



NSF Pathways to Enable Open-Source Ecosystems

Pathways to Enable Open-Source Ecosystems (POSE)

Welcome!

- Opening remarks – Gracie Narcho
- Overview presentation
- Q&A – please submit questions via chat to any of the co-hosts (we will not be using the raised hand option)

[POSE Web Site](#)

2





NSF Pathways to Enable Open-Source Ecosystems

Pathways to Enable Open-Source Ecosystems (POSE)

Vision: Harness the power of distributed open-source development as an engine of innovation to address challenges of national and societal importance

Solicitation: [Pathways to Enable Open-Source Ecosystems](#)

4



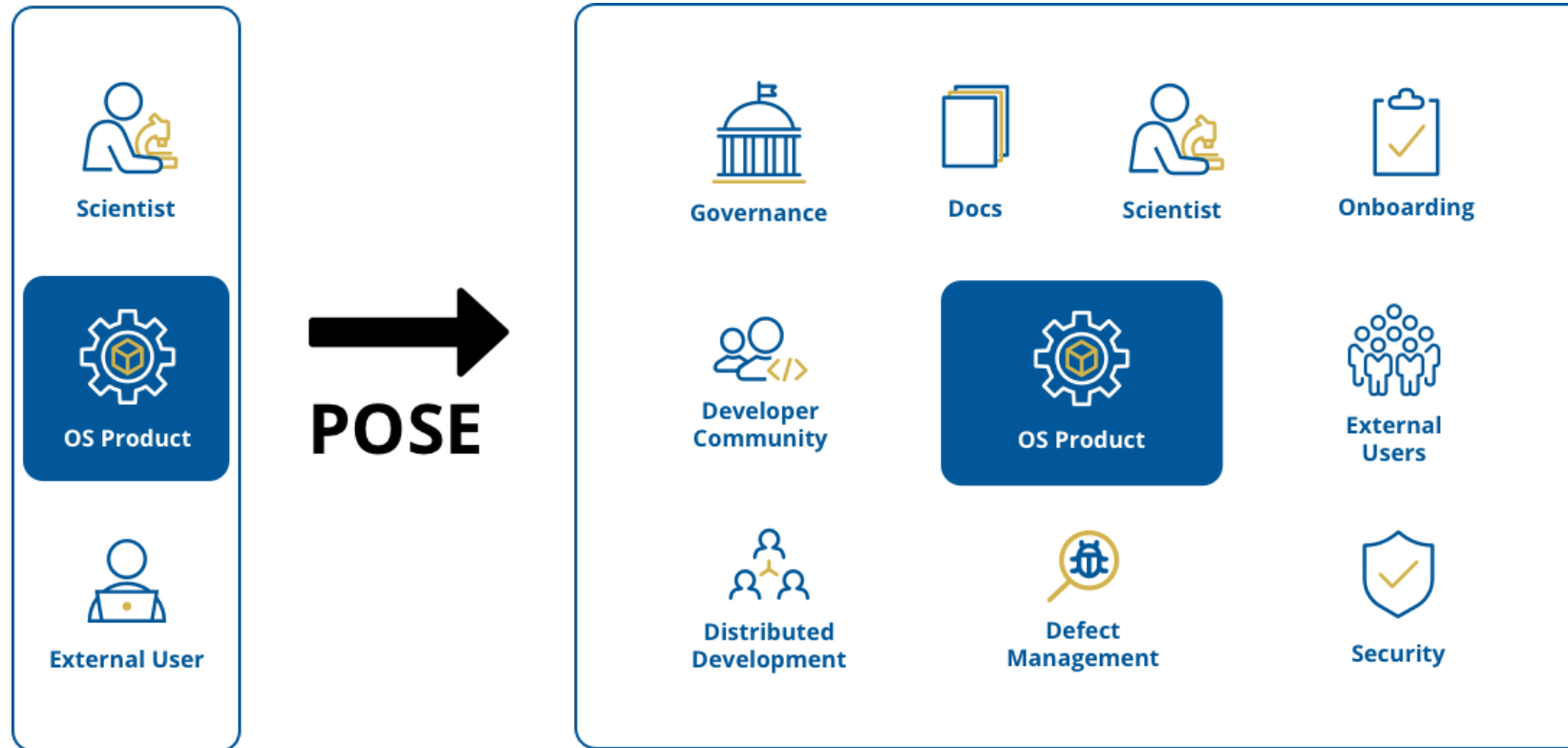
What is Open Source?

- Open source refers to *something* people can modify and share because its *design* is publicly accessible
 - Software source code
 - Languages or formats
 - Hardware instruction sets
 - Hardware designs or specifications
 - Scientific methodologies, models, or processes
 - Manufacturing processes or process specifications
 - Material formulations
 - Data
- POSE includes open-source of all types!

POSE Background



POSE Background



Some open-source artifacts and products evolve into open-source ecosystems

Open-source Product vs OSE

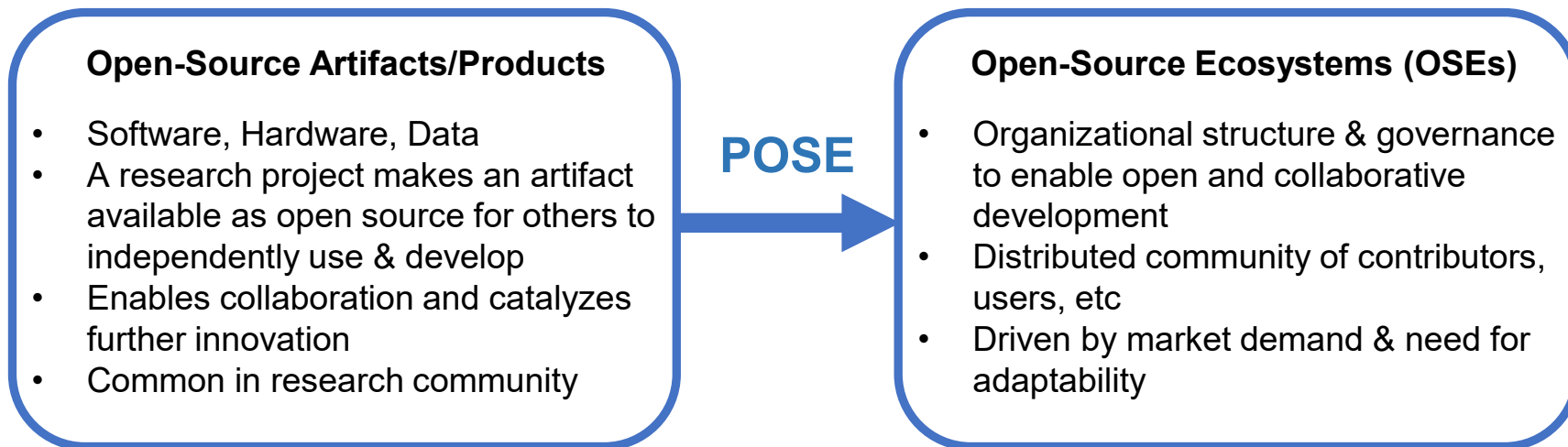
➤ Open-source Product

- Original source code available online
- External users
- All development/updates done by the originating team
- Minimal support for users: limited documentation, bugs reported and features requested by email

➤ Open-Source Ecosystem (OSE)

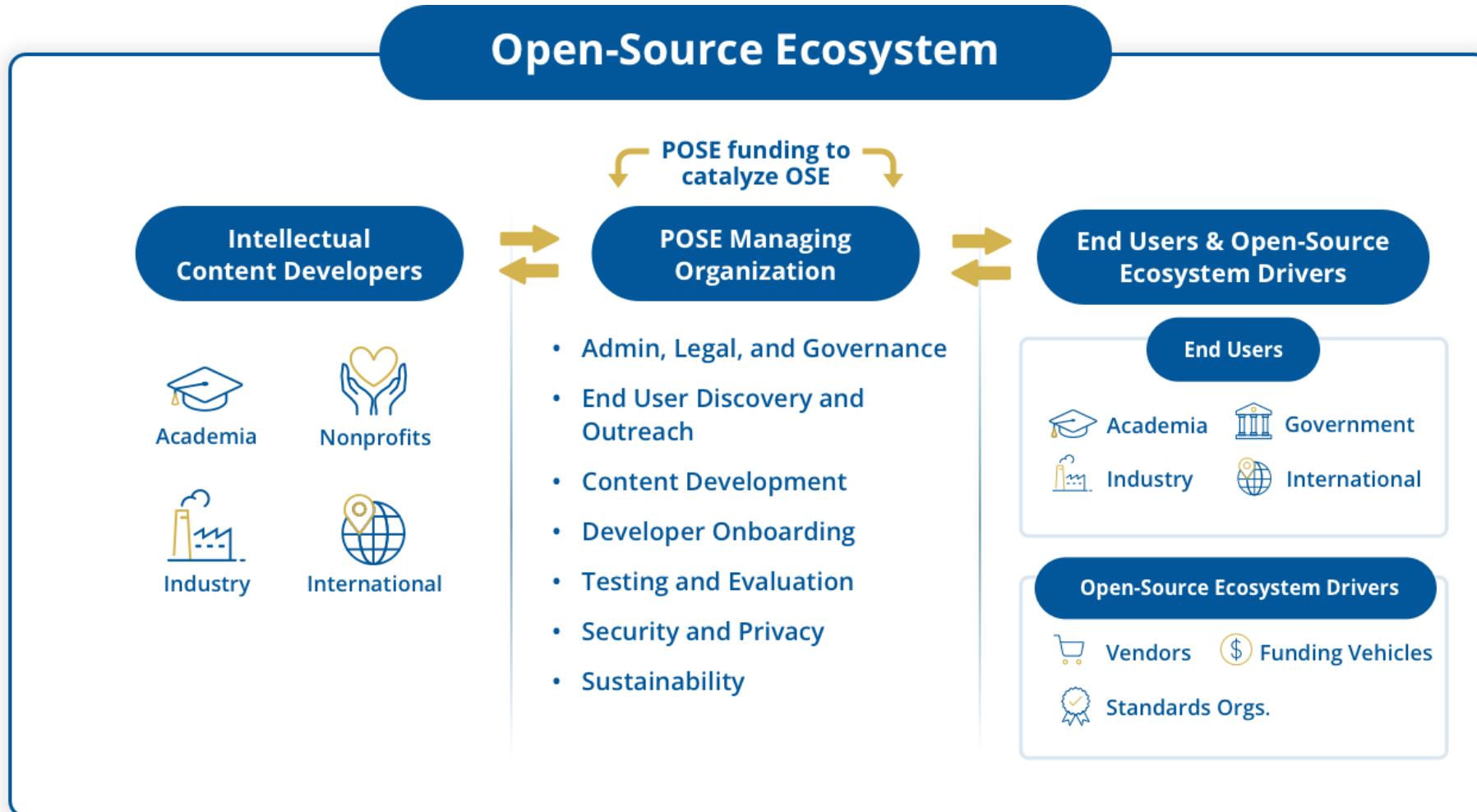
- Original source code available online (e.g., GitHub)
- External users
- External contributors, with onboarding mechanisms
- Comprehensive user support
- Continuous integration, delivery and deployment infrastructure with security, privacy and quality control mechanisms in place

Aim of the POSE Program



- POSE is intended to enable the early and intentional transition from an open-source product to an OSE
- This is done by funding the creation and operation of a **POSE Managing Organization**

Structure of a POSE OSE



What POSE Is

The POSE program is intended to fund managing organizations to catalyze the creation of OSEs based on an existing mature open-source product

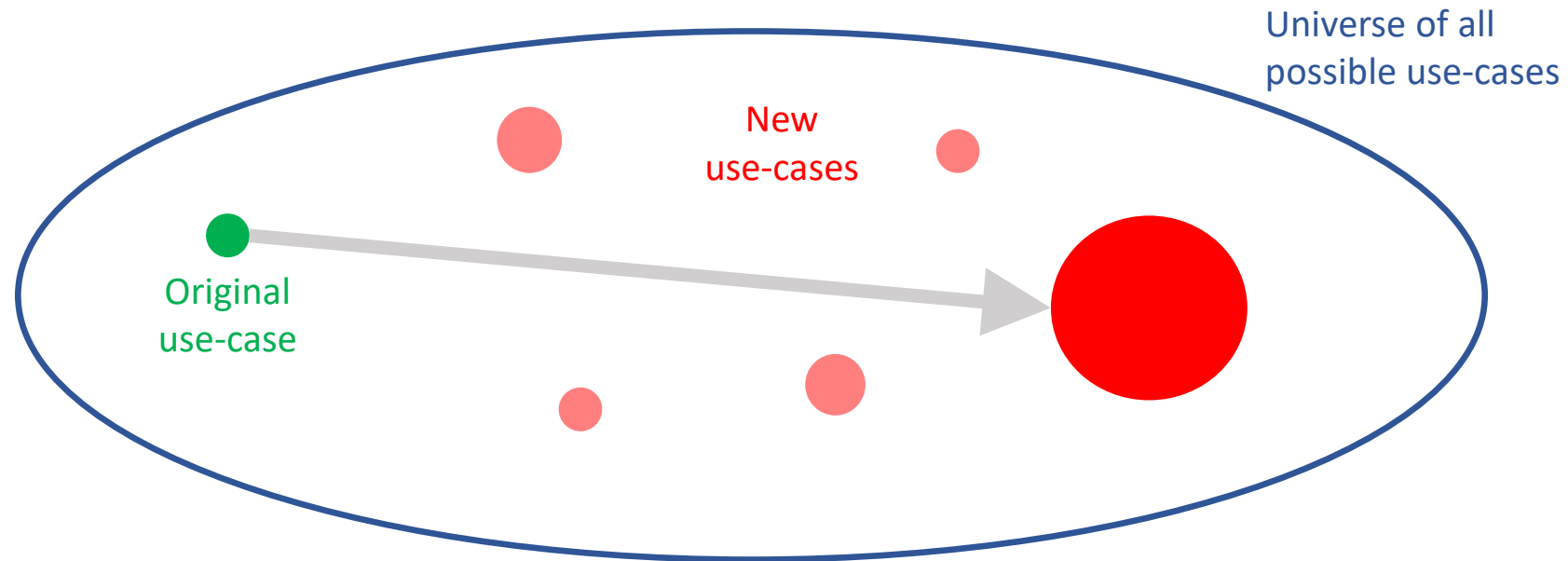
- Broader impact: a POSE OSE should address significant challenges of societal, national or economic importance
- Mature: the open-source product that has active users outside of the originating team/institutions
- Strategy: is an OSE the right approach?
- NSF Objective: to apply public funds where they will be catalytic in creating or growing new and impactful OSEs

What POSE Is Not

- Not intended to fund the development of open-source products
- POSE funding should be catalytic (move the needle) – not intended to fund existing well-resourced open-source communities and ecosystems
- Not intended to support open-source ventures for which profit is the primary motive

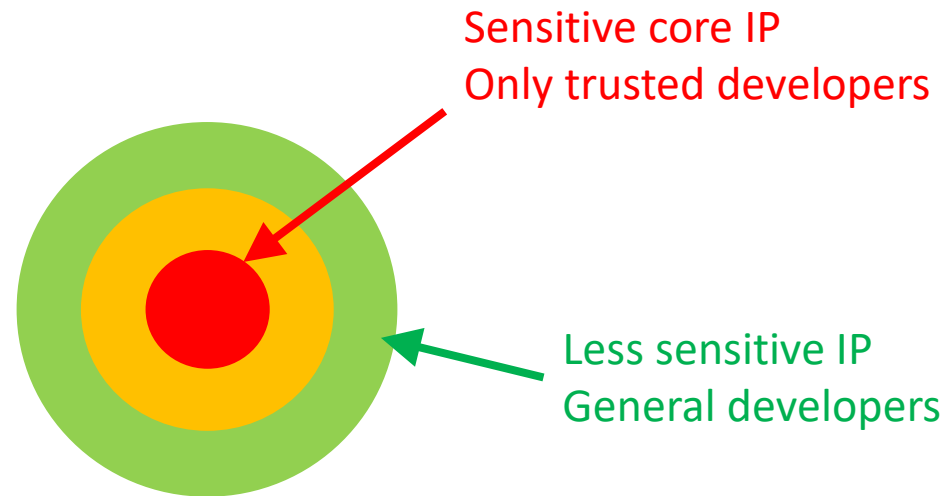
Importance of External Intellectual Content Developers

- External developers bring an awareness of new potential use-cases and thereby extend the vision of the OSE
- Intellectual content developers create solutions for new use-cases
- The OSE may evolve in new, unexpected and highly impactful directions



External Developers

- Some OS products may have highly sensitive core IP
- Layers of intellectual content contributions may be more appropriate



Two types of POSE awards

- Phase I – OSE Scoping and Planning Awards
- Phase II – OSE Establishment and Expansion Awards
- Applicants can apply for one or other of these awards, but not for both for the same project
- A Phase I award is not a prerequisite for Phase II

POSE Phase I Project

- OSE Scoping and Planning – proposal should address:
 - Ecosystem discovery – a strategy to understand the end-user ecosystem
 - Organization and governance – plan for establishing a safe, secure and sustainable organization
 - Community building – strategy to engage users and content contributors
- 7-page project description (does not include Letters of Collaboration or the Data Management Plan)
- Up to \$300K
- Up to 12-month duration

POSE Phase II Project

- OSE Establishment and Expansion – proposal should address:
 - Ecosystem establishment and growth
 - Organization and governance – describe a well-developed organizational, coordination, and governance model
 - Continuous development model – methodology and infrastructure to enable the open, asynchronous, and distributed development
 - Community building – describe a long-term strategy for community building
 - Sustainability – clear sustainability goals and an actionable evaluation plan with success metrics
- 15-page project description
- Up to \$1.5M
- Up to 2-year duration



POSE funding for development

- Developers can be supported by POSE to develop OSE infrastructure
 - This may include, for example: continuous development, integration, and deployment methodology; testing and verification; security and privacy; or QC processes
- POSE should not be used to fund developers to create or improve an open-source product

Security Plan

- Data Management Plan **must** describe mechanisms to ensure the following, where relevant:
 - Code/data quality (robustness, portability)
 - Security (access control mechanisms for users and content contributors, secure software development methodologies, policies for patching known security vulnerabilities, chain of custody)
 - Ethical use of sensitive data (privacy, protection of human subjects)

Eligibility and fit for POSE

- Proposals may only be submitted by:
 - US Institutions of Higher Education
 - Non-profit, non-academic US organizations
 - For-profit US organizations
 - US State and local governments

- Non-profit and for-profit proposing organizations must be U.S.-based, and U.S.-owned and controlled
 - See the solicitation for definitions of “U.S.-based”, and “U.S.-owned and controlled”

- See the solicitation for details

Eligibility and fit for POSE

- POSE proposals can be multi-organizational, but a single organization must serve as the lead and all other organizations as subawardees
- Projects that are not based on distributed, ongoing development of a mature open-source product will not be a good fit with the POSE program

Who May Serve as PI

➤ For Institutions of Higher Education:

- By the submission deadline, any PI, co-PI, or other senior project personnel must hold either:

- a tenured or tenure-track position, or

- a primary, full-time, paid appointment in a research or teaching position

at a US-based campus of an Institution of Higher Education (see above), with exceptions granted for family or medical leave, as determined by the submitting organization.

- Individuals with primary appointments at overseas branch campuses of U.S. institutions of higher education are not eligible. Researchers from foreign academic institutions who contribute essential expertise to the project may participate as senior personnel or collaborators but may not receive NSF support.

- Individuals with primary appointments at non-US based non-profit or non-US based for-profit organizations are not eligible.

Who May Serve as PI

- For all other eligible proposing organizations:
 - *The PI must be an employee of the proposing organization who is normally resident in the US and must be acting as an employee of the proposing organization while performing PI responsibilities. The PI may perform the PI responsibilities while temporarily out of the US.*

International contributors and collaborators

- International contributors to the ongoing development of an open-source product are expected and encouraged
- International collaborators – i.e., organizations that collaborate with a POSE managing organization – are encouraged but cannot be funded via a POSE award
- International subawards or subcontracts cannot be funded via POSE

Budget Requirements

- Budget requirements and guidance are more detailed than in the previous solicitation
- See “[PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS](#)” in the solicitation
- Please be sure to adhere to the requirements!

How do I apply?

- Detailed instructions in the solicitation – [NSF 23-556](#)
- Submission deadline (submit via research.gov only):
 - Phase I and Phase II – September 7, 2023
 - due by 5 p.m. submitter's local time
 - Proposals will be reviewed by external experts – review criteria are included in the solicitation
- NSF aims to provide outcomes of the review process within 6 months of the submission deadline

What if I have further questions?

- Please read the solicitation ([NSF 23-556](#)) carefully
- FAQs can be found at [POSE FAQs](#)
- Office hours to answer your questions will be held in August

Q&A

POSE Working Group

- **Nina Amla (CISE/OAD)**
- **Peter Atherton (TIP/TI)**
- **Christopher Balakrishnan (BIO/DEB)**
- **Robert Beverly (CISE/OAC)**
- **Dan Bullock (CISE/OAC)**
- **Parvathi Chundi (TIP/TI)**
- **Richard Dawes (MPS/CHE)**
- **Candace Major (GEO/EAR)**
- **Daniel McAdams (ENG/CMMI)**
- **Mimi McClure (CISE/CNS)**
- **Deepankar Medhi (CISE/CNS)**
- **Daniela Oliveira (CISE/CNS)**
- **Chia Shen (EHR/DRL)**
- **Sylvia J. Spengler (CISE/IIS)**
- **Patricia Van Zandt (SBE/BCS)**
- **Teresa Westfall (TIP/OAD)**

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POSE email: pose@nsf.gov

[POSE FAQs](#)

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28

