DISCOVERY RESEARCH PREK–12
PI Meeting
June 28–30, 2023 Arlington, VA

GENERAL POSTER HALL

LISTED BY PROJECT TITLE, PRINCIPAL INVESTIGATOR

THURSDAY, JUNE 29, 2023

Table	Project Title	PI Name	Co-PI Name(s)	STEM Content Area	Grade Band
1	Using Animated Contrasting Cases to Improve Procedural and Conceptual Knowledge in Geometry	Erin E. Krupa	Jon Star	M	M
2	CAREER: Understanding the Routinization of Mathematics Language Routines in Middle and High Schools	Sarah Roberts		M	M, H
3	Doing the Math with Paraeducators: Enhancing and Expanding and Sustaining a Professional Development Model in PreK to Grade 3 Math Classrooms	Judy Storeygard	Karen Mutch-Jones, Brandon Sorge, Audrey Martinez-Gudapakkam	M	Pre-K, E
4	Assessing College-Ready Computational Thinking (Collaborative Research: Brown)	Richard Brown		Comp.	M, H
5	Internet of Things Pedagogical Ecosystem for Integrated Computer Science and Software Engineering Education for Grades 9-12	Pramod Abichandani	Prateek Shekhar	T, E	H
6	Managing Uncertainty for Productive Struggle: Exploring Teacher Development for Managing Students' Epistemic Uncertainty as a Pedagogical Resource in Project-based Learning	Ying-Chih Chen	Michelle Jordan	S, E	M
7	Engineering for Students with Extensive Support Needs	Bree Jimenez	Ginevra Courtade	E	E

8	Bridging Preschool and Kindergarten Science: Exploring Play-based Engagement with Scientific and Engineering Practices in Early Learning Environments (Collaborative Research: Cook Whitt)	Katahdin Cook Whitt	Lisa Kenyon	S, E	Pre-K, E
9	Exploratory Evidence on the Factors that Relate to Elementary School Science Learning Gains Among English Language Learners	F. Chris Curran	Mark Pacheco	S	E
10	STEM for All Collaboratory: Accelerating Dissemination and Fostering Collaborations for STEM Educational Research and Development	Joni Falk	Brian Drayton	S, T, E, M	Pre-K, E, M, H, Post-Sec
11	TBD				
12	TBD				
13	Exploring K-2 Children Understandings of Visual Representations in Algebraic Reasoning	Barbara Brizuela	Maria Blanton, Angela Gardiner	M	E
14	CAREER: From Research to Meta-Research to Practice - The Development of an Educational Learning Environment Framework for School Algebra	Sheree T Sharpe		M	E, M, H
15	Exploring Early Childhood Teachers' Abilities to Identify Computational Thinking Precursors to Strengthen Computer Science in Classrooms	Sean Justice	Lori Assaf	T, Comp.	Pre-K, E
16	CAREER: Job Embedded Education on Computational Thinking for Rural STEM Discipline Teachers	Colby Tofel-Grehl		S, T	H
17	Opening Pathways into Engineering Through an Illinois Physics and Secondary Schools Partnership	Timothy Stelzer	Morten Lundsgaard, Eric Kuo	S, T, E, M	H, Post-Sec
18	Bilingualtek: An Integrated Science-Language Approach for Latinx Preschoolers	Lucía I. Méndez	Karen La Paro	S	Pre-K
19	Developing Science Assessments for Language Diversity in Early Elementary Classrooms	Daisy Rutstein	Nonye Alozie	S	E
20	Strengthening STEM Teaching in Native American Serving Schools Through Long-Term, Culturally Responsive Professional Development	Angelina Castagno	Pradeep Dass	S, T, E, M	E, M, H
21	Restructuring Middle School Science around Grand Challenges	Troy Sadler	David Fortus	S	M
22	Developing the Pedagogical Skills and Science Expertise of Teachers in Underserved Rural Settings	Rebecca Sansom	Joshua Stowers, Heather Leary, Max Longhurst	S	H
23	Facilitating Teacher Learning with Video Clips of Instruction in Science	Miray Tekkumru Kisa	Miriam Sherin, Jonathan Osborne, Jennifer Richards, Jane Richey	S	M
24	CAREER: Covariational and Algebraic Reasoning: A New Path to Algebra	Teo Paoletti		M	M

25	Developing and Investigating Unscripted Mathematics Videos	Joanne Lobato	John Gruver	M	H
26	Designing and Researching a Program for Preparing Teachers as Facilitators of Computational Making Activities in Classroom and Informal Learning Environments	Ricarose Roque	Melissa Braaten	T, Comp.	E
27	Parents, Teachers, and Multilingual Children Collaborating on Mathematics Together (Collaborative Research: Quintos Alonso)	Beatriz Quintos	Claudia Galindo, Carolina Napp-Avelli, Melinda Martin-Beltran	M	E
28	CAREER: Bridging the Digital Accessibility Gap in STEM Using Multisensory Haptic Platforms	Jenna Gorlewicz		S, T, E, M	M, H, Post-Sec
29	Online Practice Suite: Practice Spaces, Simulations and Virtual Reality Environments for Preservice Teachers to Learn to Facilitate Argumentation Discussions in Math and Science	Jamie Mikeska	Meredith Park Rogers, Pamela Lottero-Perdue, Heather Howell, Justin Reich	S, T, M	E, M
30	Supporting Students' Language, Knowledge and Culture Through Science	Cory Buxton	Sue Ann Bottoms, Yanming Di, Susan Roberta Rowe, Francisca Belart	S, Other	E, M, H
31	Supporting High School Students and Teachers with a Digital, Localizable, Climate Education Experience	Lindsey Mohan	Catherine Stimac, Emily Harris, Frank Niepold	S	H
32	The Advancing Coherent and Equitable Systems of Science Education Project	Philip Bell	William Penuel, Richard Scott, Tiffany Neill, Maya Garcia	E	Pre-K, E, M, H
33	Preparing Teachers to Design Tasks to Support, Engage, and Assess Science Learning in Rural Schools	William R. Penuel	Abraham Lo, Kerri Wingert	S	M, H
34	TBD				
35	Enhancing the Teacher-Curriculum Relationship in Problem-based Mathematics Classrooms by Connecting Teacher and Student Digital Collaborative Environments	Elizabeth Phillips	Nathan Kimball, Chad Dorsey, Kristen Bieda, Alden Edson	M	M
36	Improving the Implementation of Rigorous Instructional Materials in Middle-Grades Mathematics: Developing a System of Practical Measures and Routines (Collaborative Research)	Marsha Ing, Kara Jackson		M	M
37	Designing Computational Modeling Curricula across Science Subjects to Study How Repeated Engagement Impacts Student Learning Throughout High School (Collaborative Research: Conlin)	Luke Conlin	Aditi Wagh	S	H
38	Extending and Investigating the Impact of the High School Model-based Educational Resource (Collaborative Research: Passmore)	Cynthia Passmore		S	H

39	Design and Development of a K-12 STEM Observation Protocol (Collaborative Research: Dare)	Emily Dare	Mark Rouleau, Joshua Ellis	S, T, E, M	E, M, H
40	Improving the Teaching of Genetics in High School to Avoid Instilling Misconceptions About Gender Differences (Collaborative Research: Donovan)	Brian Donovan	Molly Stuhlsatz	S	H
41	Case Studies of a Suite of Next Generation Science Instructional, Assessment and Professional Development Materials in Diverse Middle School Settings	Nancy Butler Songer		S, E	M
42	Learning Progressions in Science: Analyzing and Deconstructing the Multiple Dimensions in Assessment	Mark Wilson	Linda Morell	S	M
43	SPIRAL: Supporting Professional Inquiry and Re-Aligning Learning Through a Structured e-Portfolio System	Jose Felipe Martinez Fernandez	Matthew Kloser	S, T, E, M	E, M
44	Locally Adaptable Instructional Materials and Professional Learning Design for Place-based Elementary Science	Katahdin Cook Whitt	Ruth Kermish-Allen, Emily Harris	S	E
45	Translating a Video-based Model of Teacher Professional Development to an Online Environment	Molly Stuhlsatz	Gillian Roehrig, Susan Kowalski, Jody Bintz	S	E
46	Connecting Elementary Mathematics Teaching to Real-World Issues (Collaborative Research: Thanheiser)	Eva Thanheiser	Amanda Sugimoto	M	E
47	Investigating the Role of Collaboration on the Development of Student Ideas Using a Learning Progression for the Function Concept	Edith Aurora Graf	Charlenne DeLeon, Cheryl Lizano, William Crombie, Y.-J. Yvonne Lai	S, M	H
48	Creating a Model for Sustainable Ambitious Mathematics Programs in High-Need Settings: A Researcher-Practitioner Collaboration	Jeffrey Martin Choppin	William Zahner, Cynthia Callard, Shaun Nelms	M	M, H
49	Attributions of Mathematical Excellence in Teaching and Learning	Erik Jacobson	Naomi Jessup, Craig Willey, Dubravka Svetina Valdivia, Dionne Cross Francis	M	M
50	Empowering Students with Choice Through Equitable and Interactive Mathematical Modeling (EIM2)	Hyunyi Jung	Zandra de Araujo, Chonika Coleman-King, Mary Bratsch-Hines, Corey Brady	M	M
51	Leveraging Dynamically Linked Representations in a Semi-Structured Workspace to Cultivate Mathematical Modeling Competencies Among Secondary Students (M2Studio)	Jie Chao	William Finzer, Rose Zbiek, Benjamin Galluzzo	T, M	M, H, Post-Sec
52	CAREER: Supporting Model Based Inference as an Integrated Effort Between Mathematics and Science	Ryan Seth Jones		S, M	M
53	DataX: Exploring Justice-Oriented Data Science with Secondary School Students	Bodong Chen	Cassie Scharber, David DeLiema	S, M, Other	M, H

54	Boosting Data Science Teaching and Learning in STEM	Kirsten Daehler	William Finzer, Nicole Wong, Leticia Perez	S, M	M, H
55	Developing an Online Game to Teach Middle School Students Science Research Practices in the Life Sciences (Collaborative Research: Gagnon)	David Gagnon		S, E	M, H
56	Crowdsourcing Neuroscience: An Interactive Cloud-based Citizen Science Platform for High School Students, Teachers, and Researchers	Camillia Matuk	Ido Davidesco, Suzanne Dikker	S, T	H
57	Designing for Science Learning in Schools by Leveraging Participation and the Power of Place Through Community and Citizen Science (Collaborative Research: Ballard)	Solomon Henson	Joanne Hild, Scott Lay, Jeffrey Lauder	S	E, M
58	Leveraging the Power of Reflection and Visual Representation in Middle-Schoolers' Learning During and After an Informal Science Experience (Collaborative Research: Dickes)	Amanda Dickes	Leigh Peake	S	M
59	Advancing Earth Science Instruction across High School Life and Physical Science	Alan R Berkowitz	Beth Covitt, Karen Draney, Jonathon Grooms, Kevin Garner	S	H
60	Using Natural Language Processing to Inform Science Instruction (Collaborative Research: Linn)	Marcia Linn	Elizabeth Gerard	S, T	M, H
61	Supporting Science Learning and Teaching in Middle School Classrooms Through Automated Analysis of Students' Writing (Collaborative Research: Passonneau)	Rebecca J. Passonneau	ChanMin Kim, Yue Li	S	M
62	Crowd-Sourced Online Nexus for Developing Assessments of Middle-School Physical Science Disciplinary Core Ideas	Philip Sadler	Gerhard Sonnert, Susan Sunbury	S	M
63	Teacher Professional Learning to Support Student Motivational Competencies During Science Instruction (Collaborative Research: Linnenbrink-Garcia)	Lisa Linnenbrink-Garcia	Jennifer A. Schmidt	S	M
64	Developing Teachers' Epistemic Cognition and Teaching Practices for Supporting Students' Epistemic Practices with Scientific Systems	Susan Yoon	Clark Chinn	S	H
65	Professional Development Supports for Teaching Bioinformatics through Mobile Learning	Susan Yoon	Blanca Himes	S, T, M	H