

NSF/AST Presentation to the Astro2020 Panel on State of the Profession and Societal Impacts

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I. Who We Are & What We Do

To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense; and for other purposes.

--from The National Science Foundation Act of 1950 (P.L. 81-507)

NSF Merit Review Process



- Overall Merit Consists of <u>Two</u> Criteria **ØIntellectual Merit Ø**Broader Societal Impact Occasionally: Solicitation-specific criteria • Peer Review is only part of the process **Ø**Review method and structure **Ø**Program Officer recommendation **Ø**Division Director concurrence
 - Reconsideration process
 Division of Grants and Agreements
 Committee of Visitors (every 4 years)

Broader Societal Impact



- *"Broader impacts may be accomplished*
 - Ø through the research itself,
 - Øthrough activities that are directly related to [the proposed research],
 - **Ø**or through activities that are supported by, but are complementary to, the project."
- Evaluate how well the proposal *explains* the societal benefit of funding this research.
- In astronomy, these impacts are most commonly manifested in education, educational infrastructure, public outreach, enhanced public literacy, citizen science, and broadening participation.
- Other societal impacts are possible, so keep an open mind

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Governing Documents



 NSF Policy and Procedure Documentation

 ØNSF Merit Review website: <u>https://www.nsf.gov/bfa/dias/policy/merit_review/</u>

Proposal & Award Policies and Procedures Guide ("PAPPG"; NSF 19-1)

Source Section Section

ØIndividual Solicitations



II. Overview of Existing Programs and Activities



AST Division Programs







 Christopher Davis
 Joe Pesce

 Program Director
 Program Director

 NOAO,
 National Radio

 Gemini
 Astronomy

 Observatory
 Obs.; ALMA

actor Program Director adio National Solar V Observatory; AA DKIST Edward Ajhar
Program DirectorAshley Zauderer
Program DirectorLarge SynopticAreciboSurvey TelescopeObservatory

Harshal Gupta Program Director Green Bank Observatory Mid-S

Richard Barvainis Program Director Mid-Scale Innovations Program (MSIP)

Jonathan Williams Ashley Zauderer Program Director Program Director

AAG Funding History, 1990-2019



1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019



Funding for Activities Relevant to this Panel



• AST Grants Programs

Direct student support and explicit broader societal impact as part of research grants (e.g., AAG, CAREER, AAPF).
Research Experiences for Undergraduates
Seed funding through Education & Special Programs (ESP)

- AST Facilities
- NSF-wide Programs
 Øe.g., Graduate Research Fellowship Program (GRFP)
 Øe.g., INCLUDES, S-STEM, IUSE

Broadening Participation Efforts in AST

- AAPF Supports diverse young researchers
- REU Recruitment from NAC and CAMPARE
- Education and Special Programs (ESP)
 ØNSBP meeting
 ØAAPF symposium
 ØVera Rubin symposium
 ØWomen in Astronomy IV
 ØInclusive Leaders in Astronomy
 ØNavaho-Hopi Astronomy Outreach Program
- PAARE Program

The NAC Undergraduate Experience



Broadening Participation Efforts in AST



Broadening Participation Efforts in AST

At least 2 of the 8 INCLUDES Alliances have AST connections Some DDLPs have AST connections (e.g. Wisconsin, Vanderbilt)



Inclusive Graduate Education Network













AST Early Career Program Details



Program	Design Principles	Selection Framework
CAREER	 Tenure-Track Faculty 5-year grant; >\$400K total Integrated Research & Education Plan Dept chair letter Many propose to AAG as well 	 Panel Review – CAREER proposals only; very broad range of topics Special charge given; panelists typically have appreciation of issues in early faculty development Highly competitive
AAPF	 5 years or fewer since PhD 3-year Fellowship; stipend + expense allowance=\$100K/y Includes research and education/outreach activities Integrated with host institution; letter of commitment, not recommendation 	 Panel Review – AAPF proposals only; very broad range of topics Special charge given; panelists typically have appreciation of issues facing recent PhDs (e.g. former AAPFs) Highly competitive
GRFP	 3-year graduate fellowships (administered by host institution) Large, NSF-wide program 	 Single review panel for Astronomy Special charge given to panelists to carry out holistic review of potential



III. Strategic Planning and Astro2020

NSF Strategic Planning Process



AST Strategic Planning

 Input, Advice, Oversight ØDecadal Surveys (A&A, Helio, Planetary, Plasma) **Ø**Ad Hoc panels (often chartered through National Academies) Information meetings with community and individuals **ØMPS** Advisory Committee • Committee of Visitors **Ø**AAAC (NSF, NASA, DOE) Internal working groups and management structure • CORF, LFO, MPS, IDTs, etc (for facilities) **Ø**Office of Director, National Science Board, Executive Branch **Ø**Congress



AST Strategic Planning

NSF

• Annual Budget Cycle

Single appropriation for "Research and Related Activities"
Salance Facilities and Individual Investigator Programs
MREFC, targeted funding outside AST budget, partnerships (internal and external), etc

Program evaluation

Øpermanent part of our process; ramps up for COV
Øperiodic for special-purpose programs
Øsometimes part of NSF-wide process (e.g. REU sites)

What Can You Do To Help Our Planning?

NSF

- Develop and Articulate an "Aspirational" View
- Recommend Community Priorities
- Rather than Individual *Programs* Cost and interactions w/ other programs
 NSF Policies and limitations
 Unintended consequences
- Ask us anything

2018 Science and Engineering Indicators: https://www.nsf.gov/statistics/2018/nsb20181/