



DISCOVERY  
RESEARCH  
PREK–12

PI Meeting  
June 6–8, 2018 Washington, D.C.



## AGENDA

LOCATIONS LISTED IN RED.

### WEDNESDAY, JUNE 6, 2018

11:00 AM–5:00 PM **Registration** **FOYER OUTSIDE THURGOOD MARSHALL BALLROOM NORTH/EAST**

12:00–2:00 PM **Concurrent Sessions**

- **Designing Multilevel Studies** | Technical Assistance (TA) Session  
*Jessaca Spybrook, Western Michigan University; Finbarr (Barry) Sloane, National Science Foundation*  
Using practical training and STEM study examples, presenters provide training on planning efficient and effective impact studies in multilevel settings. **JACKSON**
- **Early Career Mock Proposal Review** (*Invitation Only*)  
*Robert Ochsendorf, National Science Foundation*  
CADRE Fellows and invited postdocs receive an orientation to the DRK–12 proposal review process and engage in a mock review led by an NSF program director. **JEFFERSON**

12:00–2:30 PM **Poster Hall Setup** **LINCOLN 2–4**

12:00–4:00 PM **Informal Networking**

Rooms available to reserve for meetings with program directors or for small-group discussions. (*Prior to the meeting, send requests to [CADRE@edc.org](mailto:CADRE@edc.org). During the meeting, sign up at the registration table.*)

2:00–3:00 PM **CAREER Award Forum** (*Invitation Only*)

*Finbarr (Barry) Sloane, National Science Foundation*

This session focuses on the priorities and interests of CAREER awardees, including topics such as efficacy and effectiveness studies of STEM interventions in field settings, linking theories of change to variable selection, measure development, case studies, and other topics chosen by participants. **JACKSON**

2:45–3:45 PM **Concurrent Sessions**

- **Digital Learning Arcade** (*Invitation Only*)  
*Katherine Perkins, University of Colorado Boulder (Moderator)*  
Take part in extended play, demonstration, and networking around technologies being developed and researched by DRK–12 and STEM+C projects. **LINCOLN 2–4**
- **Postdoc Career Pathways** (*Invitation Only*)  
*Dana Grosser-Clarkson, University of Maryland (Moderator); Gloriana González Rivera, University of Illinois at Urbana-Champaign; Christopher Harris, SRI International; Zabra Hazari, Florida International University; Kirk Walters, American Institutes for Research*  
Invited postdocs explore various career pathways in STEM education research in conversation with DRK–12 PIs from academic and non-academic institutions. **JEFFERSON**

- **STEM+C Gathering and Program Updates**

*Arlene de Strulle, National Science Foundation*

Learn about the STEM+Computing funding program and its relationship to NSF's Big Ideas (specifically, interdisciplinary Convergence and Work at the Human Technology Frontier), and network with other STEM+C awardees.

LINCOLN 5

4:00–5:00 PM

**NSF Welcome**

*Robert Ochsendorf, National Science Foundation*

**Nexus of Change: Exploring the Intersections Between Broadening Participation, STEM and Computer Science Disciplines, and Technological Innovations in Education | Plenary**

*Okhee Lee, New York University*

The framing plenary presentation addresses the necessity and urgency for the NSF DRK-12 and STEM+C communities to capitalize on intersections or the nexus of the three domains of broadening participation, STEM+C disciplines, and technological innovations. THURGOOD MARSHALL BALLROOM NORTH/EAST

5:00–6:00 PM

**Poster Hall LINCOLN 2–4**

6:00 PM

**Dinner on Your Own** (*See list of local restaurants.*)

## THURSDAY, JUNE 7, 2018

8:00 AM–5:00 PM

**Registration** FOYER OUTSIDE THURGOOD MARSHALL BALLROOM NORTH/EAST

8:00 AM–5:30 PM

**Informal Networking**

Rooms available to reserve for meetings with program directors or for small-group discussions. (*Prior to the meeting, send requests to [CADRE@edc.org](mailto:CADRE@edc.org). During the meeting, sign up at the registration table.*)

8:30 AM–4:00 PM

**Poster Hall Setup** LINCOLN 2–4

9:00–10:30 AM

**Working Breakfast**

Participants are asked to have their meal and be seated by 9:30 AM, when the plenary begins.

**NSF Priorities**

*Jim Lewis, National Science Foundation*

**Going the Extra Mile to Support Research Use | Plenary**

*Karen King, National Science Foundation (Moderator); Ruth Neild, Philadelphia Education Research Consortium*

Neild discusses strategies for effective partnerships and collaborations between researchers and practitioners as well as promising mechanisms for communicating research findings to teachers and agency leadership in schools. THURGOOD MARSHALL BALLROOM NORTH/EAST

10:30–10:45 AM

**Break**

## 10:45 AM–12:15 PM Concurrent Sessions

- **Data Are Everywhere—and Now, So Is Data Science Education. Learn How This Affects You!** | Topical Session  
*Daniel Damelin, The Concord Consortium; Chad Dorsey, The Concord Consortium; William Finzer, The Concord Consortium; Sherry Hsi, The Concord Consortium; Janice Mokros, Maine Mathematics and Science Alliance; Andee Rubin, TERC; William Tally, Education Development Center*  
Hear from four projects grappling with what it means to engage learners in data science, both integrated into STEM subjects and stand-alone, and discuss the potential challenges. **WILSON C**
- **Engagement in Science Practices in Early Childhood: Discussing Successes and Challenges** | Roundtable Discussion  
*Ximena Dominguez, Digital Promise Global*  
This session invites participants to discuss which science practices align with the abilities of young children and what supports young children need to engage in those practices. **JEFFERSON**
- **Exploring Technological Innovations to Support Practice-based STEM Teacher Education** | Topical Session  
*Daniel Chazan, University of Maryland; Imani Goffney, University of Maryland; Dana Grosser-Clarkson, University of Maryland; Patricio Herbst, University of Michigan; William Zabner, San Diego State University*  
Learn about technology for teacher education as presenters introduce the work of the LessonSketch R+D Fellows and online tools being used in practice-based teacher education. **WILSON B**
- **Exploring Variation in Discourse and Interactional Analyses** | TA Session  
*Megan Bang, University of Washington; Leema Berland, University of Wisconsin-Madison; Sylvia Celedón-Pattichis, University of New Mexico; Beth Herbel-Eisenmann, Michigan State University*  
Presenters engage the audience in various theories and methods for discourse and interactional analysis, exploring the ways in which these approaches shape researchers' claims. **WILSON A**
- **Measuring Latent Constructs** | TA Session  
*Benjamin Kelcey, University of Cincinnati; Finbarr (Barry) Sloane, National Science Foundation*  
The session details the measurement of latent constructs and provides practical training on the use of confirmatory factor analysis and latent trait models. **HOOVER**
- **Promoting STEM Learning for Students with Learning Disabilities** | Topical Session  
*Robert Ochsendorf, National Science Foundation (Moderator); Jodi Asbell-Clarke, TERC; Christian Doabler, University of Texas at Austin; Karen Karp, Johns Hopkins University; William Therrien, University of Virginia*  
Panelists examine the challenges and opportunities faced by STEM educators when balancing strong STEM pedagogy with specific strategies for students with learning disabilities. **HARDING**

- **The Ongoing Process of Validating and/or Adapting Learning Trajectories Over Time** | Topical Session

*Jeffrey Barrett, Illinois State University; Jere Confrey, North Carolina State University; Kathryn Rich, Michigan State University; Julie Sarama, University of Denver; Ana Stephens, Wisconsin Center for Education Research*

Hypothetical learning trajectories imply negotiation between teachers and students. In this session, researchers discuss how they validate learning trajectories under variable conditions and anticipate change in practice artifacts.

COOLIDGE

- **To Scale or Not to Scale?** | Topical Session

*Arthur Eisenkraft, University of Massachusetts; Daniel Heck, Horizon Research, Inc.; Erin Henrick, Vanderbilt University; Kara Jackson, University of Washington; Matt McLeod, Education Development Center*

This session explores the kinds of work worth scaling (curriculum, instruction, assessment, professional development) and considers promising approaches for doing so. JOHNSON

12:15–12:30 PM **Break**

12:30–2:00 PM **Working Lunch**

Participants are asked to have their meal and be seated by 1:00 PM, when the plenary begins.

### **Funders: Cultivating Public–Private Partnerships in Education R&D** |

Plenary

*Robert Ochsendorf, National Science Foundation (Moderator); Amy Dray, Spencer Foundation; Karen Johnson, Bill & Melinda Gates Foundation; Bror Saxberg, Chan Zuckerberg Initiative*

Currently, education is a field suffering from significant underinvestment by public and private sources in R&D. While we've advanced our understanding of how learning works, much of this research hasn't been translated into practical methods and tools that teachers can use in classrooms. Learn how three funders are exploring ways to bring together multidisciplinary teams (researchers, educators, product developers) to produce models, practices, tools, and other resources designed to achieve improvements in student outcomes. THURGOOD MARSHALL BALLROOM NORTH/EAST

2:00–2:15 PM **Break**

2:15–3:45 PM **Concurrent Sessions**

- **Broadening Participation Through Enhanced Relationships Between STEM Content and Disciplinary Language for Teaching English Learners** | Roundtable Discussion

*Cory Buxton, University of Georgia*

Learn about a model of language-rich STEM inquiry for broadening participation of English learners in formal and informal spaces, followed by an interactive discussion. HOOVER

- **Broadening the Participation of Latinx Students in Learning Mathematics and Computer Programming: Affordances and Challenges** | Roundtable Discussion

*Sylvia Celedón-Pattichis, University of New Mexico*

Join presenters as they use an equity framework to engage participants in discussing broadening the participation of Latinx middle school students in a mathematics and computer programming program. COOLIDGE

- Conceptualizing Rigor in the Design and Use of Practical Measures for Instructional Improvement** | Roundtable Discussion  
*Erin Henrick, Vanderbilt University; Marsha Ing, University of California, Riverside; Kara Jackson, University of Washington*  
 In this session, the group explores the following question: What does it mean to attend to rigor in the design and use of practical measures for instructional improvement? **JOHNSON**
- Designing and Analyzing Studies to Detect Moderation and Mediation** | TA Session  
*Benjamin Kelcey, University of Cincinnati; Jessaca Spybrook, Western Michigan University*  
 This session provides practical training in the concepts and application of moderation and mediation within the context of STEM education. **WILSON A**
- DRK–12 Early Learning Topical Group Synthesis Feedback** | Roundtable Discussion  
*Natalie Nielsen, N-Squared Consulting; Julie Sarama, University of Denver*  
 Discuss and provide feedback on a brief synthesis of the DRK–12 portfolio as it relates to STEM education from preK through grade 3. **JEFFERSON**
- From Pilots to Products: Sustained Dissemination of Curriculum, Software, and Hardware at Scale** | Topical Session  
*Meltem Alemdar, Georgia Institute of Technology; Chad Dorsey, The Concord Consortium; Douglas Edwards, Georgia Institute of Technology; Jason Freeman, Georgia Institute of Technology; William Finzer, The Concord Consortium; Marion Usselman, Georgia Institute of Technology*  
 Plan how to broadly disseminate, maintain, and sustain the products of your DRK–12 and/or STEM+C project. Learn about common models, and share your own ideas and experiences. **WILSON C**
- Today’s Education for Tomorrow’s College and Career Readiness** | Topical Session  
*Joyce Malyn-Smith, Education Development Center (Moderator); Thomas Kochan, MIT; Irene Lee, MIT; Grace Sub, IBM Corporation*  
 Panelists discuss the changing landscape of work, business and industry workforce demands, and current education needs and research in areas such as computational thinking. **WILSON B**
- Using Scenario-based Questionnaires to Investigate Teaching Knowledge and Practice at Scale** | TA Session  
*Daniel Chazan, University of Maryland; Patricio Herbst, University of Michigan*  
 Presenters use illustrations from a project that used scenario-based, graphics-enhanced online questionnaires to introduce participants to the use of these techniques to study teaching knowledge and practice. **HARDING**

3:45–4:00 PM

**Break**

4:00–5:00 PM

**Poster Hall** **LINCOLN 2–4**

5:00 PM

**Dinner on Your Own** (*See the list of local restaurants.*)

## FRIDAY, JUNE 8, 2018

- 7:00–11:30 AM**     **Registration** FOYER OUTSIDE THURGOOD MARSHALL BALLROOM NORTH/EAST
- 7:30–8:30 AM**     **Networking Breakfast** THURGOOD MARSHALL BALLROOM NORTH/EAST  
An opportunity to meet with colleagues.
- 7:30–10:00 AM**     **Poster Hall Setup** LINCOLN 2–4
- 7:30–11:30 AM**     **Informal Networking**  
Rooms available to reserve for meetings with program directors or small-group discussions. (Prior to the meeting, send requests to [CADRE@edc.org](mailto:CADRE@edc.org). During the meeting, sign up at the registration table.)
- 8:30–10:00 AM**     **Concurrent Sessions**
- **Achieving Broader Impacts of Research Through Dissemination |** Topical Session  
*Sharon Lynch, The George Washington University (Moderator); Philip Bell, University of Washington; Kumar Garg, Society for Science & the Public; Barbara Means, Digital Promise Global; Julie Sarama, University of Denver*  
Research that is likely to have broader impacts must reach targeted and more varied audiences. Panelists discuss new ways to disseminate findings to maximize influence. **WILSON A & B**
  - **Designing Computer-based Learning Environments That Support Synergistic STEM + Computational Thinking (CT) Learning |** Topical Session  
*Gautam Biswas, Vanderbilt University; James Lester, North Carolina State University; Kevin McElhane, SRI International; Uri Wilensky, Northwestern University*  
This panel session brings together several projects that explore affordances and challenges to synergistic delivery of STEM and CT concepts and practices in K–12 classrooms. **WILSON C**
  - **Designing for Broader Access: Considerations in Providing Opportunities for Students to Create Computational Models |** Roundtable Discussion  
*Daniel Damelin, The Concord Consortium; Joseph Krajcik, Michigan State University*  
This session explores the kinds of obstacles students encounter when creating computational models and potential approaches for addressing these issues. **HOOVER**
  - **DRK–12 Broadening Participation Topical Group Synthesis Feedback |** Roundtable Discussion  
*Odis Johnson, Washington University; Natalie Nielsen, N-Squared Consulting*  
Discuss and provide feedback on brief syntheses of DRK–12 research on broadening participation in STEM and theories used to study broadening participation. **JACKSON**
  - **Fidelity of Implementation |** TA Session  
*Chris Hulleman, University of Virginia*  
In this session, Hulleman discusses the advantages of assessing fidelity of implementation, elaborates a procedure for systematically assessing fidelity, and invites participants to discuss applications to their work. **COOLIDGE**

- **Helping Students Learn the Thinking Skills in the NGSS Crosscutting Themes** | Roundtable Discussion  
*Tina Grotzer, Harvard University*  
Join the presenters of this session as they consider ways to support deep learning of the NGSS crosscutting themes, starting with examples from EcoXPT, followed by group discussion and sharing of artifacts. **JOHNSON**
- **Stage-Sensitive (ZPD-Correlated) Assessment of Mathematical Reasoning: A Written Proxy for Interviewing** | Topical Session  
*Ron Tzur, University of Colorado Denver*  
Examine an innovative written assessment to infer a ZPD-correlated stage in students' multiplicative reasoning as a proxy for labor- and time-intensive cognitive interviews. **HARDING**
- **What Is “Responsiveness”? Moving Beyond Deficit Models for Students with Disabilities and Difficulties to Broaden Participation** | Roundtable Discussion  
*Amy Brodesky, Education Development Center; Jessica Hunt, North Carolina State University*  
Presenters discuss approaches for tackling deficit models for students with disabilities and difficulties, and share their perspectives on strengthening responsiveness to students' diverse ways of knowing and learning. **JEFFERSON**

**10:00–10:15 AM Break**

**10:15–11:15 AM Poster Hall** **LINCOLN 2–4**

**11:15–11:30 AM Break**

**11:30 AM–12:30 PM NSF Town Hall** | Plenary

*Evan Heit, National Science Foundation (Moderator); NSF Program Directors*

This Q&A style session is intended to provide information to the community and to foster informal discussion about the DRK–12 and STEM+C programs, as well as about NSF funding opportunities and initiatives. **THURGOOD MARSHALL BALLROOM NORTH/EAST**

**12:30 PM Adjourn**