Strategies for Effective (NSF) Grant Proposals

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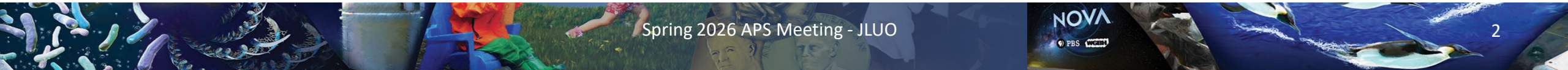
March 2026

Before Putting Pen to Paper

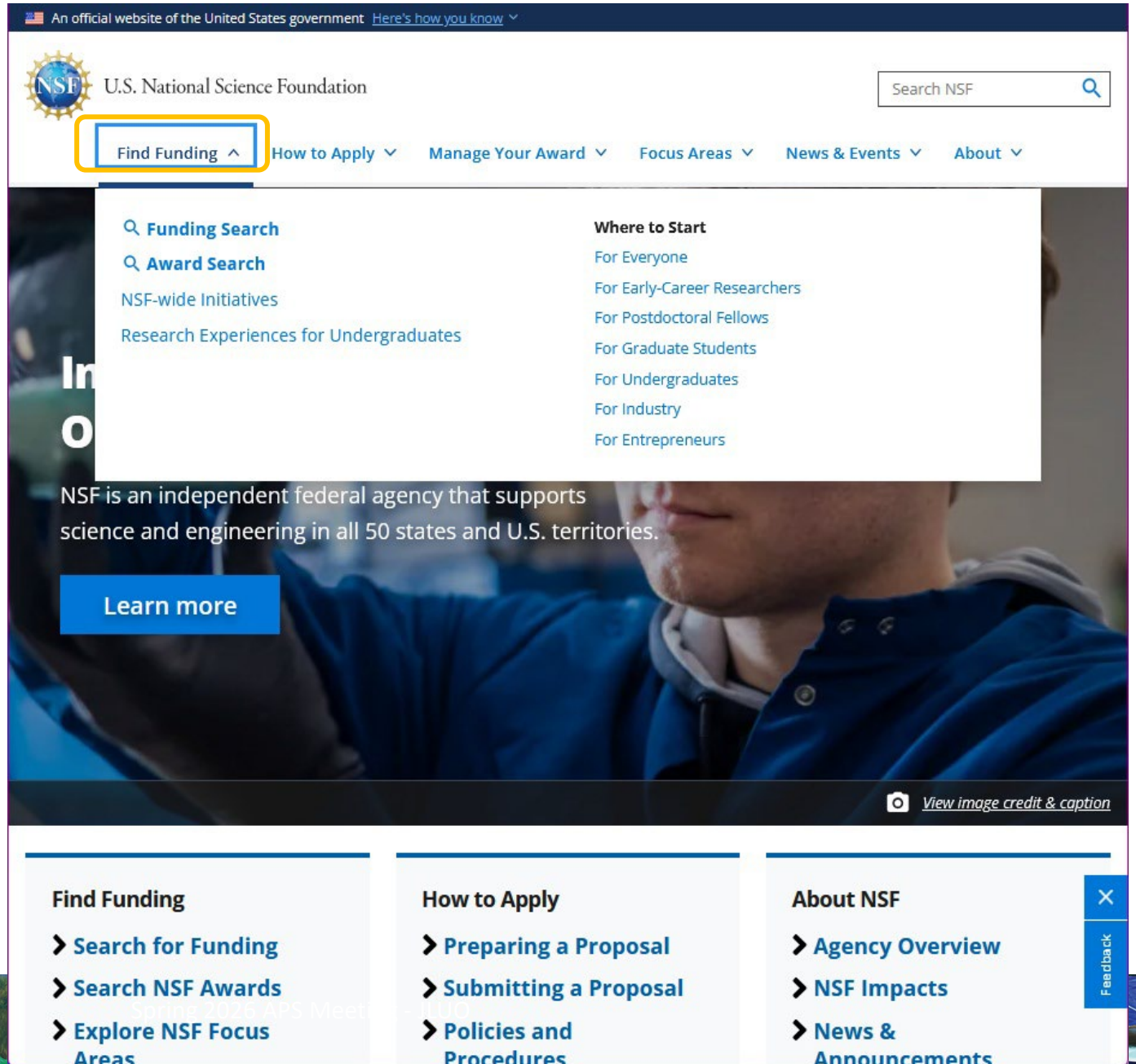
- Investigate Program Websites
- Search Award Database
- Possible co-review is inter/cross-disciplinary
- Read Appropriate Notice of Funding Opportunity (NOFO)
- Contact Program Director
  - One or two paragraphs describing projects
  - Zoom, Teams, email, or even a phone call



Searching the NSF Award Data Base www.nsf.gov

- Advanced Search
- Program Info
- Program Officer (my name)

→ list of awards



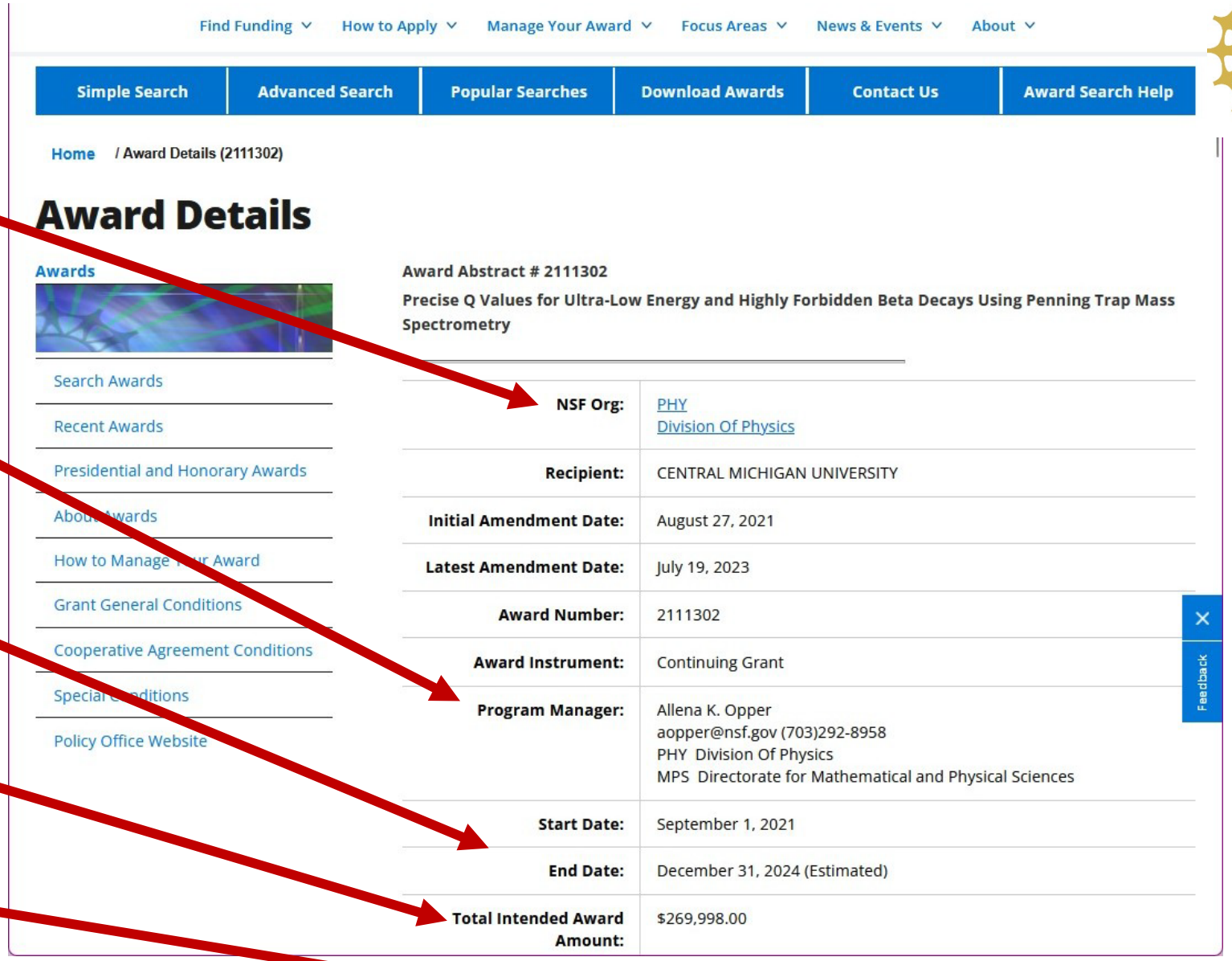
Section that made the award

Managing program director
- with contact info

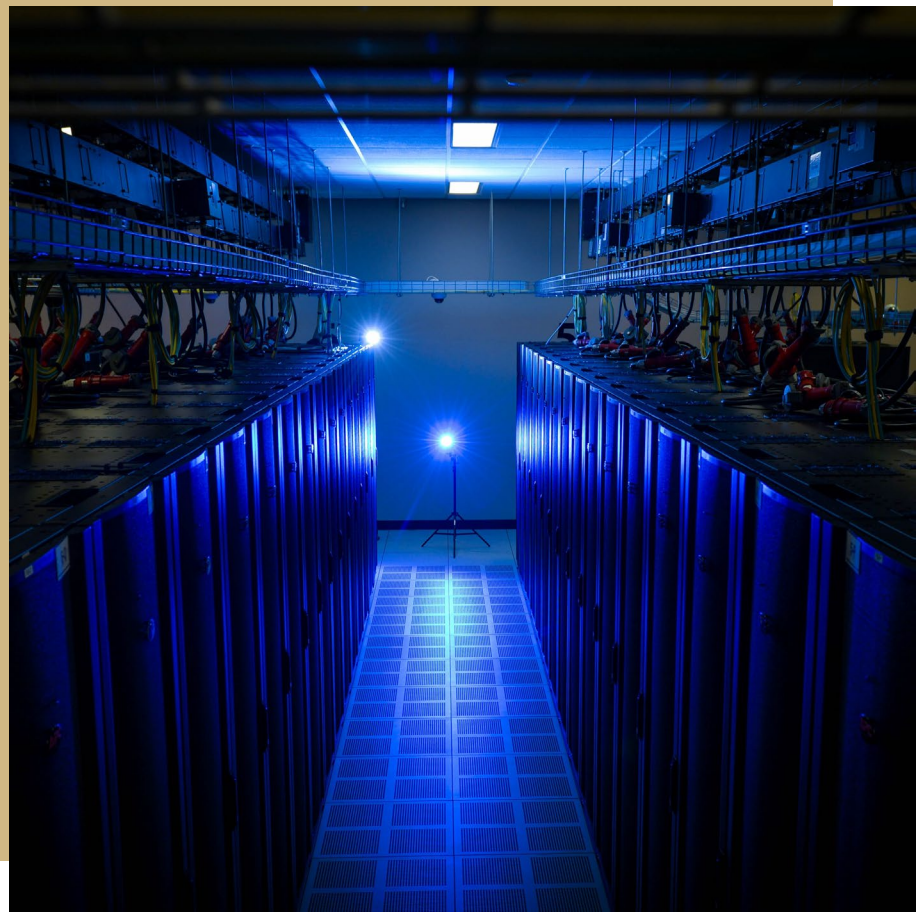
Start/End dates

Intended funding

Abstract (further down)



NSF Merit Review Criteria: Intellectual Merit



Importance of proposed activity:

Should this be done?

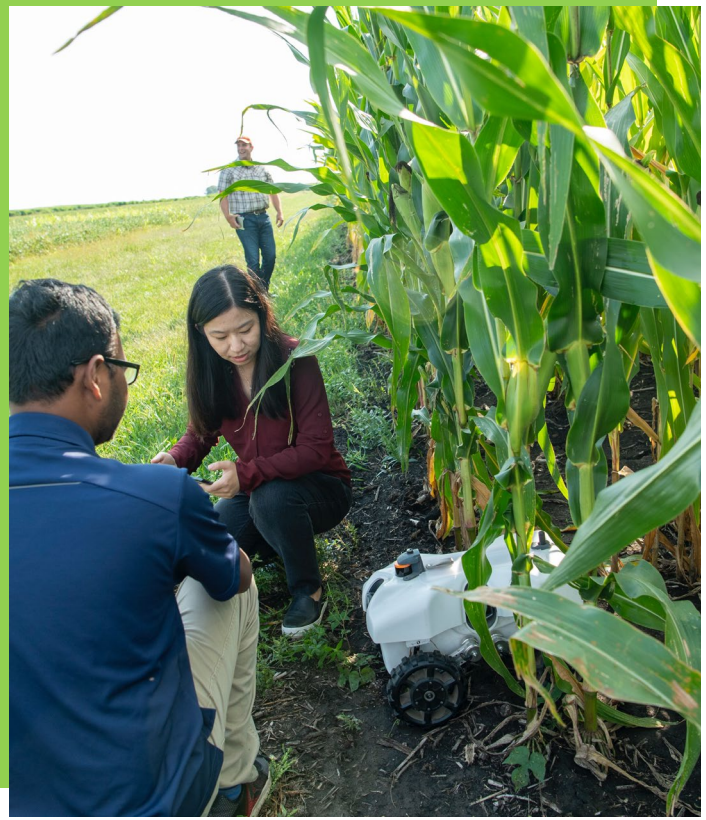
- to advance knowledge and understanding
- within the field and across fields
- creative, original, or potentially transformative research
- significance of expected contributions

How well conceived and organized is the proposed activity?

Can this be done?

- Soundness and feasibility of approach, evaluation, research plan
- How qualified is the team to conduct the proposed research
- Data Management Plan
- Mentoring Plan
- Access to necessary resources, equipment, facilities, etc.
- Requested support (budget)

NSF Merit Review Criteria: Broader Impacts



Accomplished through

- the research itself
- activities that are directly related to specific research projects, AND / OR
- activities that are supported by, but complementary to the project.

Considerations

1. What is the potential for the proposed activity to benefit society or advance desired societal outcomes?
2. To what extent do the proposed activities suggest and explore creative, original or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized and based on sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team or institution to conduct the proposed activities?
5. Are there adequate resources available to the principal investigator (either at the home institution or through collaborations) to carry out the proposed activities?

Broader Impacts (continued)

The Foundation shall apply a broader impacts review criterion to identify and demonstrate project support of the following goals:

1. Increasing the economic competitiveness of the United States.
2. Advancing of the health and welfare of the American public.
3. Supporting the national defense of the United States.
4. Enhancing partnerships between academia and industry in the United States.
5. Developing an American STEM workforce that is globally competitive through improved pre-kindergarten through grade 12 STEM education and teacher development, and improved undergraduate STEM education and instruction.
6. Improving public scientific literacy and engagement with science and technology in the United States.

(P.L. 114-329, “American Innovation and Competitiveness Act of 2017”)

These examples should not be considered either comprehensive or prescriptive.

Proposers may include appropriate outcomes not covered by these examples.

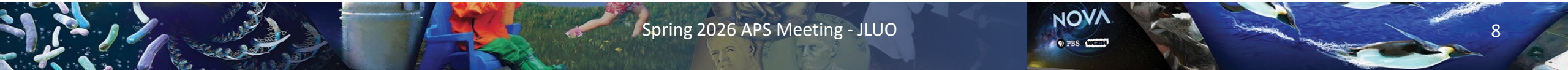
Even More on Broader Impacts

Suppose the proposal states that the PI will train & mentor students

- This is an assertion
- Proposal should outline a plan for that training & mentoring and/or provide demonstrated success

Proposals are often for research on experiments that have been vetted and highly ranked through PACs or other committees

- Proposal should clearly state what the PI would contribute to that highly ranked experiment



How NOT to get Funded by NSF – *the Fast Path*

The following Proposal & Award Policies & Procedures Guide(PAPPG) violations are fatal. If you would like your proposal to be quickly returned *unread* with a note from NSF telling you how sorry we are but that our hands are tied, do one of these:

- **Have more than a one-page Project Summary**

  You are allowed one page at the beginning of the proposal to summarize the intellectual merits and broader impacts of your proposal.

- **Have more than 15 pages of Project Description (or much less than 15 pages)**

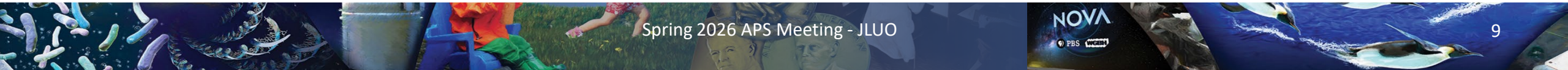
  You are allowed 15 pages to talk about your project and the good things that will come of it.

- **Leave out any discussion of Postdoc/Grad Student Mentoring**

  If you're requesting support for a postdoc pr grad student, don't write about mentoring them in career planning, preparation of grant proposals, publications and presentations, ways to improve teaching, how to effectively collaborate with researchers, and training in responsible professional practices. *Proposals will be returned without anyone reading it if a postdoc mentoring plan is missing.*

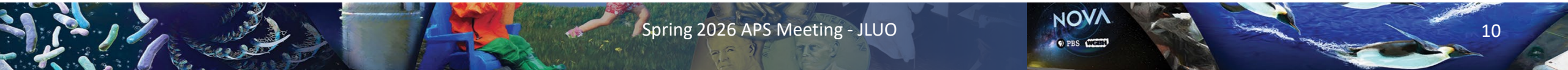
- **Submit your proposal at the last minute**

  The system can get hung up when everyone is submitting proposals at the same time.



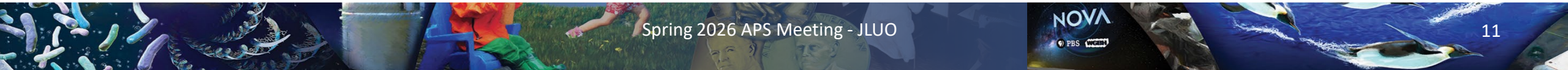
How NOT to get Funded by NSF – *the Slow Path*

- No discussion of Broader Impacts in Project Summary, Project Description, or Results of Prior Support
- Be vague regarding research/broader impact execution plans
- Use smallest possible font size or smaller margins; reduce size of figures
- Reduce your budget to the point that the proposed activities are not feasible; don't justify requested funding
- Cite papers you expect to be published by the time the proposal is reviewed
- Don't proof-read



Summary

- Follow instructions in PAPPG & NOFO
- Address all review criteria
  - Intellectual Merit, Broader Impacts, …
- Explain why proposed activities (Intellectual Merit and Broader Impacts) are important and feasible
- Provide metrics
- Make it easy for the reviewers to assess
- Proof-read
- Contact program directors if you have questions



For the latest updates:

https://www.nsf.gov/physics

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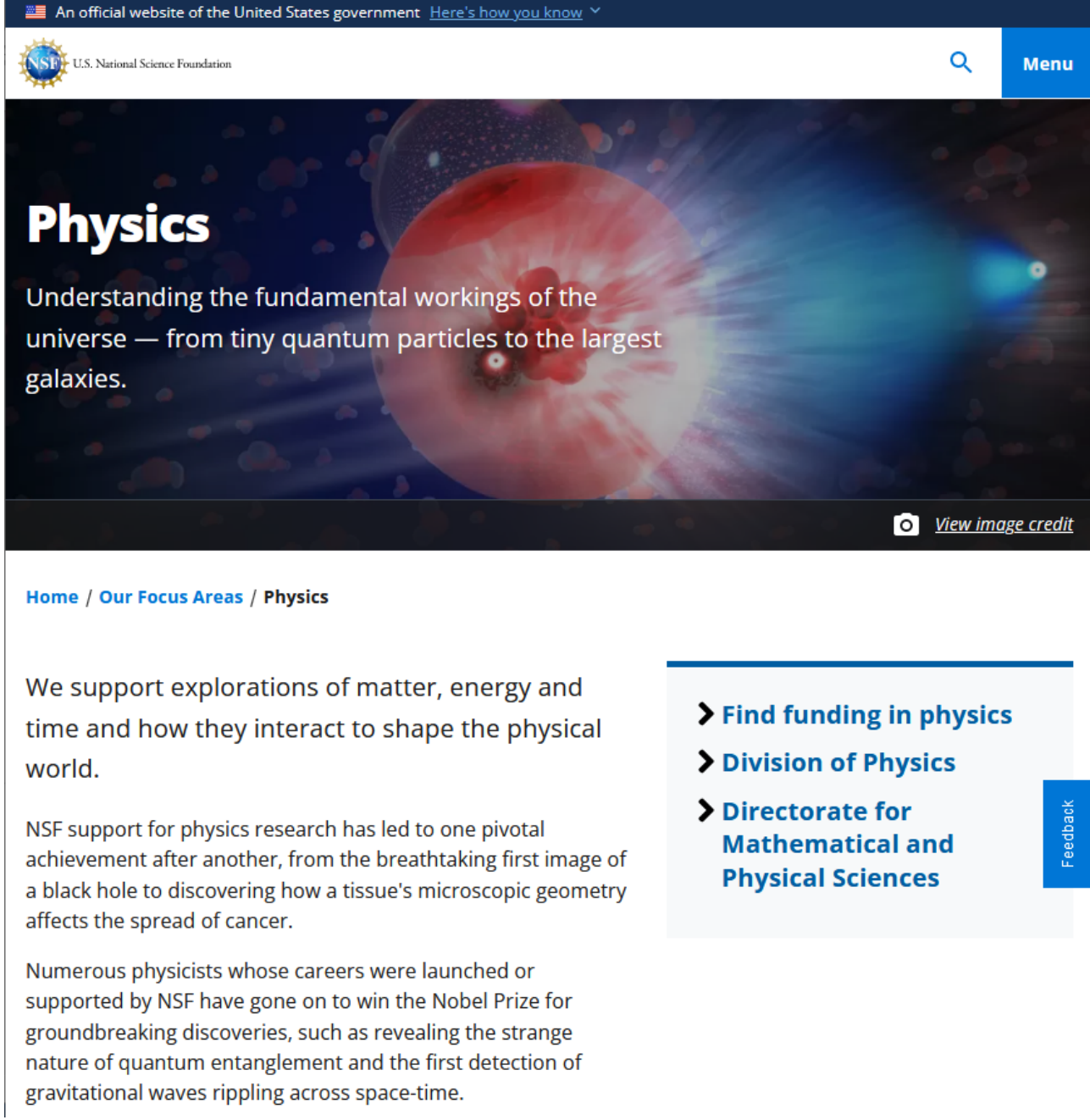

Thank You!