EDU Core Research (ECR) Program Overview

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August 21, 2023

Webinar Overview

- ECR Solicitation Overview

- What Is Fundamental Research?

- Examples of ECR Funded Studies

- Responses to Submitted Questions

- Open Q & A

OVERVIEW OF ECR SOLICITATION

ECR Solicitation: NSF 21-588

EDU Core Research (ECR:Core)

PROGRAM SOLICITATION
NSF 21-588

REPLACES DOCUMENT(S):
NSF 19-508

National Science Foundation
Directorate for STEM Education
Division of Graduate Education
Division of Undergraduate Education
Division of Equity for Excellence in STEM
Research on Learning in Formal and Informal Settings

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

October 12, 2021

October 06, 2022

First Thursday in October, Annually Thereafter

2023 Deadline: October 5, 2023

Proposal Types, Funding Levels, and Duration

Research Proposals

- Level I: maximum of $500,000

- Level II: maximum of $1,500,000

- Level III: maximum of $2,500,000

Duration

- 3-5 years for any level

Other ECR Proposal Types

- Pilot Studies (Level I only)

- Synthesis Proposals (Level I or II)

- Conferences ($25K-$99K)

ECR Research Areas

- Research Area I: Research on STEM Learning and Learning Environments

- Research Area II: Research on Broadening Participation in STEM

- Research Area III: Research on STEM Workforce Development

1. Research on STEM Learning and Learning Environments

- Fundamental research projects that advance knowledge and understanding about STEM teaching and learning across contexts.

- May focus on learning at the level of the student, teacher, environment or broader contexts.

- Topics may include assessment of learning and teaching, cognitive aspects of teaching and learning, implications of STEM practices on learning, development and refinement of methods for STEM research, etc.
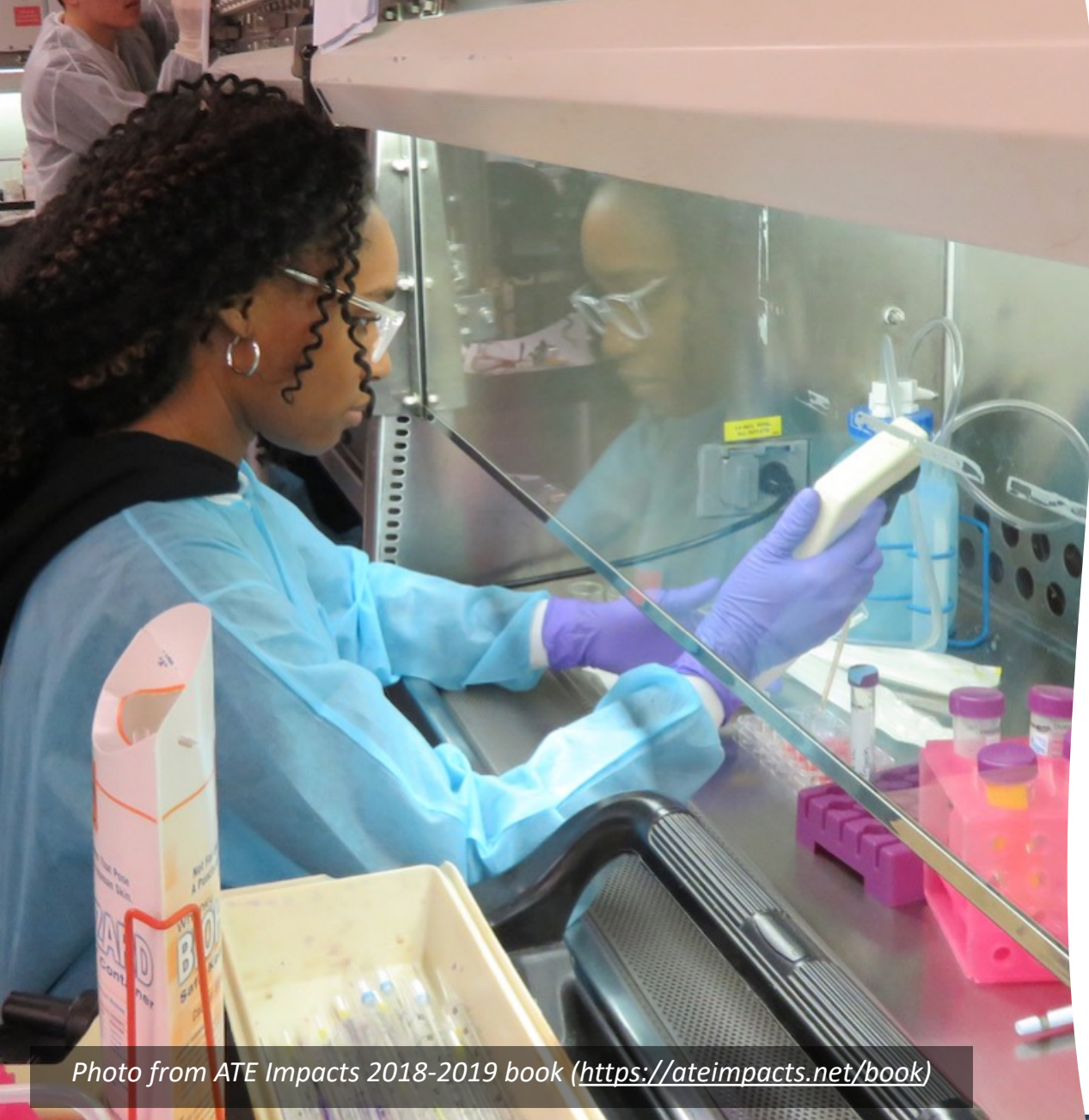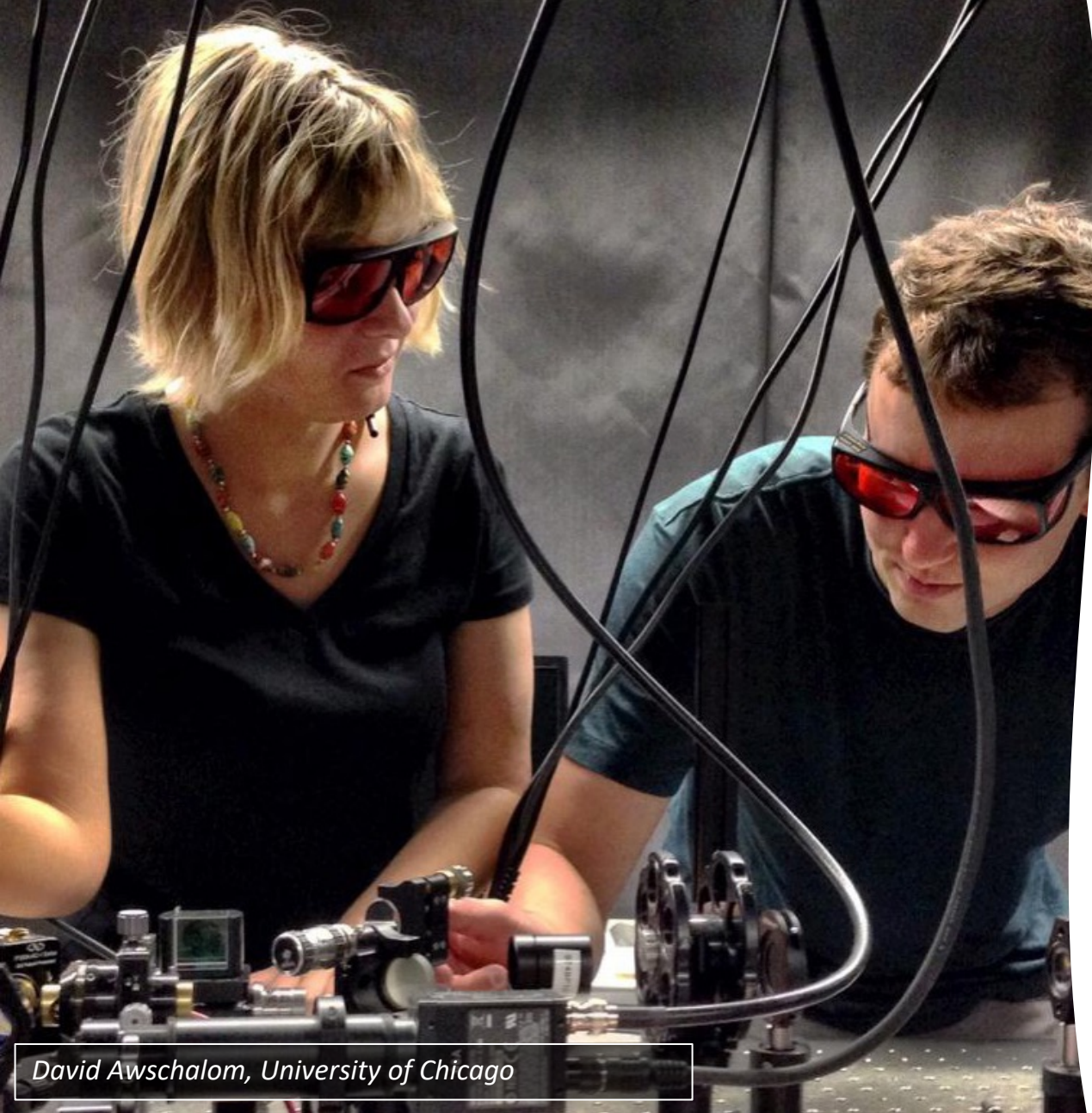
2. Research on Broadening Participation in STEM

- Fundamental research projects that investigate issues related to broadening participation in STEM education and the STEM workforce.

- May focus on the individual and/or organizational factors.

- Topics may include innovative and culturally responsive pedagogy, motivation, academic achievement and sense of belonging, intersectionality and experiences of students in STEM, etc.

David Awschalom, University of Chicago

3. Research on STEM Workforce Development

- Fundamental research projects to strengthen the STEM workforce.

- May focus on the individual and/or organizational factors.

- Topics may include STEM workforce participation, skill-building approaches, workplace knowledge and competencies, learning in workplace contexts, technology use in STEM workplace learning, etc.

FUNDAMENTAL RESEARCH IN ECR

Fundamental Research

- Generates knowledge and understanding with the potential for broad relevance.

- Addresses important research questions related to education, learning, broadening participation, or workforce development in and across STEM fields.

- Does not need to generate findings with immediate applications at the practical level.

Fundamental Research May…

- Identify and explore new constructs in education, learning, broadening participation, or workforce development in STEM fields.

- Extend understanding of current constructs.

- Increase understanding of relationships among the constructs under investigation.

- Extend research or evaluation methodologies for advancing the evidence base to support improved policy or practice.

EXAMPLES OF ECR FUNDED STUDIES

Example 1

- Title: Sub-group Fair Coding Taken to Scale for Science, Technology, Engineering, and Mathematics Learning

- Award Number: 2100320

- Purpose: Creation and validation of a process designed for coding data on learning in science, technology, engineering, and mathematics (STEM).

- https://www.nsf.gov/awardsearch/showAward?AWD_ID=2100320&HistoricalAwards=false
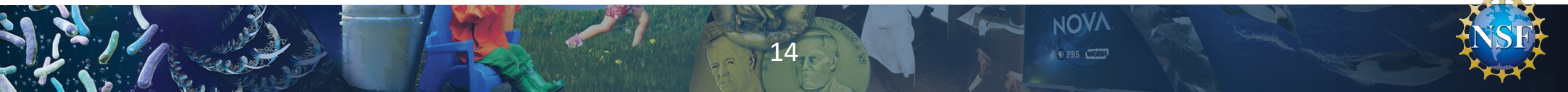
Example 2

- Title: An Examination of How the Lived Experiences of African American Undergraduates Affect their Persistence in their Engineering Programs

- Award Number: 2000769

- Purpose: Use racism, intersectionality, and social capital theories to examine the racial and gender dynamics and practices that African American students experience which influence their persistence in engineering programs.

- https://www.nsf.gov/awardsearch/showAward?AWD_ID=2000769&HistoricalAwards=false

Example 3

- Title: Virtual Reality to Improve Students' Understanding of the Extremes of Scale in STEM

- Award Number: 2055680

- Purpose: Investigate how students' understanding of scale and number sense (numeracy) can be improved in virtual reality.

- https://www.nsf.gov/awardsearch/showAward?AWD_ID=2055680&HistoricalAwards=false

https://www.engr.ncsu.edu/news/2021/06/03/sizes-scales-and-powers-of-10-a-virtual-environment-to-compare-extreme-sizes/

Searching for Other Examples

1. Go to ECR landing page:

https://new.nsf.gov/funding/opportunities/ehr-core-research-ecrcore

2. Scroll down and click on link:

Awards made through this program

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Collaborative Research: NCS-FO: Studying language in the brain in the modern machine learning era
Award Number:2124052; Principal Investigator:Boris Katz; Co-Principal Investigator:Andrei Barbu; Organization:Massachusetts Institute of Technology;NSF Organization:DRL Start Date:09/15/2021; Award Amount:$500,000.00; Relevance:48.0;

Collaborative Research: NCS-FO: Studying language in the brain in the modern machine learning era
Award Number:2123818; Principal Investigator:Gabriel Kreiman; Co-Principal Investigator:; Organization:Children's Hospital Corporation;NSF Organization:DRL Start Date:09/15/2021; Award Amount:$500,000.00; Relevance:48.0;

Staying in Science: Investigating STEM Persistence Among High School Youth
Award Number:2100155; Principal Investigator:Preeti Gupta; Co-Principal Investigator:Jennifer Adams, Timothy Podkul, Karen Hammerness, Rachel Chaffee; Organization:American Museum Natural History;NSF Organization:DGE Start Date:07/15/2021; Award Amount:$764,191.00; Relevance:48.0;

Collaborative Research: Untangling the Complex Role of Anthropocentric Thinking in Undergraduate Biology Education
Award Number:2000856; Principal Investigator:John Coley; Co-Principal Investigator:; Organization:Northeastern University;NSF Organization:DUE Start Date:10/01/2020; Award Amount:$900,000.00; Relevance:48.0;

Using Neural Networks for Automated Classification of Elementary Mathematics Instructional Activities
Award Number:2000487; Principal Investigator:Peter Youngs; Co-Principal Investigator:Ginger Watson; Organization:University of Virginia Main Campus;NSF Organization:DRL Start Date:09/01/2020; Award Amount:$1,499,962.00; Relevance:48.0;

A Statistical Framework and Tools for Planning Multilevel Randomized Cost-Effectiveness Trials
Award Number:2000705; Principal Investigator:Nianbo Dong; Co-Principal Investigator:Andrea Beach, Rebecca Maynard, Benjamin Kelcey, Jessaca Spybrook, Wei Li; Organization:University of North Carolina at Chapel Hill;NSF Organization:DRL Start Date:09/01/2020; Award Amount:$1,274,904.00; Relevance:48.0;

Relevance
Award Number
Award Title
NSF Organization
Start Date
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Organization
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Awardee Information

ⓘ **Principal Investigator First Name**	[_____]	ⓘ **Organization**	🔍 [_____]
ⓘ **Principal Investigator Last Name** 🔍	[_____]	ⓘ **State**	Select one ▾
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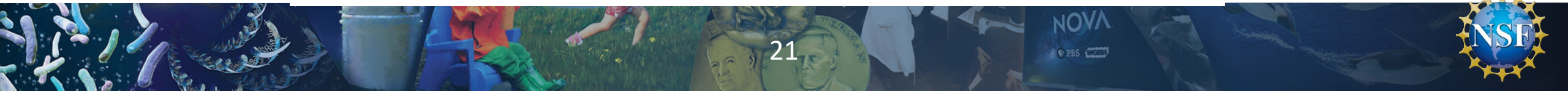
We Are Here to Help

Before submitting a full proposal on October 5…

- Proposers may email ECR@NSF.gov to meet with a program officer for 30 minutes.

- Please send a 1 to 2-page concept with your inquiry. Please do not exceed 2 pages.
    - Watch a video on how to craft a 1-page concept paper at https://youtu.be/E6DA9hKen3A

- We will stop scheduling these discussions after August 31.

- Other questions? Email us at ECR@NSF.gov

SUBMITTED QUESTIONS AND Q&A