

**International Teacher-Scientist Partnership Conference**  
**February 13-14, 2013**  
**Hynes Convention Center**  
**Boston, MA**

**Agenda**

**Wednesday, February 13**

**7:30-8:45 am**                    **Registration**  
Level 3  
Boylston Street Hallway

**Room 304/306**                    **Continental Breakfast**

**8:45-9:00am**                    **Welcome**  
**Room 304/306**  
*Katherine Nielsen, Science & Health Education Partnership, University of California, San Francisco (UCSF)*  
*Betty Calinger, Education and Human Resources, American Association for the Advancement of Science (AAAS)*  
*Kathleen Bergin, Division of Undergraduate Education, National Science Foundation (NSF)*

**9:00am-10:15am**                **Opening Plenary**  
**The Role of Partnerships in Science Education**  
*M. Suzanne Donovan, Executive Director, Strategic Education Research Partnership Institute*  
*Shirley Malcom, Head, AAAS Education and Human Resources*  
*Heidi Schweingruber, Deputy Director, Board on Science Education, the National Research Council*

**10:15-10:30am**                **Break**

**10:30am-Noon**                **Small Group Presentations**

**Room 201**                        **Preparing Scientists to Support Science Teaching and Learning**  
*Jennifer Kaelin, Jean MacCormack, Lakisha Witzel, Brittany Anderton, and Charlie Morgan, Science & Health Education Partnership, UCSF*  
There is a growing appetite for outreach by STEM professionals but without preparation that enthusiasm can quickly turn to anxiety for the adult and boredom for the students. Typically, STEM professionals have not developed the skills to teach hands-on lessons and do not have knowledge of youth development or experience in diverse classrooms. Learn about UCSF's model for preparing scientists to work with K-12 students and teachers.

**Room 203**                        **Strategies for Successful Teacher-Scientist Partnerships**  
*Teresa Barnett, Sandra Lee-Takei and Ralitza Zikatanova, Community Resources for Science*  
*Jessica Garrett, Carolyn Zeiner, Leilani Roser, and Peg LeGendre, Cambridge Science Festival/MIT Edgerton Outreach Center*  
*Becca Hatheway, University Corporation for Atmospheric Research; Jesse Oswald, Fossil Ridge High School*  
*Margaret Meserve and Susan Hillman, University of New England*  
Establishing new relationships is exciting, but sustaining a new project after the initial glow can be a challenge. This session will highlight several different partnership models and will share strategies for building structures, roles, and partnerships that are flexible and built to last.

**Room 204****Citizen Science in Partnerships**

*Heather Deese, Ruth Kermish-Allen, and Rachel Thompson, Island Institute*

WeatherBlur is a non-hierarchical online learning community funded by the National Science Foundation to engage students, fishermen, and scientists in data-driven investigations of climate change in their local communities.

*Patrick Miller, International Astronomical Search Collaboration*

*C.R. Pennypacker, Lawrence Berkeley National Laboratory*

The International Astronomical Search Collaboration is a worldwide partnership of teachers and professional astronomers to support asteroid discoveries by high school and college students. Working in 500 schools in 60+ countries has led to students making 550 asteroid discoveries.

*Daniel Capps, Thanh Le, Jonathan Shemwell, and Ashley Young, University of Maine*

*Sarah Kirn, Gulf of Maine Research Institute*

In Vital Signs, grade 3-12 students construct arguments about the presence of native and invasive species. Researchers from the Gulf of Maine Research Institute and the University of Maine investigated student reasoning in species identification in this student-scientist partnership.

**Room 206****Building Industry-Education Partnerships to Improve STEM Education**

*Comfort Akwaji-Anderson and Meghan Reynolds, Iowa Mathematics and Science Education Partnership and the Iowa Governor's STEM Advisory Council*

*Jennifer Bruckner and Shari Liss, Industry Initiatives for Science and Math Education*

*Susan Parry and Lisa Hibler, Kenan Institute for Engineering, Technology and Science, North Carolina State University*

This session will provide useful and actionable information about three teacher fellowship programs, each operating in different parts of the country and designed to address their local unique needs. Presenters will share their program's history, best practices, challenges, and key success factors.

**Room 210****Curriculum Development through Teacher-Scientist Collaborations**

*Nicola Barber, Genetic Science Learning Center*

The Genetic Science Learning Center at the University of Utah creates curriculum supplements for grades 5-12 that are widely disseminated through the websites *Learn. Genetics* and *Teach.Genetics*. Our curriculum development workshops capitalize on the combined expertise of scientists, teachers and members of our team.

*Jennifer Collins, Consortium for Ocean Leadership*

We will share and discuss the collaborative process of teachers and scientists generating classroom activities designed to mirror the investigations of peer-reviewed science publications. We will share where to find such materials and how to modify existing materials using the Understanding Science web resources.

*Natalie Kuldell, The BioBuilder Educational Foundation*

*Aaron Mathieu, Acton-Boxborough Region High School*

Synthetic Biology is part Science, part Engineering, part Imagination and Design. Drawing from ongoing university research questions, scientists and teachers collaboratively developed authentically investigative and also teachable modules for biology and biotechnology classrooms.

**Noon-1:00pm**  
**Room 304/306**

**Buffet Lunch**

**1:00-1:50pm**

**Small Group Presentations**

**Room 201**

**CityLab: A Model Outreach Program Based on Educator-Scientist Partnerships**

*Carla Romney, Carl Franzblau, and Donald DeRosa, Boston University School of Medicine*

An historical perspective on 25 years of NIH SEPA-supported partnerships between pre-college educators and university scientists. Share in a discussion of approaches to partnerships including a proposal for a national Science Corps to leverage the Next Generation Science Standards and bring laboratory science to all.

**Room 203**

**Two Decades of Educator-Scientist Partnerships: Lessons Learned**

*Nancy Moreno and Barbara Tharp, Center for Educational Outreach, Baylor College of Medicine*

For the past 20 years, Houston scientists and educators have partnered to develop innovative teaching tools and instructional programs, teacher professional development, and science immersion experiences for precollege teachers and students. The team that developed the award-winning BioEd Online and K8 Science websites will discuss strategies to promote student and teacher learning gains and other changes, achieve stakeholder buy-in, document and evaluate activities, and sustain partnerships.

**Room 204**

**Collaboration: A Powerful Tool for Engaging Girls in STEM**

*Karen Peterson, National Girls Collaborative Project*

The National Girls Collaborative Project effectively supports collaboration and partnerships between girl-serving STEM organizations, professional associations, higher education, industry, and government across the country. In this session, participants will learn key elements of successful collaboration and will engage in several activities, including Speed Networking and Collaboration Action Planning.

**Room 206**

**Measuring Students' Science Attitudes**

*Susan Hillman and Stephan Zeeman, University of New England*

*Charlotte Regan, Buxton Center Elementary School*

Instruments measuring children's attitude toward science suffer from multiple issues. This presentation will lay out the development and testing of a new instrument that can be used to measure students' science attitudes. Items have been checked for validity and reliability, resulting in a 40-item survey that incorporates four categories: (1) Attitude toward the subject of science; (2) Desire to become a scientist; (3) Value of science to society; and (4) Perception of scientists.

**Room 210**

**Tried and True: Lessons Learned Roundtable on Teacher Research Experiences**

*Janet Warburton, Artic Research Consortium of the United States*

*Jennifer Hammond, NOAA Teacher at Sea Program*

*Louise Huffman, ANDRILL*

*Jennifer Collins and Sharon Katz-Cooper, Consortium for Ocean Leadership*

Imagine being on a ship off the coast of New England as the crew dumps thousands of scallops on the deck, searching the Greenland ice sheet for a remote weather station, or uncovering secrets to past climates as you join an ocean sediment drilling team in Antarctica. This is what hundreds of educators have done when participating in field-based Teacher Research Experience (TRE) programs. In this roundtable discussion, hear from nationally-recognized TRE program leaders about lessons learned and program results.

**2:00-2:50pm**

**Small Group Presentations**

**Room 201**

**Starting a Teacher-Scientist Partnership Program in a Resource-Limited Scenario**

*Mwananyanda Lewanika, Zambia STEM Education Centre*

As a developing country, what are the options for initiating sustainable teacher-scientist partnership programs? This session will reconnoitre ways countries with few numbers of scientists, science teachers and limited science facilities can introduce partnership programs.

**Room 203**

**Taking the Plunge: STEM in the Afterschool Setting**

*Meghan Groome and Kris Breton, New York Academy of Sciences*

Though out-of-school time settings are diverse and provide a variety of opportunities for scientist-educator partnerships, many scientists and partnership programs have not considered them as venues. In this session, we will discuss our four step training and support program that prepares young scientists to teach 4th thru 8th grade students in high poverty urban afterschool programs.

**Room 204**

**Braincandy: Utilizing Technology and Peer Learning to Improve Science Learning**

*Bryan Henderson, Stanford University*

*Ben Canning, Sequoia High School*

Braincandy is a non-profit that has resulted from multiple years of action research collaboration between Stanford University and Sequoia High School. This partnership empirically tested various methods of incorporating interactive technology and peer learning into science lessons, obtaining evidence supporting several best practices that can produce substantial learning gains.

**Room 206**

**Models for Medical School – High School Partnerships**

*Karina Meiri and Berri Jacque, Tufts University School of Medicine*

*Aimee Gauthier and Kathleen Bateman, Boston Latin School*

Since 2009 Tufts Medical School scientists have partnered with Boston Public School teachers in a professional learning community focused on designing Biology II curricula that emphasize authentic scientific practice and health literacy.

*Karen Quick and Tara Parker, Pitt County Schools*

*Brian McMillen, Brody School of Medicine*

*Jessica Mega, Harvard University School of Medicine and Brigham & Women's Hospital*

In this 28-year partnership between a school system, local medical school and health care community, students may participate in primary medical research or join a Health Sciences Academy. At the Academy, students are provided with hands-on experiences in research and healthcare.

**Room 210**

**Getting Started with Partnerships**

*Margery Anderson, Walter Reed Army Institute of Research*

*David Neagley, Northwestern High School*

*Houda Darwiche and Mary Jo Koroly, University of Florida Center for Pre-collegiate Education and Training*

How does one start a partnership? What are common pitfalls? Learn from two programs about starting partnerships including the recruitment of teachers and STEM professionals, development and coordination of programs, and their evaluation.

**Rooms 304/306**

**National Science Foundation Funding**

*Kathleen Bergin, Division of Undergraduate Education*

*Richard Boone, Division of Graduate Education*

*Dennis Schatz, Division of Research on Learning in Formal and Informal Settings*

Come hear about partnership funding opportunities at the National Science Foundation from Program Officers from different Divisions.

**3:00-3:50pm**

**Presentations**

**Room 201**

**NanoLab - Nanoscience & Nanotechnology from Research to Classroom Practice**

*Annamaria Lisotti, Guido Goldoni, and Valentina De Renzi, University of Modena, Italy*

Naturally linking fundamental science to actual and future technologies, nanoscale phenomena are an ideal playground for introducing cutting-edge research at the high school level. In the Nanolab Project, scientists and teachers have teamed up to embed nanoscience into classroom experimental practices and traditional curricula.

- Room 203**                    **An Intervention Model for Including Scientists in Teacher Professional Development**  
*Kevin Czajkowski, Janet Struble, and Mark Templin, University of Toledo*  
 How can scientists be encouraged to use a project-based approach for their courses for teacher leaders? Learn about various interventions implemented by the University of Toledo's Math and Science Partnership and discuss what has and hasn't worked.
- Room 204**                    **Empowering Teachers as Scientists and Graduate Students as Instructors**  
*Joanna Totino, Ardice Hartry, and Betsy Mitchell, Lawrence Hall of Science, University of California, Berkeley*  
 This session will expose participants to a partnership model where research scientists, graduate students and science educators provide professional development to elementary teachers. We will describe the unique way our model uses graduate students to present content and engage teachers in the process of science. Teachers learn to generate questions and design and conduct their own research, which increases their confidence and ability to teach science in the classroom. The graduate students gain confidence and learn to be better instructors.
- Room 206**                    **A Survey of STEM Educational Initiatives in Massachusetts: A State, Regional and Local Collaboration**  
*Marjorie Dennis, University of Massachusetts Lowell*  
*Keith Connors, Massachusetts Department of Higher Education*  
*Scott Morrison, Manchester Essex Regional School District*  
 By 2018, Massachusetts will need to fill some 300,000 STEM jobs. In response, it has created the STEM Pipeline Fund with the MA Department of Higher Education, K-12 schools, higher education institutions, business/industry and others working together to support the state STEM plan. This session will provide information on these partnership initiatives that connect all STEM educational initiatives in the state.
- Room 210**                    **A Look Back at the Impact of a Sustained Scientist-in-the-Classroom Program**  
*Jennifer Ufnar, Southern Vermont College*  
*Virginia Shepherd, Vanderbilt University*  
 In 2010, Vanderbilt University's Center for Science Outreach was awarded a two-year grant to conduct a comprehensive, retrospective study of ten years of its sustained Graduate STEM Fellows in K-12 Education (GK-12) program. A variety of research strategies were used to examine the impacts on all participants including Fellows, K-12 Teachers, and K-12 students. Results from this comprehensive study will be presented in this session.
- Rooms 304/306**            **Sustaining Teacher Research Programs**  
*Claire Duggan, Northeastern University*  
*Bonnie Harris, Georgia Intern-Fellowships for Teachers, Georgia Institute of Technology*  
 By drawing on lessons learned, this session will outline challenges and share solutions for sustaining teacher research programs. Attendees will be provided ideas for discerning "customers" interest and needs; recruiting teachers, faculty and sponsors; achieving financial sustainability; participatory governance; preparing teachers, scientists and industrialists to maximize the partnership's mission and goals; evaluating for effectiveness; retooling for continuing success; and marketing the partnership.
- 4:00-4:50pm**              **Small Group Presentations**
- Room 201**                    **Retirees and Senior Scientists in Partnerships**  
 Hear about and discuss different models for involving retirees as senior scientists in partnerships.  
  
*Jon Kettenring, RISE, Drew University*  
 RISE, the Research Institute for Scientists Emeriti, at Drew University is a 32-year old model for partnering undergraduates interested in scientific research with retired research scientists from industry.

*Christos Zahopoulos, RE-SEED, Northeastern University*

The RE-SEED program at Northeastern University, founded in 1991, seeks to improve student outcomes in STEM by preparing retired volunteer scientists, engineers and other STEM professionals to assist teachers in K-12 science classrooms.

*Don Rea, Senior Scientists & Engineers, AAAS*

The Senior Scientists and Engineers, an affiliate of the AAAS, consists of scientists, engineers and physicians who assist K-12 science and engineering teachers in the classroom.

*Moderator: Daniel Sullivan, RE-SEED, Northeastern University*

## **Room 203**

### **Creating Meaningful Collaborations Across Geographic Divides**

*Megan Candelaria and Jan Truchot, University of Wyoming*

Learn how the Science Posse is converting its in-classroom activities into formats which teachers across the state--or across the country--can use in their own classrooms. In addition, learn how you can utilize the latest technology to develop or update your own resources, either for classroom or outreach use.

*David Lally, Virginia Tech*

*Donna Volkmann, Fairfax County (VA) Public Schools*

The Partnership for Research and Education in Plants is situated at Virginia Tech, a rural land-grant university geographically distant from most of its partner high schools. This session will address the ways in which we have overcome the barriers of distance in order to provide meaningful collaborations between scientists and high school teachers and students.

## **Room 204**

### **UCSF iGEM Program: Team-based Science Education from the Classroom to the Laboratory**

*Veronica Zepeda, UCSF*

*David Pincus, Whitehead Institute-MIT*

*Saber Khan, LREI (Little Red School House & Elizabeth Irwin High School)*

The UCSF iGEM program is a team-based approach to science education, where students learn skills emphasizing collaboration, communication, critical thinking, and creativity. The program--a collaboration between UCSF researchers and a San Francisco high school biotechnology class--has created long lasting effects among the participants and contributed to the development of innovative curriculum.

## **Room 206**

### **Project-Based Learning and Partnerships**

*Jacob Adler and Luis Palacio, Indiana University-Purdue University Indianapolis*

*A.J. McAdams, Warren Central High School*

Learn how to incorporate grant writing, peer competition and patent research into high school science classes to promote real world skills that students can use in their future careers. Early career scientists and teachers partnered to develop such activities, designed to mimic real life situations.

*Sarah Clements, Tucson Unified School District*

*Michelle Hine, University of Arizona*

This session focuses on the collaboration between a University of Arizona GK-12 Applied Math Fellow and elementary school teachers in planning and implementing STEAM (STEM plus Arts)-focused Project-Based Learning opportunities for 4th/5th grade students. Learn how projects were developed and how connections between math, science, literacy, and the arts were created and sustained.

## **Room 210**

### **Fundraising 101**

*Nancy Moreno, Center for Educational Outreach, Baylor College of Medicine*

*Ann Chester, West Virginia University*

Hear from experienced leaders of partnership programs as they candidly share their fundraising strategies, stories, successes, and pitfalls. Federal, state, foundation and individual donor funding will be discussed.

5:00-5:30pm  
Room 304/306

**Plenary Presentation**  
**Creating University K-12 Partnerships**  
*Sonia Ortega, Division of Graduate Education, NSF*

5:30-7:00pm  
Room 304/306

**Reception**

---

## Thursday, February 14

7:30-8:30am  
Room 304/306

**Buffet Breakfast**

8:30-10:00am  
Room 304/306

**Plenary Session**  
**A Tour of Partnerships**  
*Claudette Bateup, Commonwealth Scientific and Industrial Research Organisation, Australia*  
*Jay Dubner, Columbia University*  
*Katherine Nielsen, Science & Health Education Partnership, UC San Francisco*  
*Christos Zahopoulos, Northeastern University*  
*Moderator: Sonia Ortega, Division of Graduate Education, NSF*  
What can we learn from four different and successful educator-scientist partnership models? Explore the commonalities and differences across these longstanding partnership programs as you hear about their history, programs, outcomes, and challenges.

10:00-10:15am

**Break**

10:15-11:45am

**Small Group Sessions**

Room 201

**Scientist-Teacher Partnerships and Teacher Professional Development**

Learn about two unique models partnering teachers and scientists in the development of professional development courses for teachers.

*Judith Morrison, Washington State University*

Developed through a partnership between a science educator and the head scientist at a research facility, this course was designed to allow science teachers opportunities to meet with scientists and talk to them individually and informally, become involved in discussions with scientists on a variety of topics, and get a first hand picture of what scientists do on a daily basis.

*Lakisha Witzel, Jennifer Kaelin, and Jean MacCormack, Science & Health Education Partnership, UCSF*

Learn about a model that builds on the expertise of teachers and scientists, bringing them together to design and teach a week-long course for other teachers.

Room 203

**Student Research in Collaboration with Scientists**

*Shannon Colton and Gina Vogt, Center for BioMolecular Modeling, Milwaukee School of Engineering*

In the SMART Team modeling program, students work closely with a local researcher to tell the “molecular story” of a protein under investigation. The students create physical models of proteins, which become tools used to present the molecular story in both a poster and oral

presentation format. We will describe the SMART Team program for students as well as the professional development program for teachers.

*Claire Hemingway and Catrina Adams, Botanical Society of America*

PlantingScience is a partnership model where scientists serve as online mentors to student teams conducting investigations. Join us to discuss how students, teachers, and scientists play out their roles in the virtual learning environment, and what mentor techniques effectively scaffold authentic student investigations.

*George Wolfe, Loudoun County (VA) Schools Academy of Science*

Students at the Loudoun County Public Schools Academy of Science (AOS) are required to design and carry out an "in-house," independent research project in science or math modeling during their junior and senior years. This workshop will delineate how students, with the help of AOS faculty mentors, choose topics, research the background, carry out the experiment and produce a publication quality paper.

#### **Room 204**

##### **Partnerships and University Outreach Efforts**

*Jane Horwitz, University of Pennsylvania*

*Kemi Jona, Northwestern University*

*Kevin Niemi, University of Wisconsin, Madison*

*Vicki May, Washington University in St. Louis*

Increasingly, institutions of higher education are finding that having an office dedicated to establishing and maintaining relationships with K-12 teachers and students can be a valuable asset and a wise investment. In this session, representatives from four such initiatives will lead a conversation with participants, focusing on both the context for and the function of their outreach efforts. A variety of roles (e.g., enabling, facilitating, matchmaking, monitoring, collecting data, performing evaluation, providing professional development, grant writing) will be discussed.

#### **Room 206**

##### **Bringing the Research Experience to the Classroom**

*Kaye Storm, Stanford University*

*Kevin Doyle, Aragon High School*

*Gary Benz, American High School*

This session will spotlight ways in which Bay Area teachers, together with their Stanford faculty hosts and/or graduate student mentors, have continued to partner long after the summer is over.

*Kevin Tambara, Albert Einstein Distinguished Educator Fellowship Program, NSF*

This presentation focuses on personal outcomes through opportunities with Earthwatch, US Naval Academy, Space Academy for Educators, and Albert Einstein Distinguished Educator Fellowship.

*Ellen Yeziarski, Miami University*

*Deborah Herrington, Grand Valley State University*

The Target Inquiry (TI) model for teacher professional development augments a summer research experience for teachers with one summer of intensive inquiry materials development and a year-long action research project. This presentation will describe TI, evaluation results, impact of dissemination, and current project status.

#### **Room 210**

##### **Why Partnerships? Learn about Different Partnership Models and Their Benefits**

*Teresa Barnett, Sandra Lee Takei, and Corinn Brown, Community Resources for Science*

Community Resources for Science has been connecting teachers and schools with scientists and science resources since 1997. What impact does a program that connects enthusiastic, diverse scientist role models with K-6 classroom teachers and students have on the participants?

*Jennifer Collins and Sharon Katz-Cooper, Consortium for Ocean Leadership-Deep Earth Academy*  
Two signature programs of Deep Earth Academy immerse formal and informal educators in science research settings onboard the RV JOIDES Resolution. We will report results of several multi-year surveys that examine how educators, scientists and their students/audiences have been impacted by these partnerships.

*Larry Bowman Jr., Tabitha McCoy, and Clayton Walvoort, East Tennessee State University*  
*Sharon Pickering, Marci Pearson, Nancy McDonald, and Reneé Wood, North Side Elementary School*

Learn about benefits for all involved (teachers, graduate fellows, and elementary students) of the GK-12 Science First! Program at East Tennessee State University that focused on working with one elementary school.

**11:45am-12:45pm**  
**Room 304/306**

**Buffet Lunch**

**12:45-2pm**

**Small Group Sessions**

**Room 201**

**Examining a Model for Enhancing K-12 Teachers' Understanding of Scientific Research**

*Annamarie Ward, Matt Johnson, Leah Bug, Center for Science and the Schools, Pennsylvania State University*

Learn about the model we designed to deepen K-12 teachers' understanding of how scientists engage in research and build teachers' capacity for bringing that knowledge to the classroom. This approach goes beyond a simplistic view of research that is fostered by the traditional verification labs to the more authentic multidisciplinary systems perspective.

**Room 203**

**Scientific Society Partnership Models**

*Jacob Clark Blickenstaff, American Physical Society*

*Erica Wilson, Boston Green Academy;*

*Karen Wong, Boston Public Schools*

*Andrew Duffy and Mark Greenman, Boston University*

The American Physical Society (APS) is piloting a program to bring together high school physics teachers and practicing physicists for a curriculum development project. APS staff will provide an overview of the project, and two teams Boston area teams will share activities supported by the funding.

*Katherine Lontok, American Society of Human Genetics*

In this session, the models used by the American Society of Human Genetics for teacher-scientist partnerships will be discussed, particularly our ongoing partnership program, the Genetics Education Outreach Network and the NSF-funded Geneticist-Educator Network of Alliances.

**Room 204**

**Preparing STEM Professionals to Volunteer in Classrooms**

*Paul Conroy and Christos Zahopoulos, Northeastern University*

This workshop helps professionals managing or participating in teacher-scientist partnerships understand how a well-designed training program for scientists can help overcome their reluctance to volunteer and prepare them for success in the classroom. Participants will view a model training class and discuss how the concepts modeled could be adapted to their own partnerships.

**Room 206**

**Teacher-Scientist Partnerships in Astronomy**

*Timothy Spuck, Oil City High School and Center for Authentic STEM Education*

*John Blackwell, Phillips Exeter Academy*

*Sue Ann Heatherly, National Radio Astronomy Observatory*

*Ardis Herrold, Grosse Pointe North High School*

*Luisa Rebull, Spitzer Science Center*

*Moderator: Stephen Pompea, National Optical Astronomy Observatory*

Collectively the National Optical Astronomy Observatory (Tucson, AZ), the National Radio Astronomy Observatory (Green Bank, WV), and the Spitzer Science Center (Pasadena, CA), with support from NASA, have more than 40 years of experience engaging in teacher-scientist partnerships. The panel discussion will feature scientists, program coordinators, and teachers sharing what they've learned about establishing, maintaining, and assessing successful teacher-scientist partnerships.

#### **Room 210**

##### **Evaluating Research Experiences for Teachers**

*Jennifer Adams, Eleanor Miele, and Wayne Powell, Brooklyn College-City University of New York*

This presentation will share evaluation tools and findings from an initial year-long research immersion project for earth science teachers. The long-term goal of this project is to create sustainable communities of scientist-teacher practice to a) strengthen urban geoscience secondary education and b) provide a pipeline of diverse local applicants to the college's geoscience programs.

*Angela Larson, Goldstream Group*

*Janet Warburton and Sarah Crowley, ARCUS*

PolarTREC, a teacher research experience in the Arctic and Antarctic, has been shown to increase participants' use of authentic scientific research in their classrooms. We will discuss specific indicators and tools used to measure the program's impacts on participants' knowledge, skills, and use of authentic scientific research with students. We will also discuss the challenges and limitations of evaluating teacher research experiences.

#### **2:10-2:40pm**

##### **Small Group Sessions**

#### **Room 201**

##### **Online Communication Between Mentors and Students: Analysis of a Model**

*Stephen Scogin, Gokhan Ozturk, and Carol Stuessy, Texas A&M University*

The Botanical Society of America sponsors online partnerships between 700 scientist mentors and 2000 students in K-12 classrooms. We will share the analysis of dialogues between mentors and students in 17 exemplary projects.

#### **Room 203**

##### **Fostering College Research Partnerships at an Inner-City STEM school: Challenges and Triumphs**

*Joseph Isaac, Albert Einstein Distinguished Educator Fellowship Program, National Science Foundation*

Teaching at a STEM school in an urban setting comes with several unique challenges as well as opportunities and resources if you know how to find them. If done correctly, the rewards can be enriching for student and teacher, alike. This session will describe my experience as a teacher building and fostering partnerships with researchers from universities and industry.

#### **Room 204**

##### **Using Online Training to Prepare Teachers for Research Experiences**

*Elizabeth McMahon, Jennifer Annetta, and Jennifer Hammond, NOAA Teacher at Sea Program*

In order to maximize the benefits of placing teachers in labs to work with scientists, it is crucial to properly prepare teachers for the experience. This session will explore how NOAA's Teacher at Sea Program developed an extensive online training course that participants are required to complete before going to sea.

#### **Room 206**

##### **STEM Integration for District Leaders**

*Mia Dubosarsky and Martha Cyr, Worcester Polytechnic Institute*

*Laureen Cipolla, Leominster Public Schools*

*Colleen Mucha and Madeline Wheeler, Quaboag Regional School District*

The STEM Education Center at Worcester Polytechnic Institute has developed a pilot program to provide long-term, high quality, structured support for district leaders as they develop plans for

integrating STEM into their districts. This presentation will portray the framework, content, initial findings, and challenges from the first year.

**Room 210**

**Sustainable Partnerships with Industry, Research Organizations, Educators and Students: an Australian Model**

*Kay Lembo, University of Southern Queensland*

The Primary Industry Centre for Science Education (PICSE) is best described as: a model of collaboration between the government, universities, schools, food-based businesses, national and regional industries and community organizations. PICSE includes science class activities, teacher professional development, student camps, industry placements and ongoing teaching resources.

**2:50-4:05pm**

**Small Group Sessions**

**Room 201**

**Engineering Partnership Programs**

*Mandy Bratton, University of California, San Diego*

This session highlights a creative collaboration between UC San Diego and K-12 teachers from neighboring schools working in concert to ignite pre-college students' interests in STEM. Through an innovative humanitarian engineering program, undergraduate students work side-by-side with teachers to design and deliver discovery-based, technology-rich STEM education.

*B.L. Ramakrishna, Arizona State University*

This session will cover the development of long-term relationships between secondary school teachers and engineering faculty members as a way to promote the design, development, implementation and assessment of modules that are engaging and highlight societal connections to engineering.

**Room 203**

**K-12 Environmental Science Lessons Developed Through Partnerships**

*Jennifer Braswell Alford, Stephanie Dappenbrook, Christopher Hylton, Reynaldo Diaz, and Andrew Jennings, University of North Carolina at Greensboro*

*Kate Earp, Montlieu Academy of Technology*

*James Lynch, Welborn Academy of Science and Technology*

*Ken Gracz, T.W. Andrews High School*

Need some refreshing ideas? This interactive workshop is designed to engage participants in multiple hands-on STEM activities that seek to explore, understand and illustrate relationships between humans and local environments at the watershed level.

*Patrick Edwards and Catherine de Rivera, Portland State University*

This presentation will describe a partnership model that utilizes student-centered data collection activities. The activities, called DataStorms!, engage 6-10th grade students and their families in collecting field data about environmental issues across Portland, OR. Learn strategies for developing datasets, simple techniques for student analysis of these data, and suggestions for implementing similar activities in the context of developing effective partnerships between teachers and scientists.

**Room 204**

**West Virginia High School Students Doing Research Through Teacher-Scientist Partnerships**

*Ann Chester, James McGraw, and Jessica Turner, West Virginia University*

*Robert Branch, University of Pittsburgh*

*Summer Kuhn, Health Sciences & Technology Academy*

*Sherry Woolridge, River View High School*

West Virginia Health Sciences & Technology Academy (HSTA) is a rural teacher-scientist partnership model reaching under-represented high school students. This panel of six, including MD and PhD scientists, a teacher, a community facilitator, and a biology graduate student, will be moderated by the Director of HSTA with the research being presented from the perspective of

each panelist. The moderator will present the infrastructure and data on its effectiveness at encouraging students into STEM careers.

#### **Room 206**

##### **Enhancing Science Teaching Through Research Partnerships**

*Bart Hadder, M.J. Murdock Charitable Trust*

*Steve Triezenberg, Van Andel Institute*

The Partners in Science Program is designed to help high school science teachers work with a mentor doing cutting-edge research over the course of two summers. This program seeks to bring the knowledge from the research lab back into the high school science classroom, promoting hands-on and inquiry-based science education and encouraging more students to consider careers in science.

*Jim Stanton, Partnerships for a Skilled Workforce, Inc.*

*Katie Cameron, Bellingham High School*

*Jeffrey Killian, PerkinElmer*

This session will provide an overview of the Leadership Initiatives for Teaching and Technology program from the perspectives of the Director, a teacher participant, and a host institution.

#### **Room 210**

##### **Sustaining Programs That Involve STEM Graduate Students in K-12**

###### **Education**

Learn how two GK-12 programs, one in its 3<sup>rd</sup> year and one in its 13<sup>th</sup> year, that placed STEM graduate students into K-12 schools for year-long partnerships with teachers and students, are finding ways to sustain and build on their programs.

*Michelle Paulsen, Northwestern University*

This session will highlight the Reach for the Stars program, with an emphasis on additional programs and partnerships that have been developed and inspired from this successful GK-12 program.

*Virginia Shepherd, Vanderbilt University*

*Jennifer Ufnar, Southern Vermont College*

*Jeannie Tuschl and Vicki Metzgar, Metropolitan Nashville Public Schools*

Vanderbilt University was the lead institution on one of the first NSF GK-12 grants. Based on demonstrated successes, university and school district partners made a commitment to continue the program as the Scientist in the Classroom Partnership. Now in its 13th year, over 100 science teaching fellows and 100 partner teachers have participated. Presenters will discuss keys to sustaining and replicating a GK-12 program.

**4:15-5:00pm**

**Room 304/306**

##### **Closing Plenary**

##### **How Teacher-Scientist Partnerships Fit into the Bigger Picture**

*Bruce Alberts, Editor-in-Chief, Science, AAAS*