus class, we show how different ways of problematizing tasks can foster growth in cognitive demand.

**Randi A. Engle**  
RAEngle@berkeley.edu  
University of California Berkeley, Berkeley, California

**Aditya P. Adiredja**  
University of California Berkeley, Berkeley, California

**Grand Ballroom A, Capacity: 120**
80. Principals as Instructional Leaders of Middle School Mathematics

Individual Paper Session (30-minute session)

This study characterizes how principals, acting as instructional leaders, make sense of policies and initiatives calling for instructional change in mathematics and motivate their staffs to work collaboratively to improve mathematics instruction. Semi-structured interview data are used to describe principals’ involvement in mathematics instructional decisions in their schools.

Susan Regina Monaghan  
Marquette University, Milwaukee, Wisconsin

John Moyer  
Marquette University, Milwaukee, Wisconsin

Grand Ballroom B, Capacity: 120

81. A General Model for Mathematical Explanation

Individual Paper Session (30-minute session)

In this session, we use Toulmin’s work in argumentation theory to investigate the general characteristics and structure of mathematical explanations. By adapting Toulmin’s argumentation framework to mathematical explanations given by preservice secondary school mathematics teachers in an inquiry-based mathematics course, we will develop a general model for mathematical explanations.

Daniel Siebert  
Brigham Young University, Provo, Utah

Jennifer Alder Brinkerhoff  
Brigham Young University, Provo, Utah

Grand Ballroom A, Capacity: 120
82. Making the Invisible Visible: African American Students and Problem Solving

**Individual Paper Session (30-minute session)**

This presentation will share research findings about African American students’ mathematical problem solving within middle school Geometry and Rational Number content strands. This presentation will discuss student reports of how they best learn mathematics, strengths and gaps in students’ mathematical knowledge, and students’ common errors and misconceptions.

**Crystal Hill**  
chill2@email.unc.edu  
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
Grand Ballroom B, Capacity: 120

83. Getting Unstuck: The Development of Collaborative Capacities over Time

**Individual Paper Session (30-minute session)**

I will discuss the development of students’ collaboration skills over three years of data collection in secondary school mathematics classrooms. A central challenge of mathematical group work is learning how to get “unstuck.” I will argue that, over time, students’ mathematical understanding influenced their collaboration skills and vice versa.

**Indigo Esmonde**  
iesmonde@oise.utoronto.ca  
Ontario Institute for Studies in Education, University of Toronto, Toronto, Ontario  
Grand Ballroom A, Capacity: 120

84. The Mathematics Class as a Complex System

**Individual Paper Session (30-minute session)**

Using videotapes of middle school mathematics lessons, the speaker will demonstrate the compatibility of current research with the complex perspective, which interprets mathematics classes as potential holistic learning systems that regulate emergent behavior, specifically correlating research with five attributes of complexity: diversity, redundancy, interactions, decentralized control, and organized randomness.

**Thomas E. Ricks**  
tomricks@lsu.edu  
Louisiana State University, Baton Rouge, Louisiana  
Grand Ballroom B, Capacity: 120
85. Discourse Matters: On the Complexity of Latinas’ and Latinos’ Learning of Mathematics

**Work Session (90-minute session)**

This session intends to engage participants, through video episodes, in collaboratively investigating and discussing an exceptional teacher of mathematics of grade school Latinas and Latinos. The aims are to understand the instructional moves that support and advance students and to clarify the complex nature of integrating language and content.

**Lena Licón Khisty**  
llkhisty@uic.edu  
University of Illinois at Chicago, Chicago, Illinois

**Eugenia Vomvoridi Ivanovic**  
University of Illinois at Chicago, Chicago, Illinois

**Aria Razfar**  
University of Illinois at Chicago, Chicago, Illinois

**Gabriel Viego**  
University of Illinois at Chicago, Chicago, Illinois

Grand Ballroom C, Capacity: 100

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86. Meeting the Needs of Students with Learning Disabilities

**Research Symposium (90-minute session)**

This session reviews recently conducted research on at-risk students and students with learning disabilities in standards-based classrooms in the intermediate and middle grades. The presenters will discuss the importance of curriculum modifications, instructional strategies and specific discourse practices that support higher achievement and students’ increased participation.

**John Woodward**  
woodward@ups.edu  
University of Puget Sound, Tacoma, Washington

**Juliet Baxter**  
University of Oregon, Eugene, Oregon

**Asha Jitendra**  
University of Minnesota, Minneapolis, Minnesota

Grand Ballroom D, Capacity: 100
87. CAS as Teaching and Learning Facilitators

Research Symposium (90-minute session)

We share the results of four studies using computer algebra systems (CAS) in different settings, discussing the benefits and limitations of CAS in mathematics instruction. Our current research focuses on the impact of CAS tools on the beliefs and attitudes of preservice teachers in an upper-level methods course.

S. Asli Ozgun-Koca
Wayne State University, Detroit, Michigan
Michael Todd Edwards
Miami University, Oxford, Ohio
Michael Meagher
City University of New York–Brooklyn College, Brooklyn, New York

Grand Ballroom E, Capacity: 120

88. Learning about and from a Master Mathematics Teacher in China

Research Symposium (90-minute session)

This session will examine the practices of mathematics teacher ranking and promotion in China together with the case study of a master mathematics teacher. The case study highlights aspects of the teacher’s expertise that are valued in China, which also help explain what is valued for and in Chinese classroom instruction.

Yeping Li
yepingli@tamu.edu
Texas A&M University, College Station, Texas
Rongjin Huang
Texas A&M University, College Station, Texas
Gerald Kulm
Texas A&M University, College Station, Texas

Discussant: Jinfa Cai
University of Delaware, Newark, Delaware
Discussant: Edward Silver
University of Michigan, Ann Arbor, Michigan

Grand Ballroom F, Capacity: 120
89. Fostering At-Risk First Graders’ Computational Fluency

Research Symposium (90-minute session)

Three experiments evaluated whether computer-based, structured discovery learning could help at-risk first graders recognize arithmetic relations and use reasoning strategies to achieve computational fluency. The intervention produced significantly more mastery of \((n + 1)\) or \((1 + n)\) and \((8 + n)\) or \((n + 8)\) and \((9 + n)\) or \((n + 9)\) facts than control training did.

Arthur Baroody  
University of Illinois at Urbana-Champaign, Champaign, Illinois

Bradley Thompson  
University of Illinois at Urbana-Champaign, Champaign, Illinois

Michael D. Eiland  
University of Illinois at Urbana-Champaign, Champaign, Illinois

Taka Namikawa  
University of Illinois at Urbana-Champaign, Champaign, Illinois

Grand Ballroom G, Capacity: 120

90. Multiple Representations and Concrete Models

Work Session (90-minute session)

In this session we will explore how multiple representations and concrete models are used and transformed by teachers in activities, in order to understand how they make meaningful connections among mathematical concepts, algebraic symbol manipulation, and concrete models.

Barbara Graves  
bgraves@uottawa.ca  
University of Ottawa, Ottawa, Ontario

Christine Suurtamm  
Board of Directors, National Council of Teachers of Mathematics;  
University of Ottawa, Ottawa, Ontario

Grand Ballroom H, Capacity: 100
91. Four Frames for Conceptualizing Links between Research and Practice

**RESEARCH SYMPOSIUM (90-MINUTE SESSION)**

This panel explores four ways to link research and practice. Among those discussed is design research that examines how to create new approaches to instruction, in partnership with teachers, as the team tests and revises conjectures and researches translation that occurs as research from controlled settings is exported into practice.

**Jere Confrey**
[jconfrey@gmail.com](mailto:jconfrey@gmail.com)
North Carolina State University, Raleigh, North Carolina

**Richard Lehrer**
Vanderbilt University, Nashville, Tennessee

**Michael Battista**
Michigan State University, East Lansing, Michigan

**Margaret Smith**
Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania

**Timothy A. Boerst**
University of Michigan, Ann Arbor, Michigan; South Redford Public Schools, Redford, Michigan

Grand Ballroom I, Capacity: 120

92. Studying Mathematics Coaches: Findings and Challenges

**RESEARCH SYMPOSIUM (90-MINUTE SESSION)**

Mathematics coaches are to provide on-site professional development addressing content, pedagogy, and curriculum. This session will present research examining coaches’ practices and knowledge, the dilemmas they face, and their impact on students and teachers.

**Patricia F. Campbell**
[pat@umd.edu](mailto:pat@umd.edu)
University of Maryland, College Park, Maryland

**Brian Lord**
Education Development Center, Newton, Massachusetts

**Barbara Neufeld**
Education Matters, Inc., Cambridge, Massachusetts

**Linda Ruiz Davenport**
Boston Public Schools, Boston, Massachusetts

Grand Ballroom J, Capacity: 100
93. “Speaking with Meaning” in Professional Learning Community Discourse

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

We will present results from investigating the mathematical discourse among members of a professional learning community (PLC) of secondary school mathematics teachers. The term “speaking with meaning,” its impact on PLC discourse, and its emergence as a sociomathematical norm will be discussed and illustrated.

**Kevin Charles Moore**  
kmzipsgolf@gmail.com  
*Arizona State University, Tempe, Arizona*  

**Kate Mullen**  
*Arizona State University (CRESMET), Tempe, Arizona*  

**Marilyn Paula Carlson**  
*Arizona State University, Tempe, Arizona*  

Grand Ballroom A, Capacity: 120

94. Improving Understanding and Achievement through Argumentation and Writing

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This session reports on a study that examined the effect of combining argumentation and writing on mathematical understanding and achievement of ninth-grade Algebra 1 students. Through the use of both quantitative and qualitative methods, the speaker examined how engagement in these activities increased mathematical understanding over time.

**Dionne Indera Cross**  
dicross@indiana.edu  
*Indiana University Bloomington, Bloomington, Indiana*

Grand Ballroom B, Capacity: 120
95. Knowing and Learning Exponential Functions: The Case of Ben

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

This report focuses on one secondary school mathematics teacher’s development of conceptualizing multiplicative behavior in the context of real-world applications. Data collected through a teaching experiment provided evidence for how emphasizing exponentiation as a process can result in an increased ability to describe exponential behavior in robust and powerful ways.

**April D. Strom**  
*Arizona State University, Tempe, Arizona*

Grand Ballroom A, Capacity: 120

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96. Using Different Models to Make Sense of Fraction Multiplication

**INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)**

The Rational Number Project has received NSF funding to construct a curriculum module for fractions, decimals, and percents that will be a companion to the fraction lessons created with previous NSF support. This session will address the question of what models help students make sense of situations involving fraction multiplication.

**Kathleen Cramer**  
crame013@umn.edu  
*University of Minnesota, Minneapolis, Minnesota*

**Terry Wyberg**  
*University of Minnesota—Twin Cities, Minneapolis, Minnesota*

**Seth Leavitt**  
*Minneapolis Public Schools, Minneapolis, Minnesota*

Grand Ballroom B, Capacity: 120
97. Early Number: Integrating Research, Development, and Implementation

WORK SESSION (90-MINUTE SESSION)

Early number learning provides a crucial basis for school mathematics, yet large numbers of students do not master school mathematics satisfactorily. We will describe three interrelated endeavors focusing on intervention in early number learning, including research orientation, research outcomes, students’ learning outcomes, and approaches to assessment, instruction, and teachers’ development.

Robert John Wright  
bob.wright@scu.edu.au  
Southern Cross University, Lismore, New South Wales, Australia

Sara Eisenhardt  
Northern Kentucky University, Highland Heights, Kentucky

David Ellemor-Collins  
Southern Cross University, Lismore, New South Wales, Australia

Kurt Kinsey  
Mountain States Mathematics, Sheridan, Wyoming

Lucinda (Petey) MacCart  
Mountain States Mathematics, Sheridan, Wyoming

Pam Tabor  
Roye-Williams Elementary School, Havre de Grace, Maryland

Grand Ballroom C, Capacity: 100

98. Using Design-Based Research to Develop Vermont’s Ongoing Assessment Project

WORK SESSION (90-MINUTE SESSION)

The Vermont Mathematics Partnership’s Ongoing Assessment Project (OGAP) is a cognitively based, formative assessment instructional intervention in mathematics that is being developed using design-based research. In this presentation, participants will review the development process and employ artifacts used to make development decisions.

Marjorie M. Petit  
Vermont Mathematics Partnership, Montpelier, Vermont

Robert Laird  
Vermont Mathematics Initiative, Burlington, Vermont

Discussant: Judith Zawojewski  
Illinois Institute of Technology, Chicago, Illinois

Grand Ballroom D, Capacity: 100
99. Assessing Curricular Contributions to Poor Measurement Learning

Research Symposium (90-minute session)

Extensive prior research has shown our national weakness in learning measurement but failed to explain why the problem persists. This session hopes to refocus research attention on the problem and describe one project’s efforts to assess how much written and enacted curricula contribute to it.

Jack Smith
jsmith@msu.edu
Michigan State University, East Lansing, Michigan

Gulcin Tan Sisman
Middle East Technical University, Ankara, Anatolia, Turkey

Hanna Figueras
Michigan State University, East Lansing, Michigan

KoSze Lee
Michigan State University, East Lansing, Michigan

Leslie Dietiker
Michigan State University, East Lansing, Michigan

Richard Lehrer
Vanderbilt University, Nashville, Tennessee

Grand Ballroom E, Capacity: 120
100. Scaling Up TRIAD: Teaching Math with Trajectories and Technologies

Research Symposium (90-minute session)

This symposium will present three rigorous studies of the NSF- and IES-supported TRIAD (Technology-enhanced, Research-based, Instruction, Assessment, and Professional Development) model for scaling up successful educational interventions, from the perspectives of assessment (learning trajectories), professional development, and curriculum, and discusses the implications with participants.

Douglas H. Clements
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Julie Sarama
jsarama@buffalo.edu
University at Buffalo, State University of New York, Buffalo, New York

Janka Szilagyi
szilagyi@acsu.buffalo.edu
University at Buffalo, State University of New York, Buffalo, New York

Mary Elaine Spitler
Grand Ballroom F, Capacity: 120

101. Using Mathematical Knowledge for Equitable Instruction

Research Symposium (90-minute session)

What do teachers need to be able to do to implement high-quality teaching in diverse classrooms? What do they need to know, and how do they need to use their knowledge? What does it take to prepare such teachers? This session will explore these questions from three perspectives.

Deborah Loewenberg Ball
University of Michigan, Ann Arbor, Michigan

Imani Masters Goffney
University of Michigan, Ann Arbor, Michigan

Carol E. Malloy
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Dorothy Y. White
University of Georgia, Athens, Georgia

Grand Ballroom G, Capacity: 120
102. Knowledge-for-Teaching as Represented in a Lesson Plan

**Work Session (90-minute session)**

A lesson plan—construed broadly—can be thought of as the meeting ground of the theoretical and practical. In this session we will explore different conceptualizations for what a mathematics lesson plan can be, with an eye on how mathematical knowledge-for-teaching is realized in a lesson plan.

**Yuichi Handa**  
*California State University, Chico, California*

**Daniel Chazan**  
*University of Maryland, College Park, Maryland*

**Brent Davis**  
*University of British Columbia, Vancouver, British Columbia*

**James Hiebert**  
*University of Delaware, Newark, Delaware*

**David Kirshner**  
*Louisiana State University, Baton Rouge, Louisiana*

**Deborah Schifter**  
*Education Development Center, Newton, Massachusetts*

**Margaret Smith**  
*Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania*

**Grand Ballroom H, Capacity: 100**
103. Mathematics and Science Partnership Evaluation Issues and Challenges

**Research Symposium (90-minute session)**

Participants will gain insights into data-gathering and data-analysis issues and challenges of multiple rural sites with limited resources from four viewpoints—a state education department mathematics and science partnership (MSP) program director, a state MSP project evaluator, an NSF-funded MSP project evaluator, and an NSF-funded research, evaluation, and technical assistance project director.

**John Sutton**  
*RMC Research Corporation, Denver, Colorado*

**Abdallah Bendada**  
*Wisconsin Department of Public Instruction, Madison, Wisconsin*

**Edith Gummer**  
*Northwest Regional Education Laboratory, Portland, Oregon*

**Catherine Callow-Heusser**  
*Endvision, Inc., Logan, Utah*

**Stephen Meyer**  
*RMC Research Corporation, Denver, Colorado*

**Grand Ballroom I, Capacity: 120**

104. Connecting Students’ Engagement and Math Identity to Mathematics Learning

**Individual Paper Session (30-minute session)**

A recent research study evaluates middle school students’ perspectives of their engagement in the mathematics classroom (community of practice) and its impact on students’ sense of themselves as mathematics learners (math identity). Students’ engagement in mathematics is influenced by their prior experiences, personal attitudes, social interactions, and cultural norms.

**Tracey Keck**  
*keckt@wssu.edu*  
*University of North Carolina at Greensboro, Greensboro, North Carolina; Winston-Salem State University, Winston-Salem, North Carolina*

**Grand Ballroom A, Capacity: 120**
105. Preschool Mathematics PCK Interview Predicts Children’s Outcomes

**Individual Paper Session (30-minute session)**

To assess the external validity of a teacher interview for preschool mathematics pedagogical content knowledge (PCK), twenty-six teachers were interviewed, their teaching observed, and their students assessed on the TEMA-3. Analysis revealed two PCK interview factors, one associated with teaching practices and one with children’s outcomes.

**Jennifer Susan McCray**  
jmccray@erikson.edu  
Erikson Institute, Chicago, Illinois  
Grand Ballroom B, Capacity: 120

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106. Understanding Basic Mathematics Ideas: What Do They Bring to Teaching?

**Individual Paper Session (30-minute session)**

This study will report on six middle grade teachers’ use and understanding of two basic mathematical ideas: 0 as a divisor and the equal sign. None of the teachers addressed 0/0, and only one stressed the equivalence concept of the equal sign during teaching. Interviews confirmed teachers’ weak understanding of these ideas.

**Meixia Ding**  
University of Nebraska—Lincoln, Lincoln, Nebraska  

**Xiaobao Li**  
Western Carolina University, Cullowhee, North Carolina  

**Gerald Kulm**  
Texas A&M University, College Station, Texas  

Grand Ballroom A, Capacity: 120
107. Writing a Story to Live By as a Mathematics Teacher: Identity and Content

**Individual Paper Session (30-minute session)**

Our research uses narrative inquiry to understand the complexity of teachers’ mathematical identity and its influences on teachers’ content knowledge in their practice. Our data suggest a need for an explicit exploration of the ways in which an elementary school teacher’s mathematical identity is constructed relative to content and practice.

**Florence Glanfield**
florence.glanfield@ualberta.ca
*University of Alberta, Edmonton, Alberta*

**M. Shaun Murphy**
*University of Saskatchewan, Saskatoon, Saskatchewan*

*Grand Ballroom B, Capacity: 120*
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