



Incubating Transformation:

How NSF Program Awards are Catalyzing Progress in Research and Education

APRIL 15, 2015

POSTER SESSION

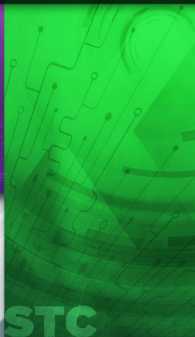
1:00PM – 2:00PM
Stafford-I Atrium

**PRESENTATIONS &
PANEL DISCUSSION**

2:00PM – 4:00PM
Stafford-I Room 110

POSTER SESSION

4:00PM – 5:00PM
Stafford-I Atrium



ABOUT THE EVENT MODERATOR:

IVAN AMATO

Science and technology writer, editor and communicator
Silver Spring, MD.

In addition to publishing books, Ivan has written, edited, or served managerial roles for many publications, among them, *Time*, *Fortune*, *Discover*, *the Washington Post*, *Technology Review*, *Nautilus*, *Quanta*, *Science*, *Nature*, *Science News*, *Science*, and *Chemical & Engineering News*.

He has worked as a consultant for the President's Council of Advisors for Science and Technology (PCAST), the Lemelson Center for the Study of Invention and Innovation, the Chemical Heritage Foundation, the Materials Research Society, among others.

Ivan has done broadcast stints with National Public Radio and Discovery Communication's Science Channel. In recent years, he has introduced a live channel communication into the mix by founding two science cafe series: DC Science Cafe in Washington, DC, and Cafe KITP in Santa Barbara, CA.

In addition, Ivan Amato is a public speaker on a range of subjects, including science, technology and communications, and an organizer and facilitator of panels, talks and other public engagements.

www.ivanamato.com

Incubating Transformation Agenda

NSF ATRIUM

1:00 PM - 2:00 PM

Poster Session

NSF, Stafford I, ROOM 110

2:00 PM - 2:10 PM

Welcome and Introduction

Wanda E. Ward, Head, Office of Integrative Activities

2:10 PM - 3:10 PM

Academic Research Infrastructure (ARI):

Expanding Institutional Educational and Research Capabilities

Northwest Indian College.....Page 4

Major Research Instrumentation (MRI):

Institutional Transformation: Changing the Research Culture at an Institution

Seattle University.....Page 6

Experimental Program to Stimulate Competitive Research (EPSCoR):

Transforming the Research Culture Within a State

Utah EPSCoR.....Page 8

Science & Technology Centers (STC):

Transforming the Science Landscape: Opening New Frontiers of Research

Center for Embedded Networked Sensing.....Page 10

3:10 PM - 4:00 PM

Panel Discussion

NSF ATRIUM

4:00 PM - 5:00 PM

Poster Session

Academic Research Infrastructure (ARI)

In the late 1980s, Congress asked the National Science Foundation (NSF) to implement a program to renovate research laboratories and similar facilities and academic institutions. The program ran for a number of years in the early 1990s and gradually morphed into the Major Research Instrumentation program.

As part of the American Recovery and Reinvestment Act of 2009, Congress asked the NSF to reprise the Academic Research Infrastructure program and appropriated \$200,000,000 for this purpose. Accordingly, in 2009, NSF solicited proposals for the repair, renovation or replacement of existing infrastructure for research and research training (bricks and mortar, mobile or virtual).

Projects totaling \$1.02 billion were proposed (495 proposals) encompassing things such as astronomical observatories, biological field stations, campus laboratories, computer center refurbishment, international, regional and campus networks, etc. 136 awards were made.

PRESENTATION DESCRIPTION:

Expanding Institutional Educational and Research Capabilities

Marco Hatch

Director, Salish Sea Research Center
Northwest Indian College

Prior to the award, Northwest Indian College (NWIC), a Tribal College, had a very limited ability to enable students to participate in laboratory research. Laboratory space was confined to one small modular building (i.e., a trailer) in dilapidated condition. The award supported construction of a permanent laboratory building that houses the campus laboratories for research in environmental science, the Salish Sea Coastal Research Center. This enables both faculty and students to undertake research projects, facilitates greater collaboration between NWIC and researchers at other universities in Washington state, and has greatly strengthened the new four-year degree program in Native Environmental Science that the College began offering in fall, 2007. The student body is primarily Native American and the project will help increase the engagement of members of this under-represented group in environmental science. The new research space has allowed NWIC to embark on a number of new research projects including research on the cultural and ecological context of ancient marine resource management systems (clam gardens), red tide algae dynamics and biotoxin production, and the role of algicidal bacteria on eelgrass in reducing red tides.

Major Research Infrastructure (MRI)

The Major Research Instrumentation (MRI) program has been a stand-alone program at NSF since the late 1990s, having once been coupled to the Academic Research Infrastructure (ARI) Program. MRI Competitions are held every year, with OIA coordinating the Program's oversight in partnership with NSF Directorates.

The MRI Program serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education and not-for-profit research organizations. The program supports the acquisition or development of shared research instrumentation that is, in general, too costly and/or not appropriate for support through other NSF programs.

PRESENTATION DESCRIPTION:

Changing Research Culture at an Institution

Jean M. Jacoby

Associate Dean & Professor of Civil & Environmental Engineering
College of Science & Engineering, Seattle University

Patrick J.M. Murphy

Associate Professor
College of Nursing, Seattle University

Carolyn R. Stenbak

Associate Professor of Biology
College of Science & Engineering, Seattle University

Seattle University has had at least five MRI awards in the past 10 years. During a site visit (Randy Phelps attending) at least three faculty members described how the MRI awards made it possible for them to consider being at Seattle U since they were able to undertake research in an environment that was not otherwise conducive to it. Two of the faculty formed collaborations as a result of sharing instruments. Also, they noted that receiving a number of MRI awards put into motion a campus focus on science, the creation of a full time Office of Research Services and Sponsored Projects (ORSSP) Director and a new science building.

Experimental Program to Stimulate Competitive Research (EPSCoR)

The National Science Foundation established the Experimental Program to Stimulate Competitive Research (EPSCoR) in 1978 and the program has operated continuously since the first awards were made in fiscal year 1980.

EPSCoR's mission is to advance excellence in science and engineering research and education resulting in sustainable increases in research, education, and training capacity and competitiveness to enable EPSCoR jurisdictions to have increased engagement in areas supported by the NSF.

PRESENTATION DESCRIPTION:

Transforming the Research Culture Within a State

Michelle Baker

Professor of Biology, Utah State University

Jeff Horsburgh

Assistant Professor, Civil & Environmental Engineering, Utah State University

Dan Bedford

Professor of Geography, Weber State University

Stephanie Mitts

Undergraduate, Weber State University

In less than two years' time, EPSCoR has transformed the entire research culture across the state of Utah. Prior to EPSCoR, the 3 research intensive institutions (Utah State University, University of Utah, and Brigham Young University) were very competitive with each other and research faculty had little knowledge of the expertise that existed at the other state institutions. Through the network established with EPSCoR funding, over 25 collaborative proposals were submitted that included PIs from the three institutions referenced above. In addition, the Research Catalyst Grant (RCG) program funded through EPSCoR provided innovation funds to faculty at Primarily Undergraduate Institutions (PUIs) to work on collaborative projects with researchers at the research-intensive institutions. Over the two years, EPSCoR has funded 9 RCG projects that involved more than 15 new PUI faculty. These RCGs have resulted in PUI faculty being included in a number of proposals submitted to NSF and other agencies. These RCGs have involved over 30 undergraduates at PUI schools having their first exposure to research experiences. In addition, the near peer mentoring provided to PUI undergraduates by graduate students has sparked in many of them graduate school and research aspirations.

Science and Technology Centers (STC)

The National Science Foundation established the Science and Technology Centers (STC) Program in 1987, with the first centers starting in 1989. Since the inception seven competitions were held yielding a total of 50 centers.

STCs investments support the NSF vision of advancing discovery, innovation and education beyond the frontiers of current knowledge, and empowering future generations in science and engineering. The Centers conduct world-class research through partnerships among academic institutions, national laboratories, industrial organizations, and/or other public/private entities, and via international collaborations, as appropriate.

PRESENTATION DESCRIPTION:

Transforming the Science Landscape: Opening New Frontiers of Research

Deborah Estrin

Professor of Computer Science
Cornell Tech

Thomas Harmon

Professor
University of California, Merced

The Center for Embedded Networked Sensing (CENS) has created science-driven environmental sensing systems architecture, including: algorithms, analytical techniques, and implementations for multipoint, multimodal, multiscale, static and mobile sensing array that enabled domain scientists to record data in a way that was not previously possible. The research also transformed computer science/engineering landscape because CENS developed the first real end to end systems for networked sensing.



The National Science Foundation
Office of Integrative Activities
4201 Wilson Blvd, Room 935
Arlington, VA 22230