

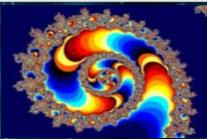
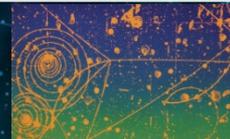
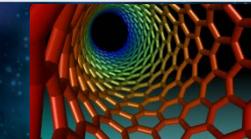
NSF/BIO Research Support

Anthony Garza, Program Director

Division of Molecular and Cellular Biosciences
National Science Foundation

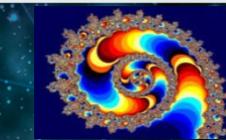
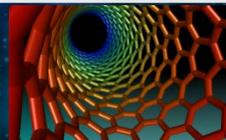
Rosslyn, VA
October 6-7, 2014

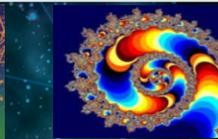
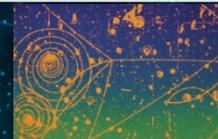
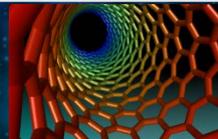
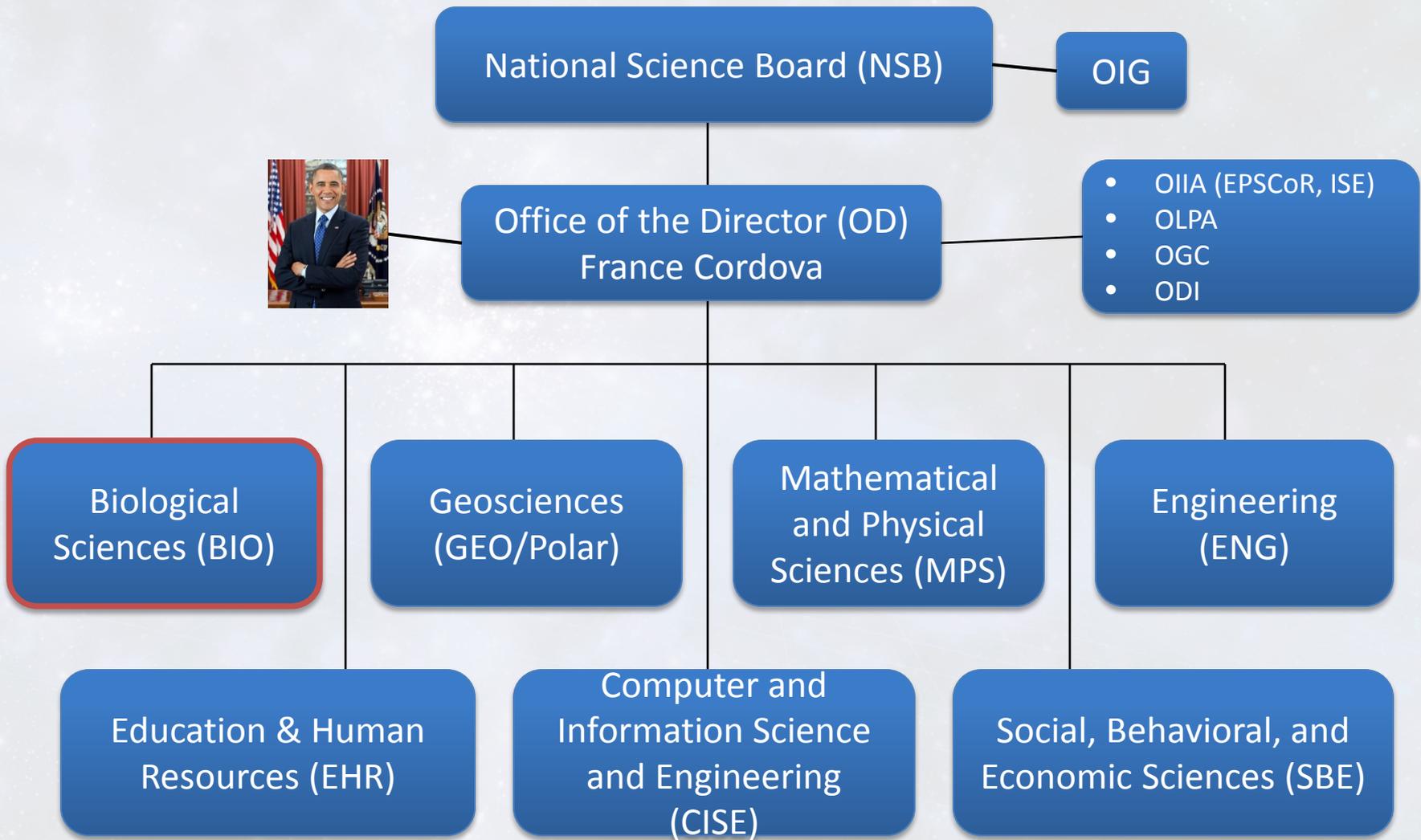
One **NSF**



Outline

- BIO Organization
- Overview BIO Divisions/Programs
- Proposals MCB
- Pre/Full proposal process in DEB & IOS
- Writing for success
- Program considerations
- Q&A







James Olds
Asst. Director BIO

**Directorate for Biological Sciences
(BIO)**

Emerging Frontiers (EF)
ADBC, MSB, DoB, OA

**Division of
Biological Infrastructure
(DBI)**

**Division of
Environmental Biology
(DEB)**

**Division of Integrative
Organismal Systems
(IOS)**

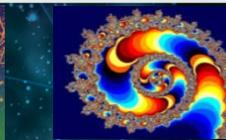
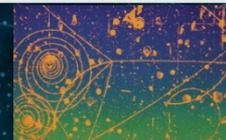
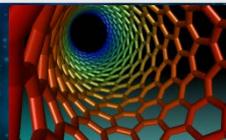
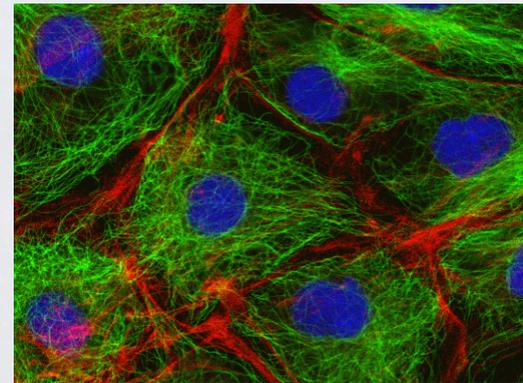
**Division of Molecular
and Cellular Biosciences
(MCB)**



Division of Molecular and Cellular Biosciences (MCB)

Research

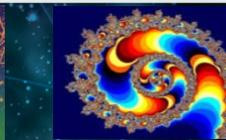
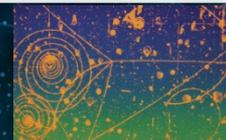
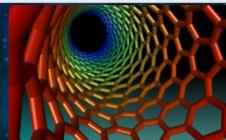
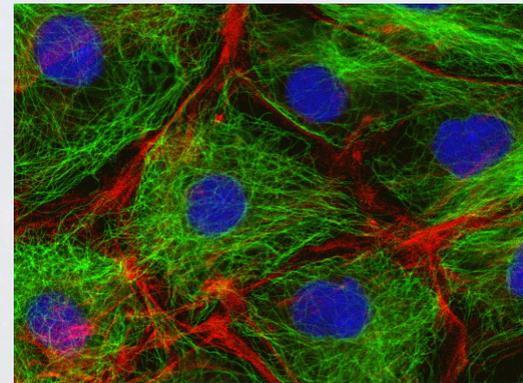
Supports quantitative, predictive, and theory-driven research designed to promote understanding of complex living systems at the molecular, subcellular, and cellular levels.



Division of Molecular and Cellular Biosciences (MCB)

Clusters

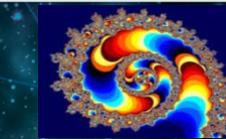
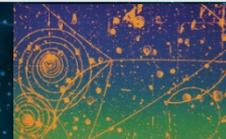
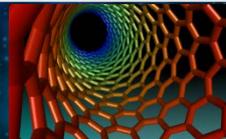
- Molecular Biophysics
- Genetic Mechanisms
- Cellular Dynamics and Function
- Systems and Synthetic Biology



Division of Integrative Organismal Systems (IOS)

Research

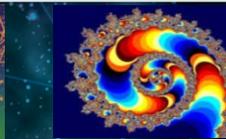
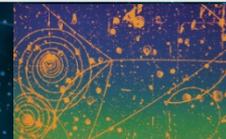
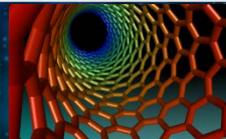
Supports research aimed at understanding the living organism-- plant, animal, microbe -- as an integrated unit of biological organization.



Division of Integrative Organismal Systems (IOS)

Clusters

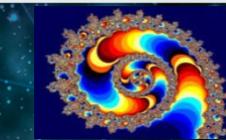
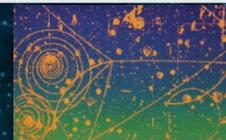
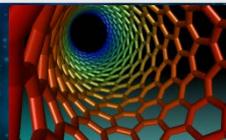
- Behavioral Systems
- Developmental Systems
- Neural Systems
- Physiological and Structural Systems
- Plant Genome Research Program



Division of Environmental Biology (DEB)

Research

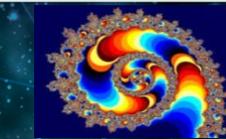
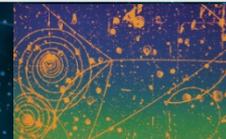
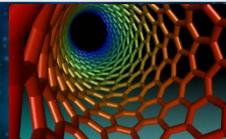
Supports fundamental research on populations, species, communities, and ecosystems.



Division of Environmental Biology (DEB)

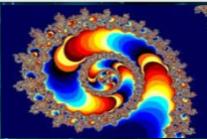
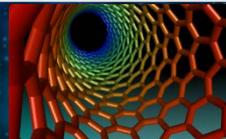
Clusters

- Ecosystem Science
- Evolutionary Processes
- Population and Community Ecology
- Systematics and Biodiversity



Division of Biological Infrastructure (DBI)

Supports resources needed to empower biological discovery



Division of Biological Infrastructure (DBI)

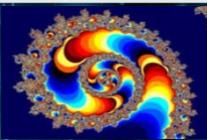
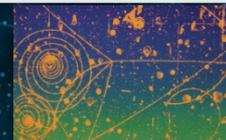
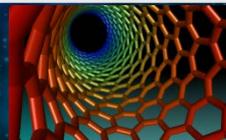
Clusters

Research Resources

- Advances in Biological Informatics
- Improvements in Facilities, Equipment and Communications at Field Stations and Marine Labs
- Instrument Development
- Collections in Support of Biological Research

Human Resources

- Postdoctoral Research Fellowships
- Research Experiences for Undergraduates
- Research Coordination Networks



Division of Emerging Frontiers (EF)

Supports multidisciplinary research opportunities and networking activities that arise from advances in disciplinary research.

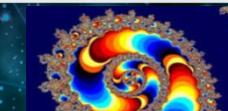
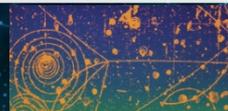
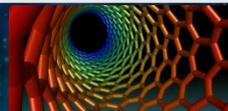
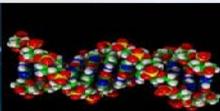
-By encouraging synergy between disciplines, EF provides a mechanism by which new initiatives will be fostered and subsequently integrated into core programs



Division of Emerging Frontiers (EF)

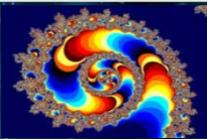
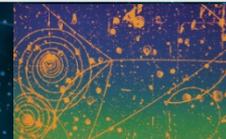
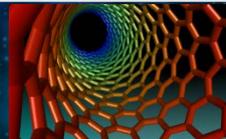
Programs Taking Proposals

- Advancing Digitization of Biodiversity Collections
- Dimensions of Biodiversity
- Macrosystems Biology
- Ocean Acidification

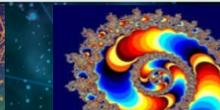
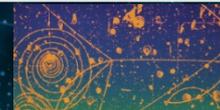
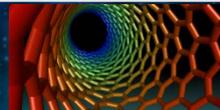
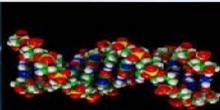
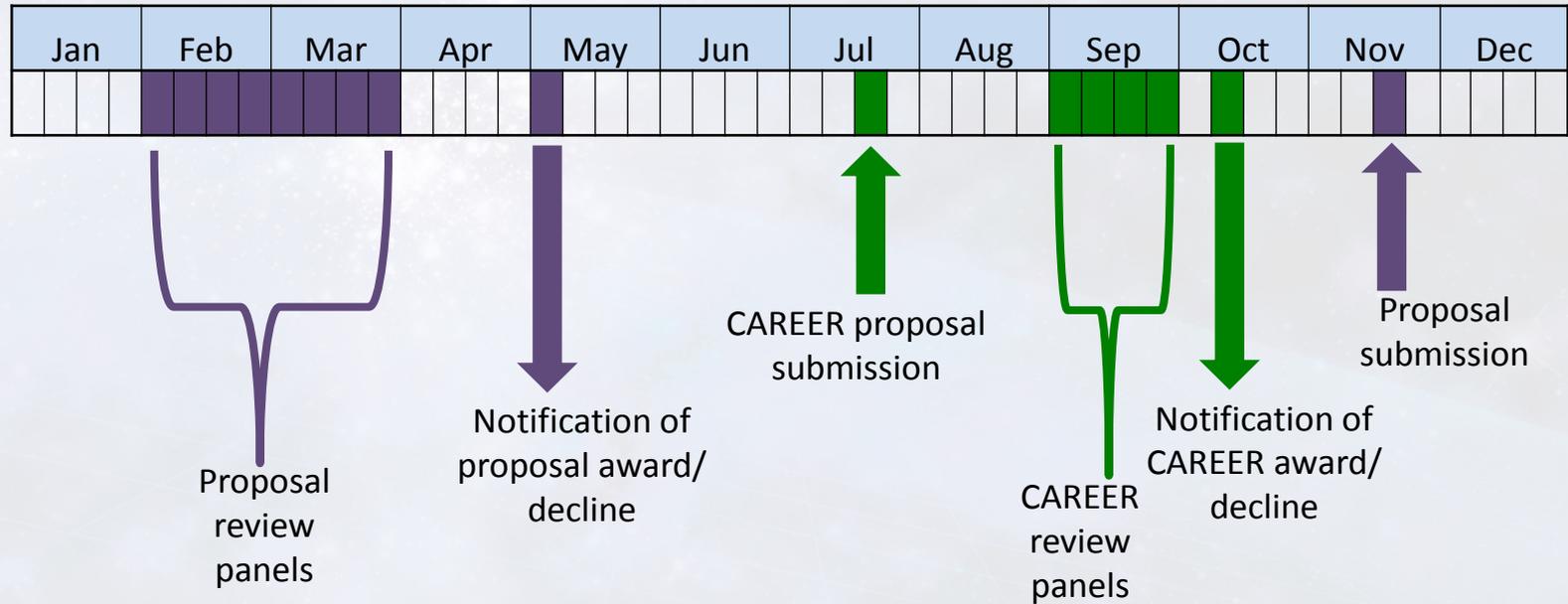


Changes in MCB Proposal Cycle

- Dropped full proposals @ 2x/yr
- Adopted full proposals @ 1x/yr
- Currently considering impacts

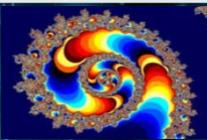
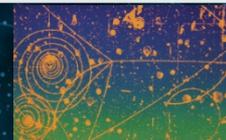
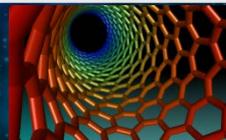


Annual Cycle of Review and Recommendation (MCB)

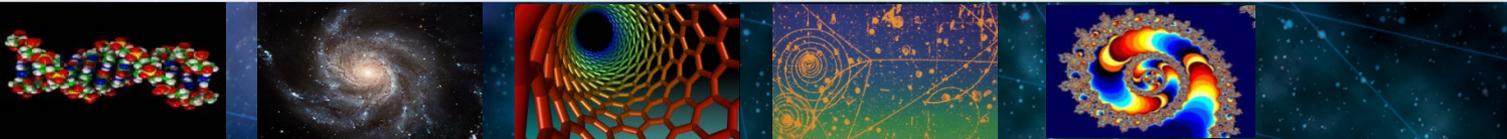
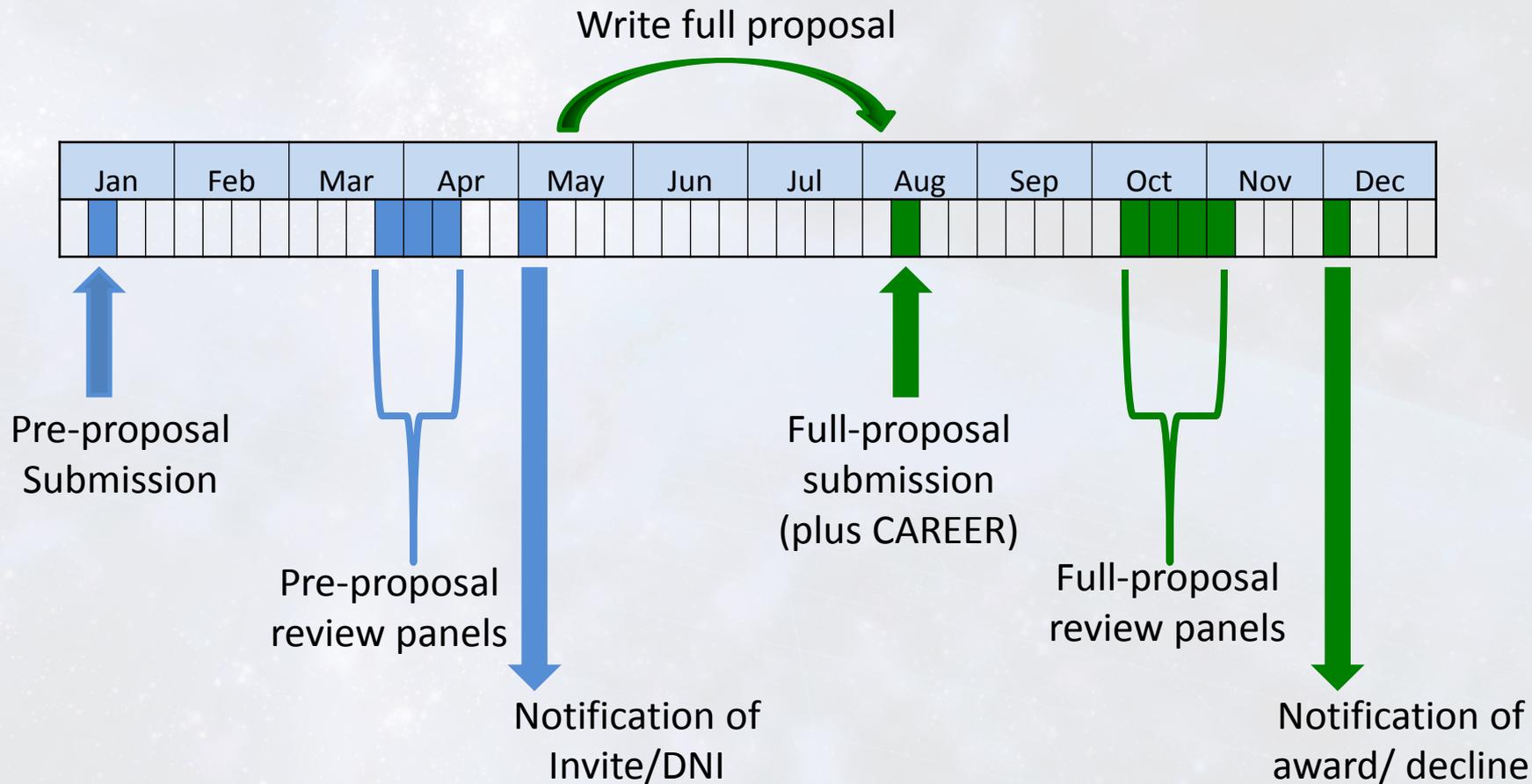


Changes in DEB and IOS Proposal Cycles

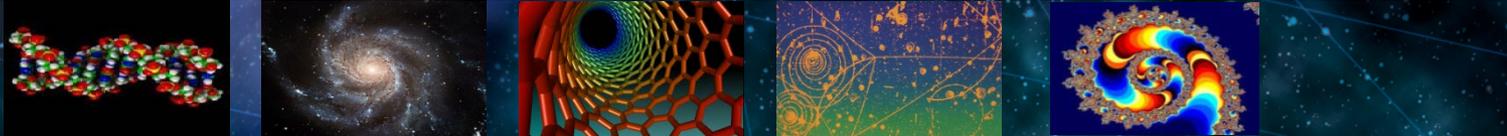
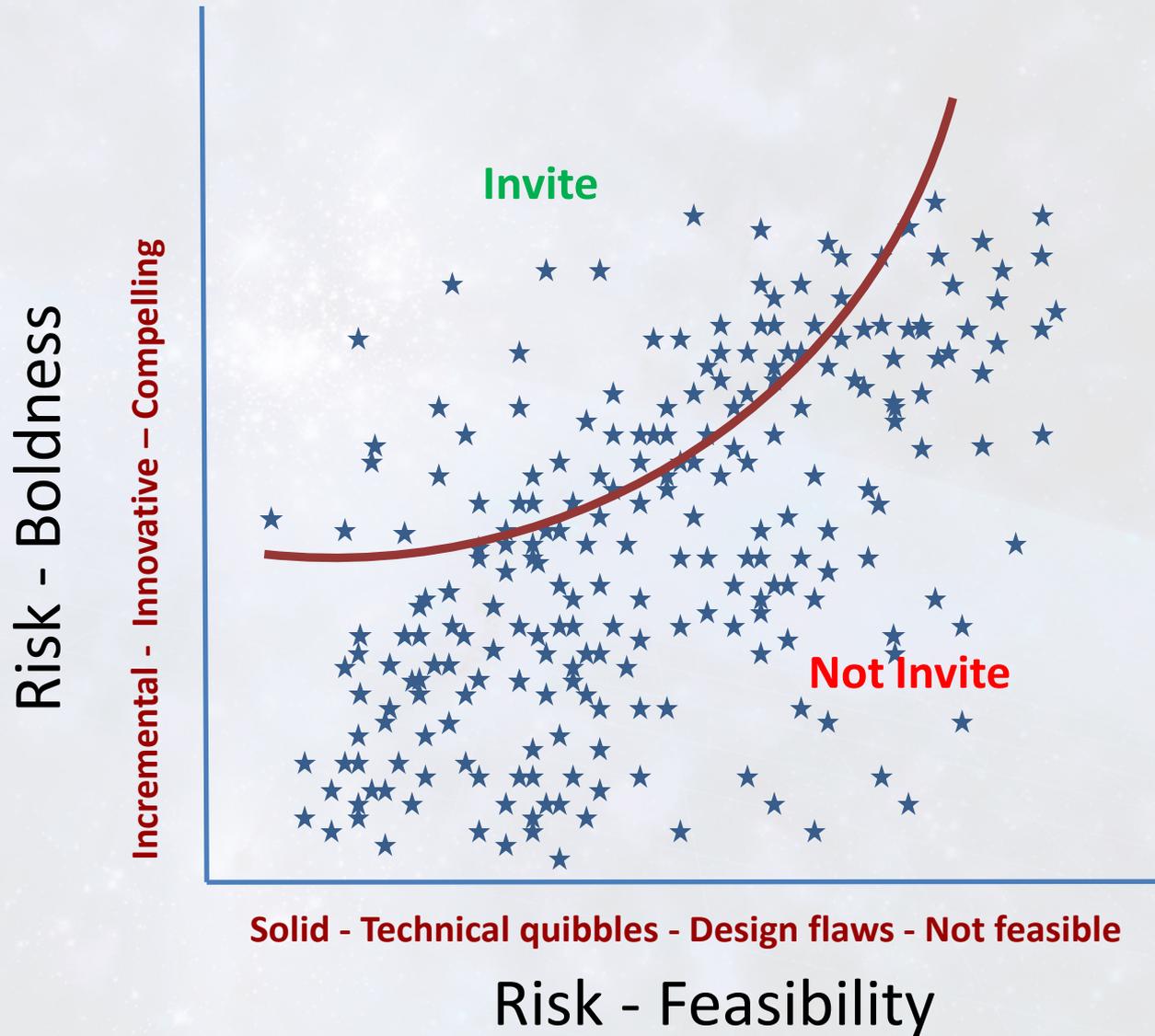
- Dropped full proposals @ 2x/yr
- Adopted pre-proposals @ 1x/yr (with limit of 2/PI/division); invited full proposals @ 1x/yr
- Currently considering impacts and potential changes



Annual Cycle of Review and Recommendation (DEB and IOS)



Proposal review - 2 axes of Risk

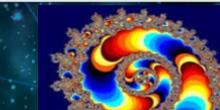
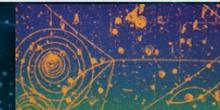
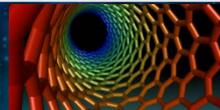
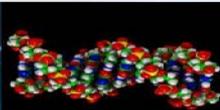


Writing proposals for NSF (general)

- Lead with best ideas for moving forward the frontiers of science.
- Everything else must logically follow.

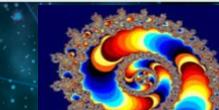
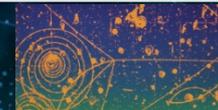
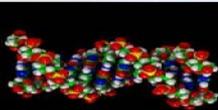
This is the greatest contrast with all other agencies.

(do not start proposals stating where you would like to work, which species/ecosystem you want to study, the newest techniques you will use, what societal problem you are going to solve, what you can leverage...)



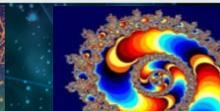
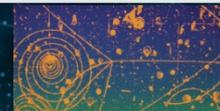
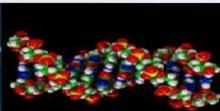
Writing Successful Pre-proposals

- In a compelling pre-proposal, the logical flow and significance of the proposed line of investigation must be articulated clearly and the broader impacts of the work apparent.
- Pre-proposals are reviewed by panelists only, so should be developed with a generalist, scientist reviewer in mind.



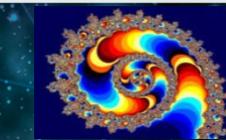
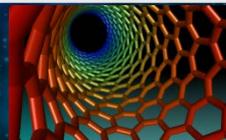
Writing Successful Pre-proposals

- Ideas new and novel, potentially transformative, conceptually well-grounded
- Potential impact of the science clear
- Experimental approaches and design feasible, logically linked to central ideas
- PIs well qualified and sufficiently experienced to effectively conduct the research
- Risks recognized and evaluated
- Convincing and significant effort made towards broader impacts (incl. required resources, leveraging)



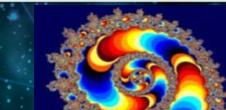
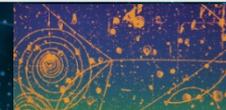
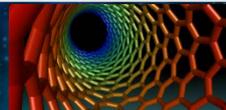
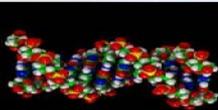
Writing Successful Full Proposals

- Start with the big picture (conceptual framework), the fundamental question/science issue
- Make your science compelling and relevant to fundamental issues (generalizable)
- Experimental plan well-matched to hypotheses
- Preliminary data consistent with hypotheses
- New methods usually require preliminary data or demonstration they work
- Methods and design are best to test the hypotheses
- Alternative experimental outcomes considered



Other (program) considerations

- Likely scientific impact
- PI career point (encourage beginning PIs)
- Program's scientific portfolio balance
- Other grant support for the PI (*varies*)
- Institution or state (encourage PUI, EPSCoR)
- Special programmatic considerations (CAREER, RUI, RCN etc....)
- Other diversity issues
- Likely educational impact



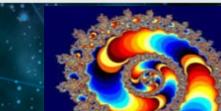
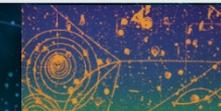
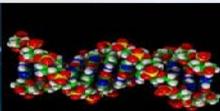
Societal trust in science is high

Highly uncertain times demand solid science

Problems are urgent, so we need more than
marginal science and advancements

Resources are limited and competition is strong

Must be aggressive and creative



Questions?

Anthony Garza

aggarza@nsf.gov

