Session 9A: Simons Auditorium

3:05 – 3:45 MfA master teacher fellowships: Professionalizing and honoring teaching

- **John Ewing** – Math for America
- **Darryl Yong** – Harvey Mudd College

Abstract: Math for America (MfA) is a non-profit organization whose mission is to improve mathematics and science education in US public secondary schools by building a corps of outstanding STEM teachers and leaders. Its Master Teacher Fellowships are designed to honor accomplished teachers and support them so that they can be leaders and serve as models for others. Implementations of the programs in New York City and Los Angeles will be discussed.

3:50 – 4:30 Developing teachers as professionals: The Park City Mathematics Institute Summer School Teacher Program

- **Gail Burrill** – Michigan State University
- **Darryl Yong** – Harvey Mudd College

Abstract: The Summer School Teacher Program at the Park City Mathematics Institute (PCMI), a program of the Institute for Advanced Study, offers a three-week residential professional development experience for school teachers. Since 2001, the program has been designed to help teachers deepen their mathematical content knowledge, reflect on their teaching practice, and become resources for their colleagues. We will describe the nature of the professional development and how it differs from most other approaches, how the program has evolved over the years and how it has impacted the careers of teachers who have gone through the program.

Session 9B: Baker Boardroom

3:05 – 3:45 Focus on Mathematics

- **Glenn Stevens** – Boston University

Abstract: Focus on Mathematics (FoM) (http://www.focusonmath.org) is a collaboration of mathematicians with teachers that is the centerpiece of a community of mathematical practice that has been evolving for over two decades in the Boston area. An important goal of the FoM community is to close the gap between school mathematics and mathematics as a scientific discipline, by supporting a culture in which practicing mathematicians and secondary teachers work together to improve both high school and university mathematics education.

A distinctive feature of the Focus on Mathematics partnership is its commitment to the creation of authentic mathematical experiences that are accessible and relevant to the professional work of teachers. Examples include: Math for America Boston's Mathematical Practices Seminars, school-based study groups, colloquia, mathematics immersion experiences for teachers (www.promys.org/pft), mathematics fairs and Expo for students, as well as a mathematics-focused masters degree programs (http://www.focusonmath.org/programs). All of these programs are designed to support mathematical habits of mind that are typical of seasoned researchers, including experimentation, and the development of keen skills of observation, to reveal sometimes unexpected underlying structures.

The talk will describe the FoM community and its philosophy, outline some of its programs in teacher preparation and professional development that address the recommendations of MET-II, and discuss some ideas for the next phase of the worka professional graduate school, developed in collaboration with expert mathematics teachers. Audience participation will be encouraged.

3:50 – 4:30 MSRI's Mathematical Professional Development Institute

- **Hung-Hsi Wu –** U. California, Berkeley

Abstract: The MPDI was offered each July at MSRI from 2006–2013. It always lasted three weeks, 8:30–4:30 each day, and was devoted to a systematic presentation of the K–8 mathematics curriculum in a way that is (1) *mathematically correct* and (2) *usable in the appropriate grades*. There were daily homework assignments, and the institute was supplemented by five follow-up Saturday sessions throughout the succeeding school year. There were three kinds of institutes: (a) **Elementary** (whole numbers, fractions, number theory), (2) **Pre-algebra** (fractions, rational numbers, congruence and similarity, length, area, and volume), (3) **Algebra** (use of symbols, linear equations, and quadratic equations).

Session 9C: Space Sciences Lab Addition Conference Room

3:05 – 3:45 Math Teachers' Circles: Building mathematical communities of teachers and mathematicians

- **Matthias Beck**, San Francisco State U.
- **Brian Conrey** – AIM
- **Brianna Donaldson** – AIM
- **Diana White** – U. Colorado, Denver

Abstract: Math Teachers' Circles are professional development communities of middle or high school mathematics teachers and mathematicians who meet regularly to work on interesting mathematics. They provide a natural, low-cost avenue for mathematics departments to engage in ongoing, mathematically focused teacher professional development while at the same time building long-term, inclusive communities of teachers and mathematicians. Math Teachers' Circles are among only a handful of professional development models recommended by the Conference Board of the Mathematical Sciences (CBMS) Mathematical Education of Teachers II (MET2) document. Research has begun to demonstrate their benefits for teachers' confidence, knowledge, and teaching of mathematics.

Since 2007, nearly 60 Math Teachers' Circles have gotten their start at "How to Run a Math Teachers' Circle" workshops, organized by the American Institute of Mathematics (AIM) and sponsored by the National Science Foundation and the National Security Agency. AIM also organizes the Math Teachers' Circle Network, which provides resources and logistical support to Math Teachers' Circles across the U.S. With each Math Teachers' Circle reaching 15 to 20 teachers annually, the program now has an impact on approximately 100,000 students across the country each year.

3:50 – 4:30 NebraskaMATH

- **Tom Clark** – University of Nebraska-Lincoln
- **Jim Lewis** – University of Nebraska-Lincoln
- **Tom Marley** – University of Nebraska-Lincoln
- **Wendy Smith** – University of Nebraska-Lincoln

Abstract: With support from two NSF Math Science Partnership grants, the University of Nebraska-Lincoln has created a substantial graduate education/professional development program for mathematics teachers. In Summer 2014, we will offer 50 courses for mathematics teachers and anticipate more than 900 course registrations. We will report on the development of the program, discuss teaching teachers from the perspective of a mathematics faculty member and a graduate student, and report on research into teacher knowledge and student achievement.