Presenter(s)	**Project**	**Topic**	**Abstract**	**Date**
Ruth Parker and Rachel Cochran	Greater Birmingham Mathematics Partnership	Learning Together: A K-20 Partnership to Improve Mathematics Education	This session will focus on how university mathematicians, engineers and teacher educators who are part of the Greater Birmingham Mathematics Partnership participated alongside K-12 teachers as learners in 9-day mathematics content courses, the impact of the courses on university faculty, and the multi-faceted partnership that has resulted.	Friday
Iris Weiss	KMD	Lessons Learned about the Involvement of STEM Faculty in Deepening Teacher Content Knowledge	A session on **Lessons Learned about the Involvement of STEM Faculty in Deepening Teacher Content Knowledge** will be based on the work of the MSP Knowledge Management and Dissemination project. Participants will be asked to react to a number of statements about what is known about deepening teacher content knowledge, and in particular the role of STEM faculty. MSP projects will have an opportunity to learn from one another, and the examples they describe will enrich the information to be shared with the broader field.	Friday
Barbara Biglan	MSP of SW Pennsylvania	The impact of MSP involvement on IHE STEM Faculty pedagogy	In the SWPA MSP, the IHE STEM faculty have many opportunities for engagement in the work of the partnership. Each of the four partner IHEs has a leadership team which meets to discuss the status of its institutional involvement and to examine and discuss issues of sustainability and application of MSP activities at their campus. The Teacher Leadership Academies held each summer to engage teams of k-12 teachers also involve facilities and faculty at all four campuses. Working with the academies helps IHE faculty improve their own classroom teaching as they grow in the ability to engage their students in inquiry-based and standards-based instruction. STEM faculty have also worked with Teacher Fellows on sabbatical from their school districts to review and revise the college level courses experienced by pre-service math, science, and elementary teachers.	Friday
Victor Donnay	MSPGP	Pedagogy Seminar for Math and Science Faculty: A Vehicle for Change	How to bring about change in teaching practices of Higher Ed math and science faculty? This session will describe an approach taken by the Math Science Partnership of Greater Philadelphia: engage faculty from grades 6-16 in a monthly pedagogy seminar focusing on new advances in learning theory and on formative assessment. As the seminar progresses, participants are required to try techniques of formative assessment in their teaching and report back to the group what they did and how it went. Initial assessment of the effect of the seminars is	Friday

			positive: participants have continued using these new pedagogical approaches in their teaching after completion of the seminar.	
Jan Kettlewell, Sabrina Hessinger, Charles Kutal	PRISM	Developing a Reward Structure for Higher Education Faculty Involvement in K-16 Student Learning	PRISM (Partnership for Reform in Science and Mathematics) is a comprehensive Math Science Partnership in Georgia. Before the project began, the importance of higher education SM faculty involvement in K-16 student learning was not adequately recognized in the workload/salary and tenure/promotion policies of the state's colleges and universities. If PRISM was to succeed, then changes to the faculty reward system were needed. In this presentation we describe efforts to design and implement these changes through new state-level **policy**, and equally important, through strengthening of **cultures** within each institution that encourage and value work to improve K-16 student learning.	Friday
William Schmidt and Simon Billinge	PROM/SE	An Overview of the PROM/SE Science Expert Deliberations on and Organizational Framework for the School Science Curriculum	Over the past year, the PROM/SE MSP has convened a group of research scientists to specify an organizational framework for the school science curriculum by identifying over-riding themes that can help children learn and teachers teach science better. The goal is that these themes would be the focus of what is to be learned by all children. The particular topics or stories by which these themes would be addressed in the curriculum become secondary and need not be common for all school curricula. The group's efforts were informed by the AAAS and NRC science standards. This session reports on the results of these consultations and presents recommendations and guidelines for creating a coherent and focused science curriculum for k-12 schools, students, and teachers.	Friday
Diane Resek	Revitalizing Algebra (REAL)	Using Faculty Expertise to Gain Depth vs. Breadth	Instead of using faculty expertise to teach more advanced or more abstract topics, we used faculty to facilitate work on rich problems that are accessible at the school algebra level but that can be extended to deeper levels. We will share some of the problems and the rationale.	Friday
Eunice Krinsky	SCALE	How the Process of Engaging STEM Faculty in SCALE Work Became the Product	University Physics, Earth Science and Mathematics faculty along with Los Angeles Unified School District science expert teachers will share their experiences in working collaboratively in the co-development and professional development co-facilitation of teaching units for K-12 classrooms. Faculty will reflect on the impact this work has had on their own professional development and the instruction in their undergraduate teacher pre-service content courses. This session will be enriched by a follow-up session (Promises and Challenges of Engaging STEM Faculty in the SCALE MSP) relating the research findings on this work.	Friday

Richard Voss and Heinz-Otto Peitgen	Standards Mapped Graduate Education and Mentoring	GeoGebra – free dynamic mathematics software	GeoGebra is a unique, free, multi-platform tool that combines dynamic geometry, algebra, and calculus in one easy-to-use package for mathematics education. Students from middle school through college can use it in their classroom as well as at home. Teachers may use it for classroom demonstrations, assignments, or to create interactive web pages. Development and extension of GeoGebra by STEM faculty is continuing as part of our MSP Institute. GeoGebra is used by STEM faculty and teacher leaders as a major component of our teacher education efforts. See http://www.geogebra.org	Friday
David Pagni and Diane DeMille	TASEL-M	Professional Development for Mathematics Leaders: Lessons Learned from Teachers Assisting Students to Excel in Learning Mathematics (TASEL-M)	Professional learning communities (PLC's) are the means through which teacher leaders facilitate dialogue and action among teachers with the common goal of improving their schools' mathematics programs. Lessons learned through the TASEL-M project partnering with four low performing high schools, their feeder middle schools, and California State University, Fullerton mathematics faculty will be shared. STEM faculty work closely with K-12 teachers to develop and refine their PLC's in addressing pedagogy, content, and mathematics knowledge for increased student motivation and achievement.	Friday
Marilyn Strutchens and Steven Stuckwisch	TEAM-Math	Getting Education and STEM Faculty on the Same Page	This session focuses on a series of seminars that have been conducted at Auburn University to help develop a common vision for preservice and inservice mathematics education among mathematics education and STEM faculty members involved with the MSP (TEAM-Math). The seminars have focused on research and activities related to teachers' pedagogical content knowledge, reform curricula across the grades, and content courses for both elementary and secondary teachers.	Friday
Kimberly Childs	Texas Middle and Secondary Math	What happens after the MSP? Next Steps…a STEM Learning Center	Reflections on a successful MSP project cause us to think ahead to the sustainability of the project goals. In so doing, the College of Science and Mathematics at Stephen F. Austin State University has determined to embed the Texas Middle and Secondary Mathematics Project MSP goals and objectives into the SFA STEM Learning Center. This center will be designed to research, develop, implement and disseminate best practices in STEM education as STEM faculty at SFA consolidate their efforts toward interdisciplinary degrees, integrated project-based learning, and seamless K - 16 curricula. Plans are underway.	Friday

Patricia Baltzley	UMBC-BCPS	Analyzing Data Related to Bridging High School and University	We will share how STEM Faculty, Education Faculty, and School District math administrators and teachers examined data related to student placement and performance in mathematics courses at University of Maryland Baltimore County to discuss how to build bridges from high school to university coursework and expectations.	Friday
Nancy Shapiro	VIP K-16 and CASHE	Transforming Faculty Roles and Reward Systems in MSPs into Sustainable Practice in Higher Education	This interactive session will feature a facilitated discussion about the range of roles and rewards structures that MSPs have created and used to engage STEM higher education faculty in project initiatives. The resulting impact that MSPs have had on campus culture, faculty policies, and institutional priorities among participating colleges and universities will be explored. Participants will be challenged to think about ways in which the MSP community can ensure that the best of these changes and innovations endure beyond the life of these grants and become part of the culture of higher education.	Friday
Harriett Lamm, Lee Sloan	AIMS PreK-16	Focused Mathematics Professional Development Results in Student Achievement Gains	Results from The Alliance for the Improvement of Mathematics Skills – PreK-16's (AIMS) goal which focuses on teacher professional development and its affects on student achievement appear to indicate student achievement increases. Offerings based on TEXTEAMS and the state mandated mathematics skills were provided by mathematics faculty, AIMS Mathematics Specialists, and others. College and university STEM faculty have conducted some of these sessions for P-12 as well as sessions developed for college-level mathematics instructors. They were involved in conducting teacher observations, participated in region-wide focus sessions on mathematics achievement, course sequencing, etc. The Mathematics Specialists also provided additional support to the engaged P-12 teachers.	Saturday
John Yopp	AMSP	Multiple Faculty Roles in K-12 Mathematics and Science Education	The Appalachian Mathematics and Science Partnership (AMSP) is a comprehensive, integrated initiative of 10 institutions of higher education (IHEs), 56 schools districts, and the Kentucky Science and Technology Corporation in the central Appalachian region of KY, TN, VA, and WV. The session will feature a brief overview of the project including its investments in pre-service and in-service teacher enhancement, school improvement, and the evaluation of partnership driven pre-service courses and in-service institutes. STEM faculty from these institutions have partnered over the past 4 years with K-12 teachers in the development, collaboratively, of pre-service courses in mathematics and science, in-service professional development and are involved in partnering with AMSP school districts in developing and implementing Partnership Enhancement Projects	Saturday

			(PEP). STEM faculty from AMSP partner IHEs and AMSP Outreach Professors will discuss their involvement in the activities as they pertain to the roles mentioned above.	
Brendan Foreman	Cleveland MSP	Assessing Critical Thinking in P-12 Mathematics Classes	A particular challenge facing current P-12 mathematics teachers is incorporating higher-order thinking in their classrooms. In this breakout session, we will discuss how current mathematics teachers are assessing their students' higher-order thinking and how as faculty members we help both current and pre-service mathematics teachers to incorporate this assessment in their classrooms. Some of the key questions addressed will include: • What specific critical thinking skills are being assessed? • How do we use assessment in the classroom to foster critical thinking? And, how much do we need to scaffold our lessons for this? • How do we balance the need for critical-thinking assessment with the need for content assessment?	Saturday
Glenn Stevens et. Al	Focus on Mathematics	Mathematicians and school-based mathematical cultures	The *Focus on Mathematics* Partnership engages seventeen mathematicians including fourteen STEM faculty in a spectrum of activities ranging from study groups, summer programs, a new Masters Degree, student math fairs, curriculum review, seminars, and colloquia. This is lively, engaging, and satisfying work for mathematicians. In this presentation we will describe samples of our work and discuss both successes and challenges we have faced in building mathematical communities spanning schools and universities and devoted to strengthening student achievement. We will leave plenty of time for discussion and sharing of ideas by all present.	Saturday
Joy Frechtling	MSP Management Information System	Measuring Impacts on Institutions of Higher Education—Where are we?	Increasingly, MSP's are recognizing that their partnerships are influencing the culture and nature of teaching at participating institutions of higher education. It is important to be able to document and evaluate the changes that are taking place. The purpose of this session is to discuss how such documentation might take place. What specific changes should be examined, what kinds of evidence should be collected, what measures and other tools can be used to carry out such evaluation?	Saturday

Deborah Pomeroy	MSPGP	The Effects of MSP Work on STEM Faculty	This session provides a framework for examining pushback effects of MSP-related work on STEM professors in terms their teaching, their professional careers and even their research. The session will be a forum for participants to discuss their experiences either as STEM professors themselves or as MSP staff faced with the challenges of engaging STEM professors in educational improvement both in k-12 schools and in their own institutions. What kind of positive effects occur and under what circumstances? What are the factors that constrain STEM faculty's deep engagement in educational reform? What can we learn about maximizing the benefits of this work?	Saturday
Anne Papakonstantinou, Richard Parr et. Al	Rice University Mathematics Leadership Institute	Bringing Together Professor, Graduate Student, and Teacher via Challenging Mathematics Curricula	Through the development and enactment of challenging curricula that focused on participants doing mathematics as mathematicians do, the Rice University Mathematics Leadership Institute impacted faculty, graduate students and lead-teacher participants. Faculty facilitated collaborative learning rather than providing direct instruction. Graduate students gained curriculum-development and pedagogical knowledge by creating assessments, curricular materials, and facilitating learning. Lead teachers experienced a problem-solving learning experience transferable to their classrooms. Through their experiences, these separate groups became members of a coherent professional learning community.	Saturday
Carole Basile Doris Kimbrough (?)	RMMSMSP	STEM, Education, and K-12 Faculty: A Co-Teaching Model In Action	The Rocky Mountain Middle School Math and Science Partnership provides 16 content-based courses and 16 pedagogical-content based courses to middle level teachers in seven school districts in the Denver metro area. Each course is co-taught by a STEM, Education, and K-12 faculty member. STEM faculty have been active in the development and instruction of each course. STEM faculty also represent four different institutions of higher education. This session will discuss how STEM faculty participate in the courses, their role, and their reflections.	Saturday
Susan Millar	SCALE	Promises and Challenges of Engaging STEM Faculty in the SCALE MSP	This talk presents findings from SCALE case studies of three IHE partners. Findings include initial effects of SCALE on: STEM faculty's instructional practice and participation in pre-service programs and K-12 professional development; and institution-level policies and practices. We discuss differences between research and comprehensive IHEs, the impact of teacher preparation pathways, and effects of disciplinary cultures, and of IHE/K-12 co-construction of professional development curricula. Our case studies use a conceptual framework adapted from cultural ecology that we offer as a model for evaluating STEM education reform programs in ways that attend closely to how contextual variables affect individual projects.	Saturday

Osman Yasar	SCOLLARCITY	Best Practices in STEM Education	Integrated approach to STEM education is an effective method to facilitate partnership among faculty and subject areas. It is important to discover new ways to realize such partnership and encourage them as 'best practices' in the field. Interdisciplinary programs, team-teaching, joint appointments, new technologies for classroom instruction, and use of mathematical modeling and computer simulations are just few examples. While hearing from others about their own practices, we will share how MSP is promoted at SUNY Brockport as a best practice in tenure process and College's Strategic Plan. SUNY Central has now dedicated an Empire Professorship to sustain the MSP practice.	Saturday
Joni Falk	TERC MSPnet	Using MSPnet for collaborative work the partners and constituents	This interactive session will explore how your project can use your MSPnet project space to create vibrant online communities of practice with partners, vertical teams, or with your participants. Each of these communities can share discussions, files, surveys, pre- and post assessments, and events. We will also discuss how you can use MSPnet as an effective dissemination tool to share your projects' research, accomplishments, vignettes and story.	Saturday
Chrissy Jacobs	University of Pennsylvania Science Teacher Institute	Issues, Challenges and Triumphs: Engaging STEM Research Faculty in Teacher Education	This interactive session will explore the individual perspectives of STEM faculty about their involvement in teacher education programs. Starting with an overview and reflections on the Penn STI by administrators and faculty members, facilitated small group discussions will then focus on questions of instructional context, motivation, and the process of learning to teach. By hearing from the diverse STEM educators involved in the varied MSP projects, we hope to better understand how both the individual and the institution are affected by the MSP relationship, and to derive lessons about how the work of STEM faculty can best be supported and extended.	Saturday

JOB-ALIKE SESSIONS

Discussion Topic	**Facilitators**	**Date**
Distance Learning	Paul Eakin	Friday
Lesson Study in MSPs	Nancy Bunt	Friday
STEM Faculty – Recruitment/Sustaining Commitment	Mike Jacobson, Don Langenberg and Mel George	Friday
Evaluation Methods and Tools	Jill Feldman and Jennifer Frank	Saturday

Institute Partnerships	Heinz-Otto Peitgen	Saturday
Principal Investigators – Roles/Responsibilities/Challenges	David Burghardt, Nancy Shapiro and David May	Saturday
Sustainability—What will live on after NSF Funding ceases?	Kurt McMullin and Judi Fonzi	Saturday