Program for the Research Presession

April 20–22, 2009

NCTM®
NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

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Announcements

- The Research Presession will be held in the Walter E. Washington Convention Center.
- Registration will be held on Concourse A. The times are Monday, 4:30 p.m.–7:00 p.m., and Tuesday, 7:00 a.m.–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 NCSM Annual Conference. Badges from these conferences will be required for attendance for all sessions on Wednesday.
- A light reception will be held on Monday evening on third floor in the prefunction area from 8:30 p.m. to 10:00 p.m. following the opening session at 7:00 p.m. in Room 202A/B.
- This year, we will have two showings of poster sessions. Research posters will be available for viewing and discussing with the presenters in the East Level 2 Overlook from 5:15 p.m. to 6:30 p.m. on Monday and 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 San Diego in 2010, will be available online June, 2009.
- Be sure to visit the Exhibit Hall for the NCTM Bookstore, which has a special table on research.

Highlighted Sessions

Monday, April 20, 2009

26. Opening Session
Can Standards-Based Reform Help Close the Poverty Gap in Math?
Adam Gamoran
7:00 p.m.–8:30 p.m.
Room 202 A/B

Tuesday, April 21, 2009

45. Mathematics Education Research: Multiple Users, Uses, and Methods
10:30 a.m.–12:00 noon
Room 203 B

56. Preparing a Proposal for NSF's Division of Research on Learning
1:00 p.m.–2:30 p.m.
Room 202 B

58. Tools of the Trade
1:00 p.m.–2:30 p.m.
Room 204 C

75. Graduate Student and Junior Faculty Mentoring Session
3:00 p.m.–4:30 p.m.
Room 209 C

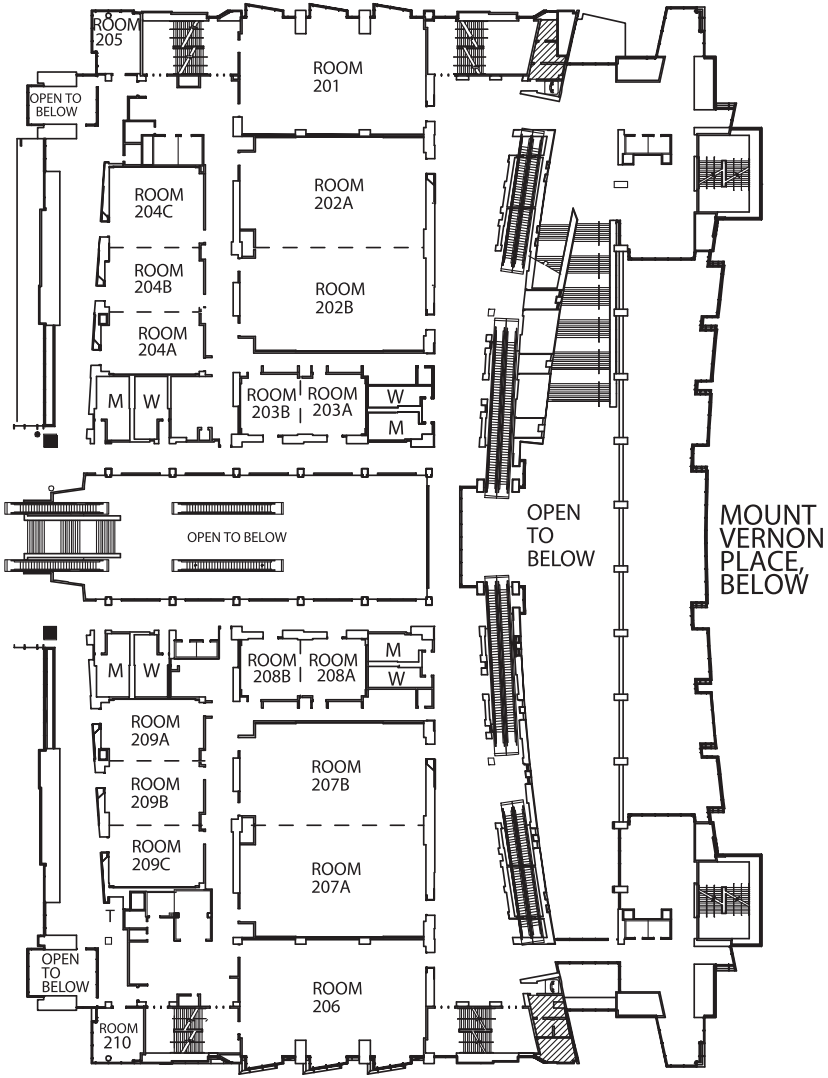
Wednesday, April 22, 2009

99. Identity, Equity, and Professional Development: Supporting Learning
Plenary Session
Megan Franke
8:30 a.m. –10:00 a.m.
Room 202 A

119. A Decade of Equity Research: Examining What Works
1:00 p.m.–2:30 p.m.
Room 201

124. Collaborating to Identify Research Priorities in Math Education
1:00 p.m.–2:30 p.m.
Room 209 A

Walter E. Washington Convention Center — Level Two



Monday, April 20, 2009

5:15 p.m. – 6:30 p.m.

1. A Framework for Conceptual Understanding in Early Algebra

Poster Session

The speaker and colleagues conducted a teaching experiment to develop a theory of conceptual understanding in early algebra. The experiment integrated a theoretical perspective for understanding functions with a theory of algebra-word-problem solving. The goal was to provide a framework that may help teachers build on students' thinking in instruction.

Milan F. Sherman
University of Pittsburgh, Pittsburgh, Pennsylvania

Prefunction Area, Table 1, Capacity: 700

2. Interactive Geometry in Classrooms

Poster Session

This poster session will describe a project that is investigating the efficacy of interactive geometry software on high school students' geometry learning over the course of a full year. Built on supporting theoretical perspectives and empirical research, this project will determine if interactive geometry leads to students' improved mathematics achievement.

Brenda Strassfeld
New York University, New York, New York

Zhonghong Jiang
Texas State University—San Marcos, San Marcos, Texas

Prefunction Area, Table 2, Capacity: 700

For your safety and due to fire regulations, only those with seats will be allowed in meeting rooms. To comply with fire codes, it may be necessary to ask any person sitting on the floor or standing to leave the room. Please remember:

- All meeting rooms will be cleared between presentations.
- All seats are available on a first-come, first-served basis.
- Reserving spaces in line or saving seats is not permitted.
- As a courtesy to the speaker and your colleagues, please turn off your cell phone during all presentations.

3. Interactive Whiteboard Use in Math Classrooms: Grounding Theory in Practice

Poster Session

Research on interactive whiteboard use is relatively new, since their introduction into classrooms began in this decade. The results of a mixed-methods professional development study of 12 teachers and 244 students in four school sites will reported, and the resulting framework for interactive whiteboard use will be shared.

Catherine Diane Bruce
Trent University, Peterborough, Ontario, Canada

Mary Ladky
Trent University, Peterborough, Ontario, Canada

Tara Flynn
Trent University, Peterborough, Ontario, Canada

Prefunction Area, Table 3, Capacity: 700

4. Is There a Relationship between Self-Worth Protection and Internalization?

Self-worth protection is when students withhold effort to protect their self esteem. This presentation will explore the motivations of these students and the challenges of diagnosing levels of self-worth protection. The study was conducted in an under-performing, urban high school math classroom.

Poster Session

Elizabeth Abbas
Chicago Public Schools, Chicago, Illinois

Prefunction Area, Table 4, Capacity: 700

5. Latina and Latino Middle School Mathematics Students: Contexts of Success

This qualitative study will explore school experiences of five mathematically successful Latina and Latino middle school students and identify stressors that have impeded their progress and supports that have helped them achieve. A comparative case study will examine each student's experiences in depth for commonalities and differences.

Poster Session

Evelyn M. Gordon
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Prefunction Area, Table 5, Capacity: 700

6. Learning and Forgetting: Microgenetic Analysis of Math Learning Disability

Poster Session

A longitudinal case study analysis of a student with a mathematical learning disability indicated that her knowledge is susceptible to forgetting after periods of disuse. Her explanations indicated that she encoded her mathematical understanding procedurally rather than conceptually, which may contribute to her tendency to forget.

Katherine Lewis
University of California, Berkeley, Berkeley, California

Prefunction Area, Table 6, Capacity: 700

7. Learning Fractions: The Experience of Lebanese Students

Poster Session

This presentation will reveal findings of a six-week research studying the effects of using a research-based curriculum on fifth-grade, Lebanese students' acquisition of fraction concepts. Participants will be exposed to the challenges and opportunities that teachers and students confronted when using a nontraditional, research-based curriculum.

Iman Chafik Chahine
University of Minnesota—Twin Cities, Minneapolis, Minnesota

Prefunction Area, Table 7, Capacity: 700

9. Mathematics as Social Endeavor

Poster Session

Using video data, the speaker will support the claim that because mathematics develops as contractual social action, (1) to learn mathematics successfully students must participate in similar, joint mathematical-social endeavors; and conversely, (2) various "reform" recommendations fracturing class coherence (e.g. differentiated instruction, personalized tutoring, technology) are counterproductive to mathematics learning.

Thomas Ricks
Louisiana State University, Baton Rouge, Louisiana

Prefunction Area, Table 9, Capacity: 700

10. A History of Mathematics Reform in a Large, Urban School District, 1950–2005

Poster Session

This historical investigation will help participants understanding how a large, urban, grades K–12 school district addresses changes in the mathematics curriculum. This study will examine how members of its Board of School Directors gain understanding of, and make policy decisions about, mathematics instruction in the district.

Susan Regina Monaghan
Marquette University, Milwaukee, Wisconsin

Prefunction Area, Table 10, Capacity: 700

11. Any Right to Get It Wrong? Beginning Teachers and Students' Math Errors

Poster Session

This session will (a) report on how beginning mathematics teachers handle their students' mathematical errors, (b) identify policy and school context factors that influence the error-handling role, and (c) describe how a sample of teachers implemented suggested best practices.

Hanna Haydar
City University of New York—Brooklyn College, Brooklyn, New York

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

Prefunction Area, Table 11, Capacity: 700

12. Connecting Students' Engagement and Math Identity to Mathematics Learning

Poster Session

A recent research study evaluated 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
Winston-Salem State University, Winston-Salem, North Carolina

Prefunction Area, Table 12, Capacity: 700

13. Connecting the Experiences of African American Students with Mathematics

Poster Session

The project described here gave prospective teachers opportunities to understand African American students better and focus better on how they learn mathematics. Consequently, the teachers have come to realize that African American students have academic potential and that unveiling said potential is accelerated when effective teaching principles are applied.

Peter Sheppard
University of Louisiana at Lafayette, Lafayette, Louisiana

Prefunction Area, Table 13, Capacity: 700

14. Cultivating Scholars in Mathematics Education: An HBCU Perspective

Poster Session

This session will highlight the challenges and opportunities faced by a historically black college or university (HBCU) offering graduate programs in mathematics education and initiatives implemented to support students' success. Study results of the four students' experiences will be presented with implications for other programs highlighted.

Roni Ellington
Morgan State University, Baltimore, Maryland

Kyle Turman
Morgan State University, Baltimore, Maryland

Prefunction Area, Table 14, Capacity: 700

15. Cultural "Mathprehension": Connecting Mathematics to Social Justice

Poster Session

This presentation will look at teaching mathematics as a means of addressing social issues with preservice teachers. The session will present a mathematics educator's perspective of an investigation of the effects of integrating mathematics and social issues.

Summer Bateiha
University of Oklahoma, Norman, Oklahoma

Prefunction Area, Table 15, Capacity: 700

16. Deaf and Hearing Students' Use of Visual Aids in Solving Math Problems

Poster Session

This study examined the use of spatial-relational representation by deaf and hearing students while solving mathematical problems. Hearing subjects used spatial-relational representations to a greater extent than deaf subjects. The use of spatial-relational representations was a stronger predictor of performance for deaf students on this mathematical problem-solving task.

Gary C. Blatto-Vallee
Center for Education Research Partnerships, National Technical Institute for the Deaf, Rochester, New York

Prefunction Area, Table 16, Capacity: 700

17. Defining and Developing Teachers' Curriculum Capacity

Poster Session

This study explored the construct of "curriculum capacity," defined as teachers' ability to access, understand, and use curriculum materials in ways that support coherent mathematics for all students. In particular, the speaker will discuss ways in which individual and contextual strategies for curriculum use support or constrain teachers' curriculum capacity.

Corey Drake
Iowa State University, Ames, Iowa

Prefunction Area, Table 17, Capacity: 700

18. Designing Applets to Support the Development of Covariational Reasoning

Poster Session

This presentation will discuss the ways in which five Java-based applets supported students' increasingly sophisticated reasoning about function concerning covarying quantities. Discussion will focus on a design framework that anticipates the types of questions and discussions that will cause perturbations in students' thinking.

Janet Bowers
San Diego State University, San Diego, California

Kay McClain
Arizona State University, Tempe, Arizona

David Yang
San Diego State University, San Diego, California

Prefunction Area, Table 18, Capacity: 700

19. Disrupting the Diagram: Semiotic Tools for Mathematics Teachers

Poster Session

This session emerges from a research project in which beginning middle school mathematics teachers participated in a lesson study group that was focused on the semiotics of problem solving and lesson design. Samples of teachers' work that reveal enhanced capacity to decode and manipulate diagrams will be discussed.

Elizabeth Mary de Freitas
Adelphi University, New York, New York

Betina Zolkower
City University of New York—Brooklyn College, Brooklyn, New York

Prefunction Area, Table 19, Capacity: 700

20. Early Algebra: Case Studies of Problem Situations in Elementary School Textbooks

Poster Session

This study examined the differences in the use of problems between U.S. and Chinese elementary school textbooks when introducing and developing two fundamental mathematics ideas: (1) the inverse relationship between addition and subtraction, and (2) the distributive property. These cases illustrate alternative ways to prepare students with algebraic readiness.

Xiaobao Li
University of Houston, Houston, Texas

Meixia Ding
University of Nebraska—Lincoln, Lincoln, Nebraska

Prefunction Area, Table 20, Capacity: 700

21. Elementary School Students and the Process of Generalization

Poster Session

Generalization is an important component of the elementary school classroom. This study documents the different ways that elementary school students develop generalizations, the struggles they must overcome, and effective teacher interventions. Implications for the introduction of generalization into the elementary school classroom will also be provided.

Chepina Witkowski
Illinois State University, Normal, Illinois

David Barker
Illinois State University, Normal, Illinois

Saad El-Zanati
Illinois State University, Normal, Illinois

Cynthia Langrall
Illinois State University, Normal, Illinois

Jeffrey E. Barrett
Illinois State University, Normal, Illinois

Prefunction Area, Table 21, Capacity: 700

22. Elementary School Textbook Use and Influential Factors: Cognitive Demand

Poster Session

This study examined elementary school teachers' textbook use patterns and influential factors. Analyses across the cases revealed that some teachers maintained the higher level of textbook problems and questions in teaching, whereas others decreased its cognitive level. The alignment of teachers' goals with textbooks was found to be a crucial factor.

Ji-Won Son
University of Tennessee, Knoxville, Tennessee

Prefunction Area, Table 22, Capacity: 700

23. Exploring Mathematical Knowledge for Teaching Geometry in Indonesia

Poster Session

This study examined the U.S.–based construction of mathematical knowledge for teaching (MKT) by investigating (1) factors influencing Indonesian elementary school teachers' knowledge for teaching geometry and (2) how an adapted version of the MKT measures performed in evaluating a professional development program that focused on geometry.

Dicky Ng
Boston University, Boston, Massachusetts

Prefunction Area, Table 23, Capacity: 700

24. Graphing Calculators in High School Algebra: Promotion, Perception, and Use

Poster Session

How do teachers promote technology use for problem solving? In what ways does teachers' promotion influence students' decisions regarding technology use for problem solving? Results will be reported from a mixed-methods study on the comparison of a teacher and her students' values and beliefs regarding graphing calculator use.

Allison McCulloch
North Carolina State University, Raleigh, North Carolina

Matthew Campbell
North Carolina State University, Raleigh, North Carolina

Prefunction Area, Table 24, Capacity: 700

25. Integers on the Number Line: Students' Understanding of Linear Unit

Poster Session

This session will report results from studies of fifth graders' understandings of linear units on the number line. Evidence from students' responses to nonroutine number-line representations indicates that many students inappropriately use a marked interval length as the linear unit when placing numbers on the line.

Geoffrey B. Saxe
University of California, Berkeley, Berkeley, California

Meghan M. Shaughnessy
University of California, Berkeley, Berkeley, California

Maryl Gearhart
University of California, Berkeley, Berkeley, California

Lina Haldar
University of California, Berkeley, Berkeley, California

Darrell Earnest
University of California, Berkeley, Berkeley, California

Yasmin Sitabkhan
University of California, Berkeley, Berkeley, California

Prefunction Area, Table 25, Capacity: 700

7:00 p.m. – 8:30 p.m.

26. Can Standards-Based Reform Help Close the Poverty Gap in Math?

Opening Session

Pervasive inequality is the most pressing problem facing U.S. schools. Will standards-based reforms such as those enacted under No Child Left Behind result in lower inequality in mathematics performance? Higher-quality implementation of reforms coupled with richer assessments could help reduce the poverty gap in mathematics achievement in the future.

Adam Gamoran
Director, Wisconsin Center for Education Research; University of Wisconsin—Madison, Madison, Wisconsin

202 A/B, Capacity: 700

8:30 a.m. – 9:10 a.m.

27. A New Measure of Preschool Teachers' Beliefs on Teaching and Learning Math

Individual Paper Session

This session will report evidence of the validity of a new measure of pre- and in-service preschool teachers' beliefs about teaching and learning mathematics. ANOVA results comparing cohorts indicated that teachers' educational background, including preparation in early childhood mathematics education, was associated with teachers' beliefs.

Linda Michele Platas
University of California, Berkeley, Berkeley, California

203 A, Capacity: 53

28. A Possible Model for Developing Conjectures in Dynamic Geometry®

Individual Paper Session

This talk will describe preliminary results from a study on conjecturing and proving in dynamic geometry. The speakers hypothesized that abduction, and consequently the development of mathematical conjectures, can be fostered by certain dragging schemes that students seem to develop spontaneously when investigating open-problem situations.

Anna Baccaglini-Frank
Università di Siena, Siena, Tuscany, Italy; University of New Hampshire, Durham, New Hampshire

Maria Alessandra Mariotti
Università di Siena, Siena, Tuscany, Italy

203 B, Capacity: 53

8:30 a.m. – 9:10 a.m.

29. The Impact of Black Parents' Use of "Capital" on Students' Success

Individual Paper Session

This session will highlights findings from historical and case-study research documenting African American parents' individual and collective use of social and cultural capital to cultivate positive learning experiences and outcomes for their children, particularly in mathematics. Ideas for how this research can be used to empower minority parents will be highlighted.

Roni Ellington
Morgan State University, Baltimore, Maryland

Rona Frederick
Catholic University of America, Washington, D.C.

204 A, Capacity: 87

8:30 a.m. – 10:00 a.m.

30. Behind the Indicators: Using Video Contrasts to Examine Effective Practice

Work Session

Participants will be invited to examine recursively a series of classroom video vignettes in which questions of curriculum-instruction interaction, teachers' use of guiding questions, and same lesson-different teacher contrasts will be examined. The researchers expect to benefit from this focusing of expert eyes on several previously analyzed cases.

Jon Rahn Manon
University of Delaware, Newark, Delaware

Linda Dager Wilson
Project 2061, American Association for the Advancement of Science, Washington, D.C

Kathleen M. Morris
Project 2061, American Association for the Advancement of Science, Washington, D.C.

201, Capacity: 180

31. The Cycle of Innovation: A Framework for Linking Research to Practice

Research Symposium

The speakers will describe the "theory of action," embodied in an innovation cycle, developed for funding educational research in programs sponsored by NSF's Division of Research on Learning in Formal and Informal Settings. The presentation will use examples of funded mathematics projects to illustrate the variety of research supported.

Janice Earle
National Science Foundation, Arlington, Virginia

Karen Marrongelle
National Science Foundation, Washington, D.C.

Joan Ferrini-Mundy
National Science Foundation, Arlington, Virginia

Discussant: Jere Confrey
North Carolina State University, Raleigh, North Carolina

Discussant: Tom Loveless
Brookings Institution, Washington, D.C.

Discussant: Finbarr Sloane
Arizona State University, Phoenix, Arizona

202 A, Capacity: 441

32. Transforming Curriculum for Constructing Lesson Instruction in China

Research Symposium

This session will examine mathematics teachers' practices in constructing and implementing quality lesson instruction valued in China with the use of curriculum materials. The study will highlight aspects of teachers' practices and thinking in transforming curriculum for teaching fraction division.

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

Xi Chen
Texas A&M University, College Station, Texas

Song An
Texas A&M University, College Station, Texas

Rongjin Huang
Texas A&M University, College Station, Texas

Discussant: Irving Brown
Texas A&M University, College Station, Texas

Discussant: Glenda Lappan
Past President, National Council of Teachers of Mathematics; Michigan State University, East Lansing, Michigan

202 B, Capacity: 428

33. Lessons Learned: Researching Latinos, Language, and Culture in Mathematics

Research Symposium

This symposium will present research focused on understanding the role of bilingualism and culture in the mathematics education of Latinos and Latinas, highlighting the cruciality of teacher preparation for working with Latinos, the importance of teacher-parent coalitions on problem solving, and the organization of environments where students can learn mathematics successfully.

Higinio Dominguez
University of Illinois at Chicago, Chicago, Illinois

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

Carlos López-Leiva
University of Illinois at Chicago, Chicago, Illinois

Alexander Radosavljevic
University of Illinois at Chicago, Chicago, Illinois

Discussant: Lena Licón Khisty
University of Illinois at Chicago, Chicago, Illinois

204 B, Capacity: 106

34. Improving Mathematics Teaching and Teacher Education through Specification

Work Session

The lack of a knowledge base for teaching creates challenges for reliable and wide-scale development of high-quality instruction and the preparation of effective teachers. This session will consider the "specification" of teaching practice as a way to address these challenges and whether this is a promising direction for teacher education.

Kara Suzuka
University of Michigan, Ann Arbor, Michigan

Deborah Loewenberg Ball
University of Michigan, Ann Arbor, Michigan

James Hiebert
University of Delaware, Newark, Delaware

Jennifer Lewis
University of Michigan, Ann Arbor, Michigan

Anne Morris
University of Delaware, Newark, Delaware

Annette Roskam
University of Delaware, Newark, Delaware

Laurie Sleep
University of Michigan, Ann Arbor, Michigan

204 C, Capacity: 90

35. Multiple Methods for Analyzing Mathematics Classroom Discourse

Research Symposium

This symposium will highlight four discourse-analytic methods used to examine middle-grades mathematics classroom discourse. The speakers will illustrate the methods using data from a five-year project and share how project teachers engaged with some of the information. Discussion will focus on affordances and constraints of each of the methods.

Beth Herbel-Eisenmann
Michigan State University, East Lansing, Michigan

Lorraine M. Males
Michigan State University, East Lansing, Michigan

Samuel Otten
Michigan State University, East Lansing, Michigan

Michelle Cirillo
Iowa State University, Ames, Iowa

209 A, Capacity: 92

36. Mathematics Education Research Funding Opportunities at the IES

Research Symposium

The Institute of Education Sciences supports research to develop and evaluate mathematics interventions, to develop and validate measurement instruments, and to gain fundamental understanding of the processes that underlie variations in the effectiveness of education programs, practices, policies, and approaches in mathematics.

Christina Chhin
Institute of Education Sciences, National Center for Education Research, Washington, D.C.

Robert Ochsendorf
Institute of Education Sciences, National Center for Education Research, Washington, D.C.

209 B, Capacity: 111

8:30 a.m. – 10:00 a.m.

37. Modeling Repeated Measures as an Entrée into Data Analysis

Work Session

Participants will analyze measurement data and build runable computer models of them. (Bring your laptops.) These activities highlight the idea of data as a combination of signal and noise. The audience will view a video of young students conducting similar explorations and discuss these investigations' affordances for introducing fundamental statistical ideas.

Clifford Konold
University of Massachusetts Amherst, Amherst, Massachusetts

Richard Lehrer
Vanderbilt University, Nashville, Tennessee

209 C, Capacity: 60

9:30 a.m. – 10:10 a.m.

38. A Report on the Working Conditions Experienced by Mathematics Teachers

Individual Paper Session

The conflicts and frustrations of work in schools today are especially acute for teachers in high-stakes fields like mathematics. This session will present findings from a study of the quality of work life of mathematics teachers. Participants will discuss the data as well as implications for research and practice.

Ming Tomayko
Towson University, Towson, Maryland

203 A, Capacity: 53

39. The Role of the Graphing Calculator in Students' Algebraic Thinking

Individual Paper Session

This study used task-based interviews to compare students who used graphing calculators while solving problems to those who solved the same problems without technology. Results indicate that students using graphing calculators had both changed thinking and changed performance compared to students without access to technology.

Sandy Margaret Spitzer
Towson University, Towson, Maryland

203 B, Capacity: 53

40. Race, Identity, Learning Together: Students' Perspectives on Collaboration

Individual Paper Session

This session draws on interviews with students in discourse-intensive mathematics classrooms. Research questions will include how students describe group work in their mathematics class, what issues of equity students describe, and how students describe the way their identities influence group interactions in mathematics classes.

Indigo Esmonde
University of Toronto, Toronto, Ontario, Canada

204 A, Capacity: 87

10:30 a.m. – 11:10 a.m.

41. An Evaluation of Conducting Methods Courses at Elementary School Sites

Individual Paper Session

The purpose of this study was to assess the perspectives of both preservice and mentor teachers who participated in a program in which a reform-oriented undergraduate methods course was conducted at a school site. Similar professional development was also being conducted to allow for a "reform-friendly," weekly practicum experience.

Damon Bahr
Brigham Young University, Provo, Utah

Eula Ewing Monroe
Brigham Young University, Provo, Utah

Nancy Wentworth
Brigham Young University, Provo, Utah

203 A, Capacity: 53

10:30 a.m. – 12:00 p.m.

42. Animation Affordances for Secondary School Mathematics Teacher Education

Work Session

This working session will focus on understanding and assessing the affordances of rich media animations for the purpose of helping teachers and future teachers acquire mathematical knowledge for teaching. The presenters will share uses of animations developed by the Thought Experiments in Mathematics Teaching project.

Dan Chazan
University of Maryland, College Park, Maryland

Lawrence M. Clark
University of Maryland, College Park, Maryland

Michael Kevin Weiss
University of Michigan, Ann Arbor, Michigan

Gloriana Gonzalez
University of Michigan, Ann Arbor, Michigan

Hagit Sela
University of Maryland, College Park, Maryland

Kristen Bieda
Michigan State University, East Lansing, Michigan

201, Capacity: 180

43. A Learning Trajectory for Equipartitioning

Research Symposium

This session will describe continued work on a learning trajectory for equipartitioning for grades K-4. The speakers will report findings from three studies, one describing field testing on building a diagnostic measure, as well as from professional development studies of preservice and in-service teachers using the trajectory to guide instructional practices.

Jere Confrey
North Carolina State University, Raleigh, North Carolina

Gemma Mojica
North Carolina State University, Raleigh, North Carolina

Holt Wilson
North Carolina State University, Raleigh, North Carolina

202 A, Capacity: 441

44. High School Curricula and College Mathematics Achievement and Course Taking

Research Symposium

This session will report on the NSF-funded Minnesota Mathematics Achievement project. Four interrelated studies, each concerned with the nature of the relationship between high school mathematics curricula and subsequent college level mathematics performance, will be discussed.

Thomas R. Post
University of Minnesota—Twin Cities, Minneapolis, Minnesota

Michael Harwell
University of Minnesota—Twin Cities, Minneapolis, Minnesota

Discussant: William Bush
University of Louisville, Louisville, Kentucky

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

202 B, Capacity: 428

45. Mathematics Education Research: Multiple Users, Uses, and Methods

Research Symposium

At a time when a small subset of math education research methods have been privileged by reports and funding, one must consider the multiple users and uses of research in math education. This session will discuss how different types of research are useful for different constituencies and purposes in math education.

Michael Battista
Ohio State University, Columbus, Ohio

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

Linda Hallenbeck
Hudson Schools, Hudson, Ohio

Kim Yoak
Stow–Monroe Falls City Schools, Stow–Monroe Falls, Ohio

Brad Findell
Mathematics Initiatives, Ohio Department of Education, Columbus, Ohio

203 B, Capacity: 53

46. Mathematics Education Research for Urban Schools: Examples and Directions

Research Symposium

The speakers will present the work of a group of mathematics education research colleagues who are at the same urban institution and who conduct research about teaching in urban schools. This session will aim to initiate a discussion about possible directions of mathematics education research for teaching in urban schools.

Laurie Rubel
City University of New York—Brooklyn College, Brooklyn, New York

Betina Zolkower
City University of New York—Brooklyn College, Brooklyn, New York

Michael Meagher
City University of New York—Brooklyn College, Brooklyn, New York

204 B, Capacity: 106

47. Getting Published in *Journal for Research in Mathematics Education (JRME)*

Work Session

Panelists will discuss the *JRME* submission and review process, data about the journal, and suggestions for developing a manuscript. They will facilitate small-group discussion of specific topics, such as how to convert a dissertation into a publishable manuscript and how to write a good literature review.

Denise S. Mewborn
University of Georgia, Athens, Georgia

David Barnes
National Council of Teachers of Mathematics, Reston, Virginia

Maria Blanton
University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Glen Blume
Pennsylvania State University, State College, Pennsylvania

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

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

Beth Herbel-Eisenmann
Michigan State University, East Lansing, Michigan

Heather C. Hill
Harvard Graduate School of Education, Cambridge, Massachusetts

Signe Kastberg
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Richard S. Kitchen
University of New Mexico, Albuquerque, New Mexico

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

Nathalie Sinclair
Simon Fraser University, Burnaby, British Columbia, Canada

Paola Sztajn
North Carolina State University, Raleigh, North Carolina

Rose Mary Zbiek
Pennsylvania State University, State College, Pennsylvania

204 C, Capacity: 90

48. "Good Teaching" for Whom and Why?

Research Symposium

This symposium will focus on practices dubbed as "good teaching." Specific instances will be presented of teachers' uses and attempts to use particular pedagogical strategies to engage students and to make mathematics more meaningful. The researchers will also examine how teachers' beliefs about teaching and learning mathematics affect their instruction.

Marilyn Elaine Strutchens
Auburn University, Auburn, Alabama

Mary Alice Smeal
Auburn University, Auburn, Alabama

Jacqueline Leonard
Temple University, Philadelphia, Pennsylvania

Kara Jones Jackson
Vanderbilt University, Nashville, Tennessee

Della R. Leavitt
University of Illinois at Chicago, Chicago, Illinois

209 A, Capacity: 92

49. Report of the NRC Committee on Early Childhood Mathematics

Research Symposium

This session will present the final report of the National Research Council's (NRC) Committee on Early Childhood Mathematics. The report synthesizes research from a number of disciplinary fields, drawing implications for policy and practice and providing research-based guidance on giving an increased number of young, especially vulnerable, children a strong start.

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

Karen Fuson
Northwestern University (retired), Fallbrook, California

Herbert P. Ginsburg
Teachers College, Columbia University, New York, New York

Sybilla Beckmann
University of Georgia, Athens, Georgia

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

209 B, Capacity: 111

11:30 a.m. – 12:10 p.m.

50. An Investigation of Mathematical Knowledge for Teaching Algebraic Processes

Individual Paper Session

The speaker will share the conceptual framework, methodology, instruments, and major findings of a recent research study on secondary school teachers' mathematical knowledge for teaching algebraic processes. The speaker will then discuss the implications of the study for conceptualizing, assessing, and developing teachers' mathematical knowledge for teaching.

Xuhui Li
California State University—Long Beach, Long Beach, California

203 A, Capacity: 53

51. Integrated Math and Science Instruction: Grade 3 Measurement of Achievement

Individual Paper Session

This study is part of a research project consisting of reform-based, third grade curriculum units and teacher workshops designed to promote effective instruction of science while integrating measurement skills and English language development. The results provide evidence that integrated mathematics and science instruction can benefit diverse populations of students.

Karen Adamson
University of Miami, Miami, Florida

Walter G. Secada
University of Miami, Miami, Florida

Okhee Lee
University of Miami, Miami, Florida

203 A, Capacity: 53

52. Math Faculty from Five Colleges Collaborate to Improve Their Teaching

Individual Paper Session

The Professional Mathematics Educators' Forum consisted of 18 math professors and teacher educators from five institutions of higher learning. This community of practice opened collegiate classroom doors; shared students' work, classroom videos, and activities; and kept current on research over five years. Their evolution and changes in practice will be described.

Julie Cwikla
University of Southern Mississippi Gulf Coast, Long Beach, Mississippi

203 B, Capacity: 53

53. Gender Differences in Language Used by Parents and Children in Mathematics

Individual Paper Session

This session will report on an NSF-funded research project on gender-related differences between parents and children that occurred as they worked together on mathematical tasks in number, geometry, and algebra. Gender differences among dyads that were found across tasks and within tasks will be discussed.

Judith Olson
Curriculum Research and Development Group
University of Hawaii, Honolulu, Hawaii

Melfried Olson
Curriculum Research and Development Group
University of Hawaii at Manoa, Honolulu, Hawaii

Claire Okazaki
Curriculum Research and Development Group
University of Hawaii, Honolulu, Hawaii

204A, Capacity: 87

1:00 p.m. – 2:30 p.m.

54. Assessing Grades K-3 Teachers' Math Content Knowledge: Practice and Theory

Work Session

Participants will solve, analyze, and discuss four math content items. The speakers will share teachers', prospective teachers', and strong math students' data. The data highlight theoretical issues of boundaries of content knowledge and pedagogical content knowledge, as well as practical issues of assessing elementary school teachers' knowledge in sustained professional development.

Randy Philipp
San Diego State University, San Diego, California

John (Zig) Siegfried
San Diego State University, San Diego, California

201, Capacity: 180

55. Assessing Mathematics Teachers' Instructional Practices

Research Symposium

The session will discuss the development, validation, and current research uses of a toolkit to assess instructional quality in math on the basis of classroom observations and collections of students' work. The toolkit emphasizes students' opportunities to engage in cognitively challenging tasks and high-level reasoning and to discuss their mathematical thinking.

Melissa Boston
Duquesne University, Pittsburgh, Pennsylvania

Glenn T. Colby
Vanderbilt University, Nashville, Tennessee

Morgan Polikoff
University of Pennsylvania, Philadelphia, Pennsylvania

Anne Garrison
Vanderbilt University, Nashville, Tennessee

Kara Jones Jackson
Vanderbilt University, Nashville, Tennessee

202 A, Capacity: 441

56. Preparing a Proposal for NSF's Division of Research on Learning

Research Symposium

The speakers will discuss funding opportunities in NSF's Division of Research on Learning, which promotes innovative research, development, and evaluation of learning and teaching across science, technology, engineering, and mathematics disciplines. They will then share strategies for writing a competitive proposal and discuss the proposal peer review process.

Karen Marrongelle
National Science Foundation, Washington, D.C.

Jim Fey
National Science Foundation, Arlington, Virginia

Ferdinand Rivera
National Science Foundation, Arlington, Virginia

202 B, Capacity: 428

57. Mathematics Learning and Participation as Racialized Forms of Experience

Research Symposium

This symposium moves beyond the "gap-gazing" fetish by presenting a collection of research studies that explore "racialized" students—in this instance, African Americans—as they negotiate the racialized forms of experience present for all students in the mathematics classroom, schooling, and society in general; and as they negotiate their racialized mathematics identities.

Danny Bernard Martin
University of Illinois at Chicago, Chicago, Illinois

David Wayne Stinson
Georgia State University, Atlanta, Georgia

Julius Davis
Morgan State University, Baltimore, Maryland

Kyndall Brown
University of California at Los Angeles, Los Angeles, California

Rochelle Gutierrez
University of Illinois at Urbana-Champaign, Champaign, Illinois

Ebony O. McGee
University of Illinois at Chicago, Chicago, Illinois

204 B, Capacity: 106

58. Tools of the Trade

Research Symposium

Researchers use a variety of tools to collect data (e.g., observation protocols, assessment instruments, surveys) that address the question that is under investigation in a particular study or set of related studies. This session includes presentations from researchers who have created four different types of research tools.

Iris Weiss
Horizon Research, Inc., Chapel Hill, North Carolina

Deborah Loewenberg Ball
University of Michigan, Ann Arbor, Michigan

Jere Confrey
North Carolina State University, Raleigh, North Carolina

Daniel Heck
Horizon Research, Chapel Hill, North Carolina

Margaret S. Smith
Board of Directors, NCTM; University of Pittsburgh, Pittsburgh, Pennsylvania

Discussant: James A. Middleton
Arizona State University, Tempe, Arizona

204 C, Capacity: 90

59. Testing Hypotheses about Students' Operational Development of Fractions

Research Symposium

Small-group teaching experiments have generated hypotheses about students' fractional schemes and operations. The speakers will describe quantitative methods for testing these hypotheses through written assessments. Such assessments provide economical measures of students' operational development that can augment the usefulness of the hypotheses for classroom teaching, guiding instruction and curricular design.

Anderson Norton
Virginia Polytechnic and State University, Blacksburg, Virginia

Amy Hackenberg
Indiana University Bloomington, Bloomington, Indiana

Jesse Wilkins
Virginia Polytechnic and State University, Blacksburg, Virginia

Discussant: Leslie Steffe
University of Georgia, Athens, Georgia

209 A, Capacity: 92

60. The Use of Tools in the Learning and Teaching of Geometry

Research Symposium

Tools fundamentally shape and influence learning, and their uses can both assist and constrain how one thinks about particular ideas. This session will share research about learners' uses of tools, technological and nontechnological, and the ways in which these uses interact with the development of geometric ideas.

Karen F. Hollebrands
North Carolina State University, Raleigh, North Carolina

Colette Laborde
Université Joseph Fourier, Grenoble, Isère, France

Anna Marie Conner
University of Georgia, Athens, Georgia

Deborah Moore-Russo
University at Buffalo—State University of New York, Buffalo, New York

Ginger Rhodes
University of North Carolina at Wilmington, Wilmington, North Carolina

Ryan C. Smith
North Carolina State University, Raleigh, North Carolina

209 B, Capacity: 111

1:00 p.m. – 2:30 p.m.

61. The Instructor's Proactive Role in Supporting Teachers' Arguments

Work Session

This presentation addresses how grades K–5 mathematics specialists make mathematical arguments in an Algebra and Functions course. Participants will use Krummheuer's theory of ethnography to trace the argument that unfolded during this whole-class discussion. The speakers will also highlight the instructor's role in supporting teachers' mathematical activity.

Joy Wright Whitenack
Virginia Commonwealth University, Richmond, Virginia

Amy Ellington
Virginia Commonwealth University, Richmond, Virginia

Laurie Cavey
James Madison University, Harrisonburg, Virginia

209 C, Capacity: 60

2:00 p.m. – 2:40 p.m.

62. Young Children's Understandings of Length Measurement

Individual Paper Session

This presentation will share the findings of a study on the development of length measurement ideas in young children. The purpose is to provide a description of the levels of thinking that compose the developmental progression, including the tasks and the "mental actions on objects" that define each level.

Janka Szilagyi
State University of New York—College at Brockport, Brockport, New York

203 A, Capacity: 53

63. The Persistence of Student-Centeredness in Preservice Mathematics Teachers

Individual Paper Session

This multiyear study of a undergraduate series of fieldwork-based seminars focused on student-centered teaching and learning shows that students in this program not only persist in this focus several years after taking the seminars, but also demonstrate a greater tendency toward this perspective than their counterparts enrolled in a credential program.

Therese Boulanger Shanahan
University of California, Irvine, Center for Educational Partnerships, Irvine, California

Karajean Hyde
University of California, Irvine, Irvine, California

203 B, Capacity: 53

64. Girls Perform Equally as Well as Boys on State Assessments

Individual Paper Session

This study analyzed state assessment data from more than 7 million students across ten states for gender differences in mathematics achievement. The data showed no gender difference in mathematics achievement for every grade level in every state, even when cognitively complex items were considered.

Amy Ellis
University of Wisconsin—Madison, Madison, Wisconsin

Janet Hyde
University of Wisconsin—Madison, Madison, Wisconsin

Sara Lindberg
University of Wisconsin—Madison, Madison, Wisconsin

Marcia Linn
University of California, Berkeley, Berkeley, California

Caroline Williams
University of Wisconsin—Madison, Madison, Wisconsin

204 A, Capacity: 87

65. Are Mathematics Teachers' Instructional Improvements Sustained over Time?

Individual Paper Session

This session will share the results of a follow-up study that examined whether secondary school mathematics teachers sustained instructional improvements a year after their participation in a professional development workshop focused on selecting and implementing cognitively challenging tasks. Cases of teachers who illustrate different patterns of instructional change will be presented.

Melissa Boston
Duquesne University, Pittsburgh, Pennsylvania

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

203 A, Capacity: 53

66. Distributional Reasoning of Middle School Teachers in a Sampling Context

Individual Paper Session

This session will share written and verbal responses of middle school teachers who were reasoning distributionally during a professional development intervention, along with video of the intervention and interview excerpts. The audience will analyze the tasks used, make conjectures about how the subjects responded, and discuss the interpretation of the findings.

Dan Canada
Eastern Washington University, Cheney, Washington

Michael Gilbert
University of Hawaii, Honolulu, Hawaii

203 B, Capacity: 53

67. Fractions Models and Contexts: Impact on Students' Learning

Work Session

Two contexts and models for developing fraction concepts and skills will form the basis for this working session. Participants will compare and contrast work samples and interview data from part-whole and measurement contexts of late elementary school students. Research venues for continuing the investigation will be discussed.

Barbara Dougherty
University of Mississippi, Oxford, Mississippi

Jennifer Fillingim
University of Mississippi, Oxford, Mississippi

201, Capacity: 180

68. Characterizing High School Mathematics Teachers' Curriculum Implementation

Research Symposium

The speakers will report curriculum implementation of integrated and subject-specific textbooks in high school mathematics classrooms over two years, share how implementation fidelity was conceptualized and measured and how data were analyzed, and examine relationships among teachers' characteristics, curriculum implementation, and the classroom learning environment, within and across textbook types.

James E. Tarr
University of Missouri—Columbia, Columbia, Missouri

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

Oscar Chavez
University of Missouri—Columbia, Columbia, Missouri

Melissa D. McNaught
University of Missouri—Columbia, Columbia, Missouri

Maryann Huey
University of Missouri—Columbia, Columbia, Missouri

Dan Ross
University of Missouri—Columbia, Columbia, Missouri

202 A, Capacity: 441

69. Curricular Effect on Algebra Learning: A Three-Year, Longitudinal Study

Research Symposium

This symposium will present longitudinal data from a three-year, large-scale, urban project that examined the impact of the Connected Mathematics Program and more traditional middle school mathematics curricula on students' algebra learning. Implementation conditions and the nature of urban classroom instruction will be essential elements of the analysis.

Janice Earle
National Science Foundation, Arlington, Virginia

Jinfa Cai
University of Delaware, Newark, Delaware

John C. Moyer
Marquette University, Milwaukee, Wisconsin

Ning Wang
Widener University, Chester, Pennsylvania

Bikai Nie
University of Delaware, Newark, Delaware

Discussant: Jeremy Kilpatrick
University of Georgia, Athens, Georgia

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

202 B, Capacity: 428

70. Teachers and Teaching in Mathematics with "Minority" Students

Research Symposium

The mathematics performance of Latina, Latino, and African American students is a persistent issue. Traditional perspectives have focused on the students and their communities. However, much remains to be understood about classroom instructional processes and the role of teachers. This symposium presents three papers that add to knowledge about instruction.

Phillip K. Kisunzu
University of Illinois at Chicago, Chicago, Illinois

Mary Marshall
University of New Mexico, Albuquerque, New Mexico

Anita Balasubramanian
University of Illinois at Chicago, Chicago, Illinois

204 A, Capacity: 87

71. Math Experiences for Math Educators: Exploring Open Mathematical Spaces

Research Symposium

This session will engage participants in discussing mathematical experiences for mathematics education doctoral students. The speakers will discuss courses in which students explore mathematics through problem posing and engage in doing personally relevant mathematics mirroring that of mathematics researchers. Participants will engage in mathematics and discuss the course experience.

Michael Steele
Michigan State University, East Lansing, Michigan

Amanda Jansen
University of Delaware, Newark, Delaware

Alfinio Flores
University of Delaware, Newark, Delaware

Kristie Jones Newton
Temple University, Philadelphia, Pennsylvania

Trena L. Wilkerson
Baylor University, Waco, Texas

Sarah Sword
Education Development Center, Newton, Massachusetts

Beth Herbel-Eisenmann
Michigan State University, East Lansing, Michigan

204 B, Capacity: 106

72. Institutional Arrangements and Mathematics with Latino and ELL Students

Work Session

This working session is designed to engage participants actively in extended analysis and discussion of contextual factors contributing to the failure of mathematics teaching and learning with Latina and Latino and English language learner (ELL) students. Participants will observe videos of classrooms and collectively identify potential directions of future research and teachers' preparation and professional development.

Lena Licón Khisty
University of Illinois at Chicago, Chicago, Illinois

Kathryn B. Chval
University of Missouri—Columbia, Columbia, Missouri

204 C, Capacity: 90

73. Fundamental Pedagogical Understandings for Teaching Mathematics

Research Symposium

The speakers will articulate the conception of teaching that underlies their research on teachers' learning, identifying fundamental pedagogical understandings necessary to teach consistently with that conceptualization. The intent is to stimulate discussion about the value of working on conceptualizations of teaching and important pedagogical understandings.

Martin Simon
New York University, New York, New York

Kay McClain
Arizona State University, Tempe, Arizona

Laura R. Van Zoest
Western Michigan University, Kalamazoo, Michigan

Shari L. Stockero
Michigan Technological University, Houghton, Michigan

209 A, Capacity: 92

74. Symposium on the National Mathematics Panel

Research Symposium

This workshop will address issues raised in the National Mathematics Advisory Panel report. Panelists, in an interactive format, will address the panel's recommendations and the use of scientifically based research to advance the teaching and learning of mathematics in order to improve mathematics achievement for all students.

Anthony E. Kelly
George Mason University, Fairfax, Virginia

Paul Cobb
Vanderbilt University, Nashville, Tennessee

Finbarr Sloane
Arizona State University, Phoenix, Arizona

Jeremy Roschelle
SRI International, Menlo Park, California

Joanne Lobato
San Diego State University, San Diego State, California

Jo Boaler
University of Sussex, Brighton, East Sussex, United Kingdom

Patrick Thompson
Arizona State University, Tempe, Arizona

209 B, Capacity: 111

75. Graduate Student and Junior Faculty Mentoring Session

Work Session

Experienced faculty will provide mentoring on topics such as publishing dissertation-based manuscripts, job searching, working with graduate students, the tenure process, grant writing, and others. This session includes a round-table format for attendees to rotate among topic-focused tables. Graduate students and junior faculty are encouraged to attend.

Eric Knuth
University of Wisconsin—Madison, Madison, Wisconsin

Dorothy Y. White
University of Georgia, Athens, Georgia

209 C, Capacity: 60

4:00 p.m. – 4:40 p.m.

76. Beyond Sheltered Instruction: A Case Study

Individual Paper Session

This exploratory case study describes and explores the Critical Pedagogy practices of a Latino algebra teacher who has created a classroom environment where his English learners not only thrive academically but also contribute to the development of a learning community in the classroom.

Adelina Alegria
Occidental College, Los Angeles, California

203 A, Capacity: 53

77. Field Experience: An Analysis of Teacher Candidates' Mathematical Learning

Individual Paper Session

This is a qualitative study of teacher candidates' learning about teaching and learning mathematics through field experience. Teacher candidates participated in an intensive study of mathematics teaching and learning. The focus and nature of their learning will be discussed. Participants will discuss the findings and future directions for field work.

Margaret Irene Ford
Duquesne University, Pittsburgh, Pennsylvania

203 B, Capacity: 53

4:45 p.m. – 6:00 p.m.

78. Messages Middle School Math Teachers Interpret from Curricular Resources

Poster Session

What messages about mathematics and mathematics teaching do middle school mathematics teachers interpret from their students' textbooks, school districts' curriculum guides and assessments, states' assessments and curriculum framework, a master's degree program in which they were enrolled, and other resources? Answers to this question and implications will be discussed.

Christy Danko Graybeal
Hood College, Frederick, Maryland

Prefunction Area, Table 1, Capacity: 700

79. Subject Matter Knowledge for Teaching Statistical Association

Poster Session

A practice-based approach was used to study the knowledge secondary school teachers need to teach statistical association. Through observations of three teachers during their teaching of statistical association and interviews following each class session, a description of the knowledge needed by teachers was created.

Stephanie Casey
Illinois State University, Normal, Illinois

Prefunction Area, Table 2, Capacity: 700

80. The Numeric Development of Struggling First-Grade Students

Poster Session

This poster session will describe our work with students who were struggling with counting and early number. Example tasks and students' work will be shared related to findings from an intervention that targeted specific aspects of computational fluency. Differences in students' initial reasoning and post-intervention reasoning will be explored.

John Lannin
University of Missouri—Columbia, Columbia, Missouri

Delinda van Garderen
University of Missouri—Columbia, Columbia, Missouri

Christa Jackson
University of Missouri—Columbia, Columbia, Missouri

Kelley Buchheister
University of Missouri—Columbia, Columbia, Missouri

Matt Switzer
University of Missouri—Columbia, Columbia, Missouri

Prefunction Area, Table 3, Capacity: 700

81. The Role of Explanation in Mathematics Courses for Preservice Teachers

Poster Session

This session will present findings from a study of what mathematics teacher educators attended to while observing a mathematics content course for preservice elementary school teachers. They found that the teacher's focus on explanation enabled the observers to access the students' mathematical thinking, prompting rich discussions of students' mathematical ideas.

Kyle T. Schultz
University of Georgia, Athens, Georgia

Ginger Rhodes
University of North Carolina at Wilmington, Wilmington, North Carolina

Allyson Hallman
University of Georgia, Athens, Georgia

Prefunction Area, Table 4, Capacity: 700

82. Three Upper Elementary School Children's Mathematical Connections

Poster Session

In an effort to promote children's proportional reasoning, a team of undergraduate researchers and the speaker taught three children during one summer week, focusing activities on connections among measurement, rational numbers, and multiplicative reasoning. Findings point to the role the children's mathematical play had in supporting their developing mathematical connections.

Jacob T. Klerlein
Middle Tennessee State University, Murfreesboro, Tennessee

Prefunction Area, Table 5, Capacity: 700

83. Tracing the Transformation of Homework Tasks: Textbook, School, and Home

Poster Session

This session examines how homework tasks from a reform-oriented, elementary school mathematics curriculum are constructed and reconstructed by curriculum designers, teachers, parents, and students. The speakers will track homework tasks from their representation in written materials, to how teachers set them up, to how they are enacted in the home.

Enakshi Bose
University of Pennsylvania, Graduate School of Education, Philadelphia, Pennsylvania

Jacqueline Flicker
University of Pennsylvania, Graduate School of Education, Philadelphia, Pennsylvania

Prefunction Area, Table 6, Capacity: 700

84. Transitioning from Additive to Proportional Reasoning to Prepare for Slope

Poster Session

This presentation will discuss middle school students' conceptual difficulties with using proportional reasoning in a missing-value proportionality problem involving the steepness of two lines. Grade 7 students showed the highest frequencies of additive reasoning; in group settings they were able to challenge one another to engage in proportional reasoning.

Polina Sabinin
Boston University, Boston, Massachusetts

Diana S. Cheng
Boston University, Boston, Massachusetts

Prefunction Area, Table 7, Capacity: 700

85. Vocabulary Instruction in Elementary School Math Classes

Poster Session

Do words play a role in math class? The researcher will present implications of her study on instructional practices used to teach vocabulary in elementary school math classes. Recommendations for vocabulary instruction and assessment will be discussed in the broader context of bringing Response to Intervention research in math into practice.

Laura Hauerwas
Providence College, Providence, Rhode Island

Prefunction Area, Table 8, Capacity: 700

86. Young Children's Embodied Reasoning

Poster Session

How can educators observe and assess young children's mathematical reasoning, particularly in settings where activities are open-ended? This study draws on embodied cognition literature to examine young children's mathematical reasoning as successfully directed movement toward relevant and immediate issues and concerns.

Lynn McGarvey
University of Alberta, Edmonton, Alberta, Canada

Prefunction Area, Table 9, Capacity: 700

87. National Evaluation of Early Elementary School Math Curricula

Poster Session

This session will present findings from a large-scale national evaluation of early elementary school math curricula. The study uses experimental methods to evaluate four curricula that use varying approaches to develop students' math skills, to determine if a particular approach to math instruction is more effective at raising students' achievement.

Roberto Agodini
Mathematica Policy Research, Princeton, New Jersey

Barbara Harris
Mathematica Policy Research, Washington, D.C.

Prefunction Area, Table 10, Capacity: 700

88. Preparing GED Students: Students' Performance on GED and HSAP Items

Poster Session

What types and levels of mathematical thinking, reasoning, and knowledge do General Educational Development (GED) and state-level examinations target? Is there a difference between GED students' mathematics performance on GED and High School Assessment Program (HSAP) items? What reasons do GED and Adult Basic Education students give for not finishing school?

S. Megan Che
Clemson University, Clemson, South Carolina

Prefunction Area, Table 11, Capacity: 700

89. Problematizing Mathematics in Preservice Teacher Education

Poster Session

This session will report on a semester course on young children's mathematics education. The primary goal—to support preservice teachers' developing knowledge of mathematics for teaching—is related to assumptions about teaching and learning for understanding. The speaker will discuss four instructional phases designed to promote participants' re-examination of their disciplinary content knowledge.

Nina Knapp
Vanderbilt University, Nashville, Tennessee

Prefunction Area, Table 12, Capacity: 700

90. Prospective Middle Grades Teachers' Mathematical Connections in Geometry

Poster Session

An exploratory investigation of twenty-eight prospective middle grades teachers' specialized content knowledge for teaching geometry and mathematical connection making was conducted at a large public southeastern university. Preliminary data analysis suggests mathematical connections made are procedural rather than conceptual. Specific examples of students' work will be presented.

Jennifer Ann Eli
University of Kentucky, Lexington, Kentucky

Margaret Joan Mohr
University of Kentucky, Lexington, Kentucky

Prefunction Area, Table 13, Capacity: 700

91. Research on Pre-K Teachers' and Classrooms' Characteristics and Children's Learning

Poster Session

The session will focus on research into prekindergarten (pre-K) teachers' characteristics, their beliefs about mathematics and literacy, their efficacy in teaching mathematics, and their experience and background that may influence the classroom environment and that, in turn, may influence pre-K students' learning outcomes in mathematics and literacy.

Elizabeth Todd Brown
University of Louisville, Louisville, Kentucky

Victoria Molfese
University of Louisville, Louisville, Kentucky

Eunjoo Jung
University of Louisville, Louisville, Kentucky

Prefunction Area, Table 14, Capacity: 700

92. Saying What I Do, Doing What I Say: Teachers Using Collaborative Evaluation

Poster Session

Providing opportunity for teachers to reflect on their beliefs about effective mathematics instruction and to observe their actual classroom practices helps increase congruence between the two. This study examines this process's effects for a group of upper elementary school teachers who are involved in collaborative evaluation.

Kelli Thomas
University of Kansas, Lawrence, Kansas

Karen A. Lombardi
University of Kansas, Lawrence, Kansas

Prefunction Area, Table 15, Capacity: 700

93. Secondary School English Learners' Reading Comprehension of Algebra Assessment Items

Poster Session

The speaker will present and discuss the study and its findings. He will share study-based applications for assessment item writers, secondary school mathematics teachers, and secondary mathematics teacher educators.

Carl Lager
University of California, Santa Barbara, Santa Barbara, California

Prefunction Area, Table 16, Capacity: 700

94. Situations and Circumstances That Elicit Metacognitive Behaviors

Poster Session

The speaker examined situations and circumstances that elicit metacognitive behaviors in students who are collaboratively solving mathematical modeling problems. He will report on social and self-based patterns that emerged from students' explanations of their thinking and on characteristics of social and self-based situations that appear to elicit metacognitive thinking.

Leigh A. van den Kieboom
Marquette University, Milwaukee, Wisconsin

Marta T. Magiera
Marquette University, Milwaukee, Wisconsin

Prefunction Area, Table 17, Capacity: 700

96. Studying Preservice Teachers' Beliefs and Attitudes about Learning Geometry

Poster Session

This study reports findings of moderately changing elementary school preservice teachers' (PSTs) beliefs and attitudes about learning geometry through cognitive dissonance, offering PSTs new experience conflicting with their previous ones. Four approaches of helping PSTs understand geometry were used: The Geometer's Sketchpad, hands-on activities, constructions, and proof.

Kai-Ju Yang
Indiana University Bloomington, Bloomington, Indiana

Prefunction Area, Table 19, Capacity: 700

97. Teachers' Moves That Support Students' Success with Relational Thinking

Poster Session

The speakers will examine norms and teachers' moves that support all students' equitable participation and growth in a third-grade, inclusion classroom during a routine focus on relational thinking. An analysis of classroom video supports findings that a highly conceptual approach like relational thinking can be used successfully in an inclusion classroom.

Mary Q. Foote
City University of New York—Queens College, New York, New York

Rachel Lambert
City University of New York—Graduate Center, New York, New York

Prefunction Area, Table 20, Capacity: 700

98. Teachers' Knowledge of Fraction Operations with Drawn Representations

Poster Session

This study addresses thirteen middle grades teachers' problem-solving strategies in interpreting multiple-choice, rational-number items that require an analysis of drawn representations. Teachers' attention to the referent unit emerged as crucial component of teachers' knowledge in making sense of drawn representations.

Soojin Lee
University of Georgia, Athens, Georgia

Chandra Orrill
University of Georgia, Athens, Georgia

Rachael Brown
University of Georgia, Athens, Georgia

Susan Sexton
University of Georgia, Athens, Georgia

Prefunction Area, Table 21, Capacity: 700

Wednesday, April 22, 2009

8:30 a.m. – 10:00 a.m.

99. Identity, Equity, and Professional Development: Supporting Learning

Plenary Session

This session will draw on data from a series of research studies examining issues of identity, mathematical learning, and professional development to create a discussion around supporting teachers to meet the needs of each student. Narratives from Joi Spencer and La Mont Terry's research will frame the session.

Megan Franke
University of California, Los Angeles, Los Angeles, California

202 A, Capacity: 441

10:30 a.m. – 11:10 a.m.

100. Academic Youth Development: Increasing Students' Engagement in Mathematics

Individual Paper Session

This session will describe the Academic Youth Development (AYD) initiative, give results from a study, and end with a group discussion. AYD centers on improving students' academic engagement and cultivating academic identities. Results indicate that AYD is related to significant positive changes in students' engagement and attitudes.

Pamela L. Paek
Charles A. Dana Center, University of Texas at Austin, Austin, Texas

Lisa Brown
Charles A. Dana Center, University of Texas at Austin, Austin, Texas

203 A, Capacity: 53

101. Pedagogical Choices and MKT of NYC Teaching Fellows

Individual Paper Session

The New York City (NYC) Teaching Fellows program supplies more than 60 percent of new mathematics teachers in New York each year. The speakers closely analyze Fellows' attempts to implement NCTM recommended pedagogical paths, demonstrating specific ways in which they are inadequately supported by the Fellows' mathematical knowledge for teaching (MKT).

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

Michael Meagher
City University of New York—Brooklyn College, Brooklyn, New York

203 B, Capacity: 53

102. How "Them as Got, Gets" in the U.S. System of Mathematics Education

Individual Paper Session

The speakers will present a review of the research on equity and mathematics education grounded in the Reproduction Theory tradition of Pierre Bourdieu. The review will be summarized by a two-level, structural equation model based on data from the grade 8 National Assessment of Educational Progress dataset.

Tom Munk
Westat, Durham, North Carolina

Marciea McMillian-Robinson
Durham, North Carolina

204 A, Capacity: 87

103. Relationships between Students' Fractional Knowledge and Equation Solving

Individual Paper Session

This session will present results from a clinical interview study that assessed relationships between ninth graders' fractional knowledge and their algebraic reasoning in equation solving. Not having constructed improper fractions, fractions as quotients, and fractions as multiplicative operations influenced how students formulated and solved basic linear equations.

Amy Hackenberg
Indiana University Bloomington, Bloomington, Indiana

209 C, Capacity: 60

10:30 a.m. – 12:00 p.m.

104. Publishing Your Research in the NCTM School-Based Journals

Work Session

The Editorial Panels of *Teaching Children Mathematics, Mathematics Teaching in the Middle School, Mathematics Teacher,* and *On-Math* will present tips for writing for a teacher audience, followed by a question-and-answer period. They encourage you to bring specific ideas for discussion in small, journal-specific groups.

Karen F. Hollebrands
North Carolina State University, Raleigh, North Carolina

Blake E. Peterson
Brigham Young University, Provo, Utah

Trena L. Wilkerson
Baylor University, Waco, Texas

Robert Q. Berry
University of Virginia, Charlottesville, Virginia

201, Capacity: 180

105. Examining Classroom Discourse through Study Groups and Action Research

Research Symposium

This symposium will explore aspects related to action research projects on classroom discourse practices. The speakers will talk about the journey of reflecting on their discourse practices over time, practices they have found productive for students' sense making, and questions and dilemmas that arose as they changed their discourse practices.

Beth Herbel-Eisenmann
Michigan State University, East Lansing, Michigan

Jean Krusi
Ames Middle School, Ames, Iowa

Lana Lyddon Hatten
Des Moines Central Academy, Des Moines, Iowa

Angie Marie Shindelar
Nodaway Valley Schools, Fontanelle, Iowa

Michelle Cirillo
Iowa State University, Ames, Iowa

Jeff A. Marks
Des Moines Public Schools, Des Moines, Iowa

202 A, Capacity: 441

106. Factors Contributing to the Preparation of Quality Mathematics Teachers

Research Symposium

The speakers will discuss (1) factors that contribute to preparing quality elementary school mathematics teachers and (2) indicators used to measure teachers' quality. They will share results from a project in which preservice teachers learned to build models of students' mathematics concepts and to use that knowledge to plan lessons.

Enrique Galindo
Indiana University Bloomington, Bloomington, Indiana

Anderson Norton
Virginia Polytechnic and State University, Blacksburg, Virginia

Andrea McCloskey
Pennsylvania State University, State College, Pennsylvania

Kathryn Essex
Indiana University Bloomington, Bloomington, Indiana

Rick Alan Hudson
Indiana University Bloomington, Bloomington, Indiana

Leslie Steffe
University of Georgia, Athens, Georgia

202 B, Capacity: 428

107. Mathematics Education for Immigrant Families and Borderland Communities

Research Symposium

This symposium presents current research on creating and sharing an integrated model in mathematics education that connects teaching mathematics to the cultural, social, and linguistic experiences of Latino and Latina students. This holistic perspective centers on four areas: students' learning, community and parents, teaching and teacher education, and policy.

José María Menéndez
University of Arizona, Tucson, Arizona

Jesus Acosta-Iriqui
University of Arizona, Tucson, Arizona

Heather Cavell
University of Arizona, Tucson, Arizona

Maura Varley
University of Arizona, Tucson, Arizona

Kathleen Ross
University of Arizona, Tucson, Arizona

Discussant: Dorothy Y. White
University of Georgia, Athens, Georgia

204 B, Capacity: 106

108. A Processes Lens for Prospective Secondary School Teachers' Mathematics

Work Session

Attendees and organizers will analyze the Mathematical Processes Approach through three case-study examples. The goal is to refine the approach as a tool for investigating how prospective secondary school mathematics teachers understand and engage in mathematics, how mathematics unfolds in classrooms, and relationships between teachers' mathematics and that of their classrooms.

Rose Mary Zbiek
Pennsylvania State University, State College, Pennsylvania

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

Glen Blume
Pennsylvania State University, State College, Pennsylvania

Susan A. Peters
Pennsylvania State University, University Park, Pennsylvania

204 C, Capacity: 90

109. Studying Large-Scale Reform Efforts

Research Symposium

Many districts and schools are engaged in efforts to implement and use curriculum and instruction that promote learning with understanding. This panel will discuss theoretical and methodological issues of large-scale efforts and the impact of material expenditures, human and social resources, and policy actions on the enacted curriculum and instruction.

Jeffrey Choppin
University of Rochester, Rochester, New York

Karen King
New York University, New York, New York

Mary Kay Stein
University of Pittsburgh, Pittsburgh, Pennsylvania

Paul Cobb
Vanderbilt University, Nashville, Tennessee

James E. Tarr
University of Missouri—Columbia, Columbia, Missouri

209 A, Capacity: 92

10:30 a.m. – 12:00 p.m.

110. Using a Mathematical Toolkit to Support Teachers' Learning

Research Symposium

This symposium will highlight two perspectives on teachers' learning from participation in lesson study, supported by research-based, "toolkit" materials: (1) that of researchers responsible for toolkit development and study in multiple sites, and (2) that of teachers from one site using the materials to support their learning and development.

Rebecca Perry
Mills College, Oakland, California

Patricia Burge
Joseph A. Brown School, Chelsea, Massachusetts

Jill Bombardier
Joseph A. Brown School, Chelsea, Massachusetts

Christina DiCalogero
Joseph A. Brown School, Chelsea, Massachusetts

Discussant: Catherine Lewis
Mills College, Oakland, California

209 B, Capacity: 111

11:30 a.m. – 12:10 p.m.

111. Coconstructing Understanding in Middle School Mathematics

Individual Paper Session

This presentation will share episodes that illustrate the ways in which the collaboration of inner-city, middle school students led to the coconstruction of arguments and the use of various forms of reasoning. The speakers will describe the conditions that promoted this culture of reasoning and facilitated the learning of mathematics.

Mary Frances Mueller
Seton Hall University, South Orange, New Jersey

Carolyn Maher
Rutgers University, New Brunswick, New Jersey

203 A, Capacity: 53

112. Preservice Teachers' Recognition of Evidence of Conceptual Understanding

Individual Paper Session

This session will examine preservice teachers' ability to recognize evidence of children's conceptual understanding of mathematics, taking into account the role of content knowledge and particular features of children's mathematical work. Results of an intervention and implications for teacher education research and practice will be discussed.

Tonya Bartell
University of Delaware, Newark, Delaware

Brian Bowen
University of Delaware, Newark, Delaware

Nancy Ileen Dyson
University of Delaware, Newark, Delaware

Corey Webel
University of Delaware, Newark, Delaware

203 B, Capacity: 53

113. African American Girls' Positioning as Mathematics and Science Learners

Individual Paper Session

This study explores how African American girls in impoverished communities position themselves in relation to mathematics and science learning and the impact of teachers, counselors and parents' positionality. The focus will be on the girls and their engagement in mathematics and science as they transition from elementary school to middle school.

Thomasenia Lott Adams
University of Florida, Gainesville, Florida

Cirecie West-Olatunji
University of Florida, Gainesville, Florida

Rose Pringle
University of Florida, Gainesville, Florida

204 A, Capacity: 87

11:30 a.m. – 12:10 p.m.

114. Simulation Design and Conceiving Probabilistic Experiments and Expectation

Individual Paper Session

The speaker will describe a teaching experiment that engaged a group of high school students in designing sampling simulations as a means for exploring questions like "Is event *x* unusual?" Results document students' thinking around two themes: conceiving expectation as a statistical quantity, and construing situations as idealized, stochastic experiments.

Luis Saldanha
Arizona State University, Tempe, Arizona

209 C, Capacity: 60

1:00 p.m. – 1:40 p.m.

115. Comparing U.S. and Singapore Curricula: The Case of Spatial Measurement

Individual Paper Session

U.S. mathematics educators' interest in the Singapore curriculum is increasing, because of the curriculum's high standing in the TIMSS cross-national comparison. This session will present a fine-grained comparison of the spatial measurement content in the elementary grades in the United States and Singapore.

Kosze Lee
Michigan State University, East Lansing, Michigan

203 A, Capacity: 53

116. Connecting Understanding to Form in Elementary School Fractions Instruction

Individual Paper Session

The speakers will describe the effects of connecting students' thinking and symbolic representations at three pedagogical "sites" during fractions instruction. The students' ability to link conceptual understanding with formal representations, compared to that of a control group, was significantly enhanced. Theoretical and practical implications will be addressed.

Helena Patricia Osana
Concordia University, Montreal, Quebec, Canada

Nicole Pitsolantis
Lower Canada College, Montreal, Quebec, Canada

203 B, Capacity: 53

117. Mathematical Equity for Immigrant Students through Formative Assessment

Individual Paper Session

For bilingual, Mexican immigrant students, many question the validity and reliability of mathematics tests that determine levels of proficiency solely through students' written responses. This research study will demonstrate that the use of an interactive interview protocol provides opportunities for these students to communicate their mathematical understanding.

Laura Burr
University of New Mexico, Albuquerque, New Mexico

Richard S. Kitchen
University of New Mexico, Albuquerque, New Mexico

204 A, Capacity: 87

118. Social Metacognition and Microcreativity: A Statistical Discourse Analysis

Individual Paper Session

Four groups of 20 algebra students worked on a problem, yielding 2,951 videotaped turns. Justifications, correct evaluations, polite disagreements, and wrong, new ideas increased microcreativity 4 to 36 percent; agreements and rude disagreements reduced it 4 to 5 percent. Correct evaluations' effects lasted longest. Effects differed across time and across groups.

Ming Ming Chiu
University at Buffalo—State University of New York, Buffalo, New York

209 C, Capacity: 60

119. A Decade of Equity Research: Examining What Works

Research Symposium

The session will begin with an overview of diverse students' status in mathematics, followed by research studies that highlight what is working to achieve equity in mathematics education. The speakers will analyze of what they have learned and discuss where research efforts need to continue.

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

Rochelle Gutierrez
University of Illinois at Urbana-Champaign, Champaign, Illinois

Sarah Lubienski
University of Illinois at Urbana-Champaign, Champaign, Illinois

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

Yasemin Copur
University of Illinois at Urbana-Champaign, Champaign, Illinois

Discussant: Jacqueline Leonard
Temple University, Philadelphia, Pennsylvania

201, Capacity: 180

120. Eighth Graders' Reasoning about Quadratic Functions

Research Symposium

The speakers will present results from four independent research studies with eighth-grade students. Each researcher used eighth-grade students' quantitative reasoning as a basis for having them reason about quadratic functions. The studies' findings will be used to discuss how to design productive algebra learning environments.

Erik S. Tillema
Indiana University at Indianapolis, Indianapolis, Indiana

Amy Ellis
University of Wisconsin—Madison, Madison, Wisconsin

Joanne Lobato
San Diego State University, San Diego State, California

Charles Hohensee
San Diego State University, San Diego, California

202 A, Capacity: 441

121. Learning and Teaching Mathematics in a TI-Navigator™-Connected Classroom

Research Symposium

Three studies with various methods and perspectives will be discussed: a multiyear study with mixed methods in three schools; a multiyear, randomized, control field trial with a national sample; and a study using discourse-analysis methods to study participation and identification with mathematics.

Douglas T. Owens
Ohio State University, Columbus, Ohio

Margaret Sinclair
York University, Toronto, Ontario, Canada

Stephen J. Pape
University of Florida, Gainesville, Florida

Karen E. Irving
Ohio State University, Columbus, Ohio

Stephen Hegedus
University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

William R. Penuel
SRI International, Menlo Park, California

Discussant: Jeremy Roschelle
SRI International, Menlo Park, California

202 B, Capacity: 428

122. Studying Teachers' Rationality Using Representations of Teaching

Research Symposium

This session will showcase theoretical and methodological issues related to research involving conversations among teachers triggered by representations of teaching such as video, narratives, or animations.

Pat Herbst
University of Michigan, Ann Arbor, Michigan

Michael Kevin Weiss
University of Michigan, Ann Arbor, Michigan

Gloriana Gonzalez
University of Michigan, Ann Arbor, Michigan

Takeshi Miyakawa
University of Michigan, Ann Arbor, Michigan

Wendy Aaron
University of Michigan, Ann Arbor, Michigan

Discussant: Dan Chazan
University of Maryland, College Park, Maryland

204 B, Capacity: 106

123. Math Teachers' On-the-Job Learning: Perspectives on Theory and Evidence

Work Session

This working session will describe an ongoing synthesis of research on mathematics teachers' on-the-job learning and engage the audience in a discussion of both the conceptual framing and preliminary results of reviews regarding the development of teachers' observation skills, effective professional development, and longitudinal evidence for teachers' learning.

Helen M. Doerr
Syracuse University, Syracuse, New York

Catherine Lewis
Mills College, Oakland, California

Lynn T. Goldsmith
Education Development Center, Inc., Newton, Massachusetts

Discussant: Iris Weiss
Horizon Research, Inc., Chapel Hill, North Carolina

Discussant: Margaret S. Smith
Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania

204 C, Capacity: 90

124. Collaborating to Identify Research Priorities in Math Education

Research Symposium

The presenters will give an update on an NCTM project that brought together researchers and practitioners to identify priorities in mathematics education research based on the needs of the practitioner community. Work done at series of conferences will be presented. Participants will be asked to provide feedback and engage in conversation.

Judith Reed Quander
National Council of Teachers of Mathematics, Reston, Virginia

Fran Arbaugh
University of Missouri—Columbia, Columbia, Missouri

209 A, Capacity: 92

125. Teacher Leadership in School Reform: Highlighted Strategic Approaches

Research Symposium

The sustainability of teacher leadership in mathematics initiatives is often an outcome of crucial strategic decisions by initiative leaders. This symposium will present a case methodology that highlighted particular strategic approaches from five math-science initiatives, to showcase how those approaches influenced teacher leadership.

Neil Schiavo
Education Development Center, Newton, Massachusetts

Barbara Miller
Education Development Center, Newton, Massachusetts

Discussant: Bill Haver
Virginia Commonwealth University, Richmond, Virginia

Discussant: Alicia Parra
El Paso Collaborative for Academic Excellence, El Paso, Texas

209 B, Capacity: 111

2:00 p.m. – 2:40 p.m.

126. Getting Connected: The Relationship of the Content Strands

Individual Paper Session

Should separate strand scores be reported, or does one score describe a student's mathematical development? A recent research study concluded that one score appears to describe a student's mathematical achievement for grades 3–8. This is also supportive evidence for the development of the Connections process strand.

Samantha Burg
MetaMetrics, Inc., Durham, North Carolina

203 A, Capacity: 53

127. Purposeful Teaching: Emergence of Organized Routines of Practice

Individual Paper Session

This research looks at the development of middle grades mathematics teachers' conceptualization of one lesson, taught and analyzed three times across a four-month period, in an effort to identify routines of practice and develop a prototypical model of effective teaching practices associated with this lesson.

Debra I. Johanning
University of Toledo, Toledo, Ohio

203 B, Capacity: 53

128. Scaling Up High-Quality Mathematics for All Children

Individual Paper Session

The speakers evaluated the TRIAD model for scaling up math interventions. TRIAD had a substantial positive effect on teaching quality and students' mathematics achievement. Evidence showed that it was equally successful for all, including those of low socioeconomic status and limited English proficiency, and particularly for African American students.

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

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

Mary Elaine Spitler
University at Buffalo, State University of New York, Buffalo, New York

Anastasia Riazantseva
University at Buffalo, State University of New York, Buffalo, New York

204 A, Capacity: 87

129. Toward a Didactic Model for the Instruction of Prime Numbers

Individual Paper Session

Centered on prime numbers, the Primes in Context Using Technology design provides a realistic instructional framework to reconceptualize the teaching and learning of several fundamental ideas of number theory. A two-week teaching experiment revealed the nature of students' learning and the emergent mathematical conceptions in a technology-integrated environment.

Lingguo Bu
Southern Illinois University Carbondale, Carbondale, Illinois

Maria Lorelei Fernandez
Florida International University, Miami, Florida

209 C, Capacity: 60

3:00 p.m. – 3:40 p.m.

130. Establishing a Longitudinal Efficacy Study Using SimCalc MathWorlds®

Individual Paper Session

Preliminary results will be presented of a four-year, longitudinal efficacy study implementing dynamic mathematic software and wireless networks in Algebra 1 and 2 classrooms. The speakers will focus on students' learning and motivation over time and on issues of effective implementation in establishing a longitudinal study.

Stephen Hegedus
University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Sara Dalton
University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Arden Brookstein
University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

203 A, Capacity: 53

131. Exploring Latino Students' Thinking on NAEP Measurement Problems

Individual Paper Session

This talk will showcase the resources used by Latino and Latina students as they solved National Assessment of Educational Progress (NAEP) measurement problems and discussed their thinking in one-on-one interviews. Implications of this study as a bridge between instruction and assessment will be discussed.

Anthony Fernandes
University of North Carolina at Charlotte, Charlotte, North Carolina

Cynthia Anhalt
University of Arizona, Tucson, Arizona

Marta Civil
University of Arizona, Tucson, Arizona

203 B, Capacity: 53

132. The Influence of a Math Methods Course on Preservice Teachers' Efficacy

Individual Paper Session

Previous research reveals that mathematics methods courses and fieldwork can increase the development of both preservice teachers' mathematics content knowledge and their efficacy. This finding is consistent with prior findings suggesting the malleability of these constructs during preservice experiences.

Jacqueline Leonard
Temple University, Philadelphia, Pennsylvania

Brian Evans
Pace University, New York, New York

Kristie Jones Newton
Temple University, Philadelphia, Pennsylvania

Julie Eastburn
Temple University, Philadelphia, Pennsylvania

204 A, Capacity: 87

133. Rural High School Students' Epistemological Beliefs of Mathematics

Individual Paper Session

A study compared students' epistemological beliefs of mathematics when taught using a traditional curriculum (Glencoe Mathematics) versus a reform-oriented curriculum (College Preparatory Mathematics Program). The study was based on direct observations responses to a questionnaire administered to eleventh-grade students and teachers in four rural New England high schools.

Glenn T. Colby
Vanderbilt University, Nashville, Tennessee

209 C, Capacity: 60

3:00 p.m. – 4:30 p.m.

134. From Arithmetic to Algebra: Building the Foundation for All Students

Work Session

What are the primary aspects of work in elementary school arithmetic that foster a transition to algebra for all students? Using classroom examples that include a range of students, participants will consider five aspects of arithmetic experience that may be crucial to this transition.

Susan Jo Russell
TERC, Cambridge, Massachusetts

Deborah Schifter
Education Development Center, Newton, Massachusetts

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

201, Capacity: 180

135. Studying and Supporting Video-Based Learning for Teachers

Research Symposium

Four research groups have contributed to the research base on the use of videocases to support mathematics teacher learning. The speakers will discuss their current thinking about the use of video, theoretical and analytical frameworks they use in their work, and preliminary findings of their ongoing studies.

Shari L. Stockero
Michigan Technological University, Houghton, Michigan

Laura R. Van Zoest
Western Michigan University, Kalamazoo, Michigan

Cynthia Taylor
University of Missouri—Columbia, Columbia, Missouri

Judith Mumme
WestEd, Sheridan, Montana

Catherine Carroll
WestEd, Redwood City, California

Rossella Santagata
University of California, Irvine, Irvine, California

Katherine Linsenmeier
New Trier High School, Winnetka, Illinois

Miriam Gamoran Sherin
Northwestern University, Evanston, Illinois

204 B, Capacity: 106

136. Math in a Cultural Context (MCC) Makes a Professional Development Difference

Work Session

MCC is one of the few reform-oriented math projects that made a statistically significant difference for Yup'ik students. It simultaneously improved the performance of other indigenous, minority, and Caucasian students. MCC's math content knowledge, pedagogy, and cultural relevance makes more of a difference than the module or professional development alone.

Lou Matthews
Georgia State University, Atlanta, Georgia

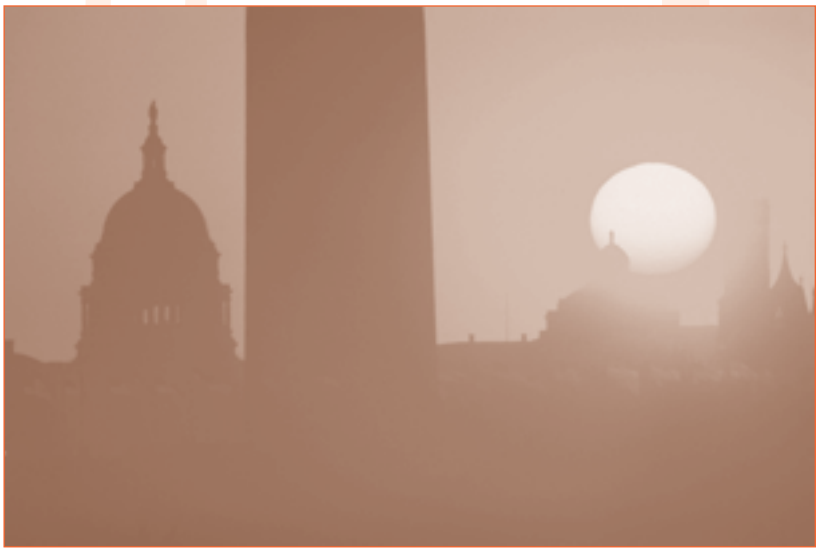
Anthony Rickard
University of Alaska Fairbanks, Fairbanks, Alaska

Evelyn Yanez
University of Alaska Fairbanks, Fairbanks, Alaska

Dora Andrew-Ihrke
University of Alaska Fairbanks, Fairbanks, Alaska

Jerry M. Lipka
University of Alaska Fairbanks, Fairbanks, Alaska

204 C, Capacity: 90



137. Technology, Pedagogy, and Content Knowledge for Mathematics Teachers

Research Symposium

The symposium brings together several perspectives and research activities on technology, pedagogy, and content knowledge (TPACK) for mathematics teachers. Together the research can show what we know about TPACK that is specific to mathematics teachers.

Hollylynne Stohl Lee
North Carolina State University, Raleigh, North Carolina

Karen F. Hollebrands
North Carolina State University, Raleigh, North Carolina

Sarah E. Ives
North Carolina State University, Raleigh, North Carolina

Ryan C. Smith
North Carolina State University, Raleigh, North Carolina

Janet Bowers
San Diego State University, San Diego, California

Maggie Niess
Oregon State University, Corvallis, Oregon

Discussant: Rose Mary Zbiek
Pennsylvania State University, State College, Pennsylvania

209 A, Capacity: 92

138. Proof in Secondary School Mathematics

Research Symposium

This symposium presents research focused on proof and proving in secondary school classrooms. The presenters will share findings from five studies related to proof and proof-related tasks in secondary school, preservice and in-service, algebra and geometry classrooms. This session will raise important questions for teacher educators, researchers, and curriculum developers.

Kristen Bieda
Michigan State University, East Lansing, Michigan

Michelle Cirillo
Iowa State University, Ames, Iowa

Jill Newton
Purdue University, West Lafayette, Indiana

Mara Vanina Martinez
University of Illinois at Chicago, Chicago, Illinois

Michael Steele
Michigan State University, East Lansing, Michigan

Eric Knuth
University of Wisconsin—Madison, Madison, Wisconsin

209 B, Capacity: 111

4:00 p.m. – 4:40 p.m.

139. Graphing in Groups: Collaborative Learning in a Classroom Network

Individual Paper Session

This session will explore the potential of a classroom network to support collaboration in small groups. The speakers will describe a design for collaborative investigations of linear functions and present findings from its implementation in three high school algebra classrooms.

Tobin White
University of California, Davis, Davis, California

Matt Wallace
University of California, Davis, Davis, California

203 A, Capacity: 53

140. Culturally Relevant Pedagogy through "Taking Action"

Individual Paper Session

Taking Action, as practiced in six-week units in three urban, grades K–8 schools, will be described and analyzed for the ways in which it actualizes Gloria Ladson-Billings' six habits of highly effective teachers.

Peter Appelbaum
Arcadia University, Philadelphia, Pennsylvania

203 B, Capacity: 53

141. Mathematics and the Teacher: A Textual Analysis of a Reform Curriculum

Individual Paper Session

This session will examine the ideational, interpersonal, and textual functions of one unit in a Standards-based high school mathematics curriculum. This framework will help determine the nature of mathematics presented in the materials as well as the role of the teacher conceptualized by the textbook authors.

Jon D. Davis
Western Michigan University, Kalamazoo, Michigan

204 A, Capacity: 87

142. Teaching Rational Number Concepts for Understanding in Middle School

Individual Paper Session

This study focuses on the extent to which a team of grade 7 math teachers understood and implemented the core content and pedagogical content elements of a yearlong, rational-number-focused professional development program. The session uses data from classroom observations, assessments of teachers, and interviews during the 2007–08 school year.

Kirk Walters
American Institutes for Research, Washington, D.C.

209 C, Capacity: 60

Index of Speakers by Session

F

G

H

I

J

K

L

T

V

W

Y

Z

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