MRSEC Education Directors Network
September 30, 2011
Chicago, Illinois
University of Colorado Host Institution
AGENDA

Meeting Goals:

1. Increase the community's knowledge of STEM education research and diversity issues.
2. Review MRSEC logic models (K-12 Students, Public Interactions, K-12 Teacher Professional Development, Undergraduate Students, Graduate Students)
3. Address evaluation efforts next steps
4. Address communicating MRSEC Education Network efforts with wider communities.

8:00 – 8:30	Refreshments and Networking
8:30 – 8:45	Introductions: NSF Program Officer(s), Christine Jones and Christine Broadbridge,

Education and Diversity Session

8:45– 9:45	Speaker: Mel Sabela, Professor - Chicago State University Topic: Using Physics Education Research to Build an Understanding of Student Thinking
9:45– 10:15	Speaker: Jay Dubner, Columbia University Topic: RET Programs = Increased Student Achievement
10:15 – 10:30	Break

Young Researchers Panel

10:30 – 10:50	Panelist: Dr. Lauren Kost-Smith – University of Colorado at Boulder Topic: Addressing Gender Differences in Introductory Physics with Values Affirmation
10:50 – 11:10	Panelist: Dr. John Almarode - James Madison University Topic: Can Science Wait? The Association between Time Allotted for Science in Elementary School and Science Achievement.
11: 10 – 11:30	Panelist: Dr. Cary Supalo – Purdue University Topic: Promoting Hands-on Science Learning Experiences for Students with Blindness or Low Vision in STEM Laboratory Classes
11:30 – 12:30	Catered Lunch and Networking

Evaluation Session

12:30 – 1:15	Speaker: Robert Tai, Professor University of Virginia Topic: An Examination and Formulation of a New Conceptual Framework for Measuring Students' Interest and Engagement in Science

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1:15 – 1:35	Orientation and review of Logic Model Breakout Groups K-12 Students, Public Interactions, K-12 Teacher Professional Development, Undergraduate Students, Graduate Students Leader: Dan Steinberg
1:35 – 1:50	Review of Evaluation of Efforts Undergraduate Summer Research Experiences K-12 Students Netway
1:50 – 2:10	Logic Model Small Group Discussion Topics: What are the nest steps for cross- site evaluation for each group targeted in our logic models? Summarize the group's recommendations.
2:10 – 2:35	Small group report out, whole group discussion, potential action items Leader: Christine Broadbridge
2:35 –2:50	Break
2:50 – 3:15	Network Focus Areas Small Group Discussion (Education, Evaluation, Diversity) Topics: How can we communicate the MRSEC Education Network efforts with wider communities? (e.g. MRS, NSF JAM-Joint Annual Mettting and other professional societies, publications, local level efforts) Summarize the group's recommendations
3:15 – 3:30	Small group report out, whole group discussion, potential action items Leader: Christine Jones
3:30 – 3:45	Nominations and Election for MRSEC Education Co Chair Wrap-up

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Biographical Sketches

Mel Sabela, Professor - Chicago State University
Topic: Using Physics Education Research to Build an Understanding of Student Thinking

Mel Sabella is a Professor of Physics at Chicago State University whose interests focus on improving STEM education for underrepresented students. He is currently serving as interim chair of the Chemistry and Physics Department at CSU. Sabella has just completed an NSF – Course, Curriculum, and Laboratory, Improvement project that integrated diverse research-based instructional material in the introductory urban physics classroom. He also developed the Physics Van Inservice Institute, part of a project supported by the Illinois Board of Higher Education that supports practicing teachers through professional development and an equipment lending service. Currently, Sabella is a Co-PI on an NSF-Noyce grant that focuses on the professional nature of teaching and supports preservice students pursuing science certification. As director of the CSU PhysTEC Project, he works toward the recruitment and preparation of future physics teachers. Sabella earned his PhD in Physics Education Research from the University of Maryland in 1999. After attending the University of Maryland, he began a position as a postdoctoral research associate with the Physics Education Group at the University of Washington. He has published papers on physics education in the Physics Teacher magazine, the 2002, 2003, 2008, and 2010 PER Conference Proceedings, the Physics Education Research Supplement to the AJP and the 2008 Proceedings of the American Society for Engineering Education. He is currently the President of the Chicago Section of the AAPT, a member of the AAPT committee on Research in Physics Education, and a member of the APS Committee on Minorities. In 2008, Sabella co-organized the Physics Education Research Conference that focused on Diversity in Physics Education Research.

Robert Tai, Professor - University of Virginia
Topic: An Examination and Formulation of a New Conceptual Framework for Measuring Students' Interest and Engagement in Science

Robert H. Tai is an associate professor of science education at the Curry School of Education at the University of Virginia. His educational background includes BS and BA degrees in physics and mathematics from the University of Florida, and MS in physics

from the University of Illinois at Urbana-Champaign. After leaving graduate school in physics, he entered the Teacher Education Program at the University of Illinois and became a certified physical science teacher. He then taught physics for three years in grades 7, 8, 9, 11, and 12 at schools in LaGrange, IL and Wichita Falls, TX. In 1993, he entered the Harvard Graduate School of Education, and in 1998, he graduated with an Ed.D. He then took an assistant professorship at the College of Staten Island of the City University of New York from 1998 – 2001. He has been at the Curry School since 2001. He focuses his work primarily in the area of scientific workforce development from an educational perspective. His most current research includes studies on the graduate research and educational experiences of physical scientists and biomedical researchers; science interest and engagement among middle school students; understanding and evaluating the effectiveness of informal science education programs; and examining the effectiveness of specialized science, mathematics, and technology high schools, among others. His research studies have been sponsored by the *National Science Foundation*, the *National Institutes of Health*, the *Robert Noyce Foundation*, and the *S. D. Bechtel, Jr. Foundation*. He has published research in the journals *Science*, *Science Education*, *International Journal of Science Education*, the *Journal of Research in Science Teaching (JRST)*, and the *Journal of Chemical Education*, among others. He served on the *Harvard Educational Review* as an Editorial Board member from 1995-1997 and as the Booknotes Editor from 1996-1997. He is currently an Editorial Board Member (2011-2014) of *JRST*. In 2008, he was recognized by the *Council of Scientific Society Presidents* with the Education Research Leadership Award.

Jay Dubner, Columbia University
Topic: RET Programs = Increased Student Achievement

Jay Dubner joined Columbia University's *Summer Research Program for Secondary School Science Teachers* in 1993 as the Program's Coordinator and Master Teacher. In.
From 2006-10, Mr. Dubner was the Program Coordinator for the NSF Engineering RET Site Award, Columbia Engineering School Research Experiences for Teachers Program (CESRET). From 1997-2002 he was Co-Director for the New York-New Jersey *Partners in Science Program*. Responsibilities included recruitment of high school chemistry teachers and academic chemists for research partnerships at six academic research institutions in the New York-New Jersey area. From 1998-2002 he was the Project Coordinator of the National Science Foundation-funded SWEPT multi-site student outcomes study. In 2002 Mr. Dubner was one of the key organizers of the first NSF-funded RET national Conference. Following the success of the 2002 national meeting, Mr. Dubner co-organized the 2003 and 2004 national RET meetings. He was an advisor for NOAA's 2010 Teacher Research Experience conference. Prior to joining Columbia University, Mr. Dubner was employed for 20 years by the New York City Department of Education in many capacities, including special education classroom teacher and administrator. In November 2004 Mr. Dubner traveled to Singapore, as a guest of the Singapore government, to assist the Singapore Ministry of Education in replicating

Columbia's *Summer Research Program for Science Teachers*. Mr. Dubner provided his expertise in the development and launching of their teacher research program. Since that time, Columbia's Summer Research Program has partnered with the Singapore Ministry of Education for an annual exchange of science teachers. In 2007, Mr. Dubner formed a partnership with James Cook University (JCU) in Queensland, Australia. Two Summer Research Program 'graduates' participate in research at JCU from early July into early August. He earned his Bachelors Degree from Long Island University, Masters Degree from C.W. Post College and post-graduate degree in School Administration and Supervision from Brooklyn College. Mr. Dubner is the Board of Trustees President for the Medical Center Nursery School on Columbia University's Medical Center Campus and is the Board of Directors Treasurer for the National Children's Music Project.

Young Researchers Panel

Dr. Lauren Kost- Smith
Topic: Addressing Gender Differences in Introductory Physics with Values Affirmation

Dr. Kost-Smith recently graduated from the University of Colorado at Boulder with a PhD in physics. Her graduate work, which focused on physics education research, examined gender differences in performance, psychological factors, and attitudes and beliefs about physics among students in introductory physics courses for science and engineering majors. She is currently a master's student at Northwestern's School of Education and Social Policy, working towards secondary science teacher certification.

Dr. John Almarode- James Madison University
Topic: Can Science Wait? The Association between Time Alloted for Science in Elementary School and Science Achievement.

Dr. Almarode has worked with all age groups in education from pre-kindergarteners to graduate students. He began his career in Augusta County, Virginia teaching all ability-levels of high school science and mathematics. He then taught Pre-Calculus, Physics, and Modern Physics at the Shenandoah Valley Governor's School, a STEM magnet program, for three years. While at the Governor's School, a significant proportion his time was devoted to providing outreach and enrichment activities to Pre-K through eighth grade students. John has presented workshops locally, regionally, nationally, and internationally focused on fostering interest and engagement in the K-12 classroom. He has worked with thousands of teachers, dozens of school districts and multiple professional organizations. John earned his Ph.D. in Science Education from the Curry School of Education at the University of Virginia. This fall, he will join the faculty at James Madison University in the College of Education. There he will continue his work with pre-service teachers, in-service teachers, and pursue his research interests. He lives

in Waynesboro with is his wife Danielle, a fellow educator and their two dogs, Angel and Forest. They are expecting their first child this fall.

Dr. Cary Supalo
Title: Promoting Hands-on Science Learning Experiences for Students with Blindness or Low Vision in STEM Laboratory Classes

Dr. Supalo is an active member of the National Federation of the Blind since he graduated from high school in 1993. This discovery of a nationwide network of blind persons inspired him to want to be all that he can be. Through encouragement from friends and faculty members at Purdue University, he was encouraged to study Chemistry. This passion that he developed for Chemistry was further facilitated by his involvement in the Alpha Chi Sigma fraternity in 1997. Since 2005, he has served as chairperson of the Alpha Chi Sigma Special Needs Committee. This position has given him the opportunity to work with current and future Science, Technology, Engineering, and Mathematics (STEM) professionals to promote activities designed to educate the community regarding the abilities of persons with disabilities and how they can contribute to the sciences.

He is involved with the American Chemical Society's Chemists with Disabilities committee. Through this involvement he had the pleasure of working with other chemists with varying disabilities and has learned a great deal from this experience. He has been working with chemists to provide accessibility solutions to insure persons with disabilities are not marginalized in their profession.

He graduated with a BS in Chemistry from Purdue in the spring of 1999, and started his graduate studies at Penn State that fall. While at the Pennsylvania State University, he received a PhD in Chemistry Education with a focus on developing accessible tools for a curriculum for the blind and visually impaired secondary and post-secondary students studying chemistry. His doctoral dissertation was part of the Independent Laboratory Access for the blind. It led to the inception of Independence Science, LLC. This is the first company specializing in developing technologies to enable blind and low vision students to have hands-on access in the science classroom.