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Email: infuse@ornl.gov

INFUSE Mini-Workshop FY2024

A. Lumsdaine & E. Gilson

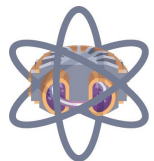
INFUSE Program Updates
November 9, 2023

INFUSE Overview

The mission of INFUSE is to provide private-sector fusion companies access to the expertise and facilities of DOE's national laboratories and (since FY2022) U.S. academic institutions to overcome critical scientific and technological hurdles in pursuing development of fusion energy.

AWARDS

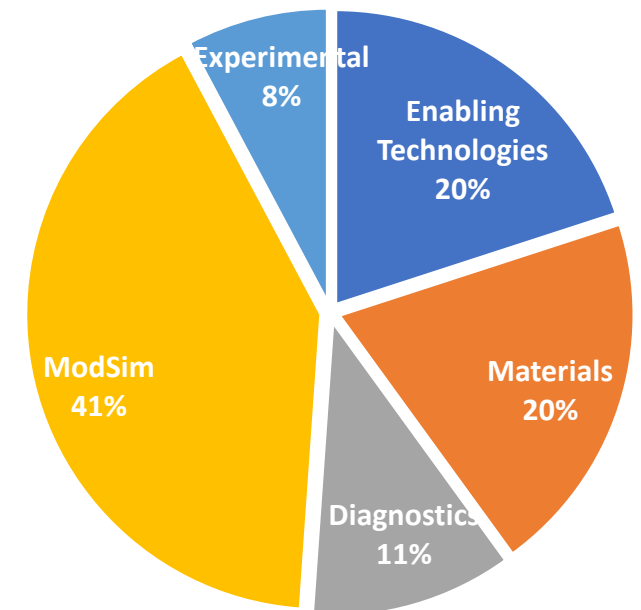
- **90** projects funded since 2019 with a total value of **\$19.3M**
- Awards were made to **28** private companies partnering with **10** DOE labs and **11** U.S. Universities.
- Detailed list: https://infuse.ornl.gov/wp-content/uploads/2023/11/Cumulative_AwardList_wAbstracts_thru2023.pdf



PARTICIPATING LABORATORIES



Awarded Topical Areas



TOPICAL AREAS

- 1) Enabling Technologies
- 2) Materials Science
- 3) Plasma Diagnostics
- 4) Modeling and Simulation
- 5) Unique Fusion Experimental Capabilities
- 6) Paths to Commercialization

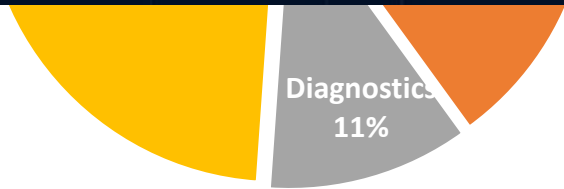
The U.S. Department of Energy's Office of Nuclear Energy established the GAIN initiative to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative technologies toward commercialization.

The NE Voucher Program is one way to provide industry with access to the unique research capabilities and expertise at DOE's national labs.



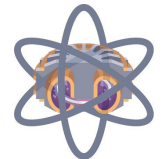
<https://gain.inl.gov/SitePages/Nuclear%20Energy%20Vouchers.aspx>

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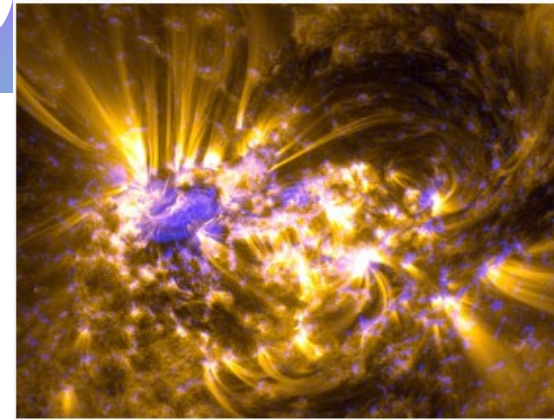
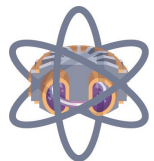


INFUSE Web Site - Rebuilt (Beta)

<https://infuse.ornl.gov/>

Any issues?

Email infuse@ornl.gov



Innovation Network for Fusion Energy

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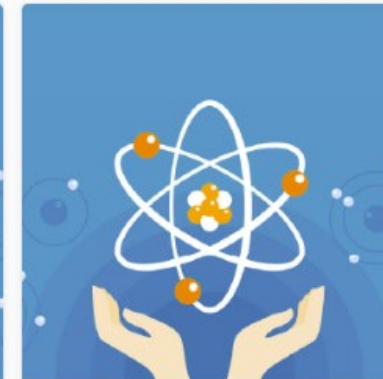
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Milestone Program Awards

Published: November 7, 2023

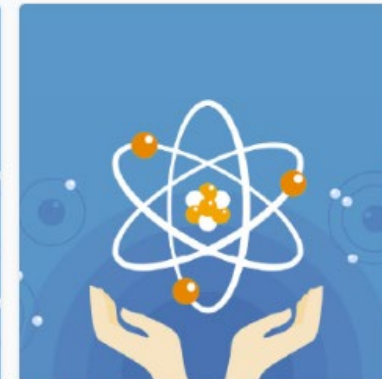
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FY2024 Virtual Mini- Workshop

Published: November 7, 2023

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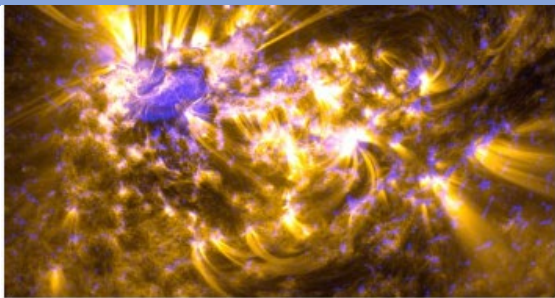
FY2023 Awards Announced by DOE

Published: October 23, 2023

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INFUSE Web Site – Subscribe



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Milestone Program Awards

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<http://eepurl.com/iBeZiM>



Enter information below to be informed of INFUSE program funding calls and other news. You will be able to unsubscribe at any time.

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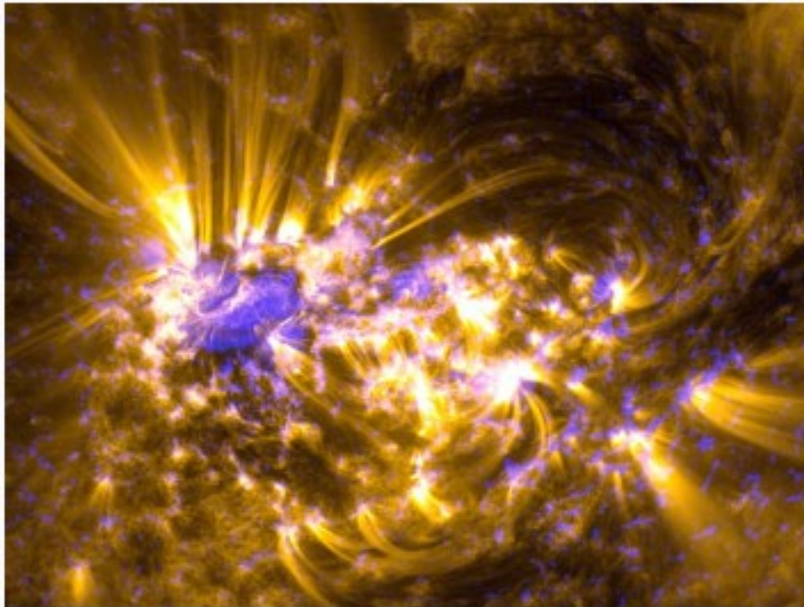
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INFUSE Web Site – Awards



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Awards ▾ Library ▾ Submis

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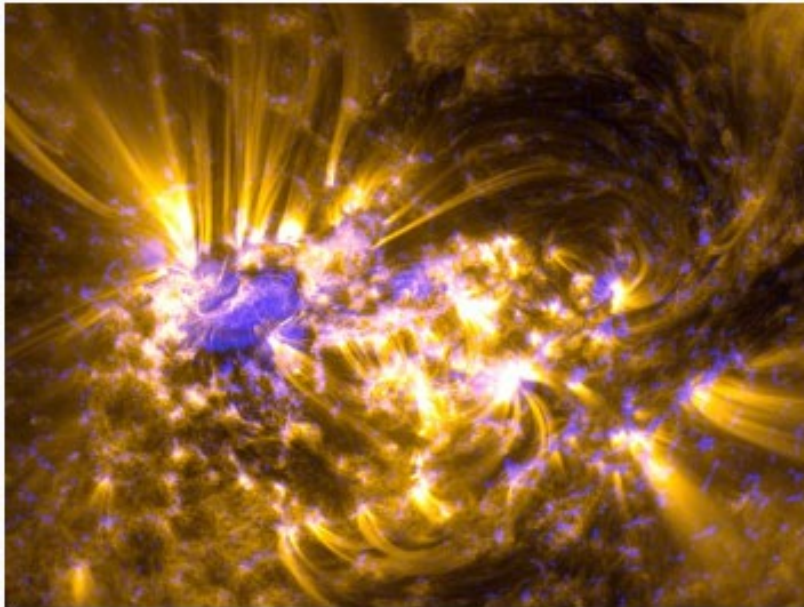
[Awards and Statistics](#)

Award information can be listed by:

- Company
- Institution (University)
- National Lab
- Topical Area



INFUSE Web Site – Topic Areas



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[View All Topic Areas](#)

[Diagnostics](#)

[Enabling Technologies](#)

[Experimental Capabilities](#)

[Materials](#)

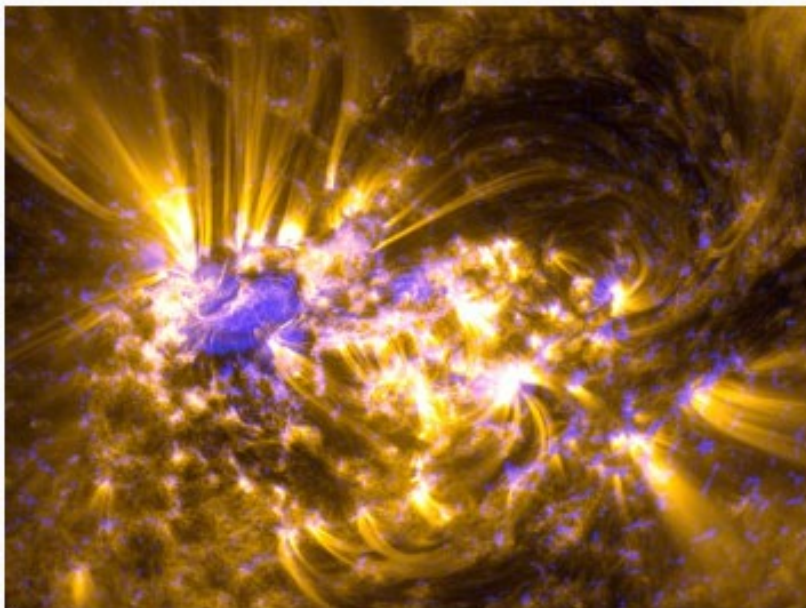
[Modeling and Simulation](#)

[Paths to Commercialization](#)

Each topic area give a description as well as awards and news for that topic.



INFUSE Web Site – Library



Innovation Network for Fusion Energy

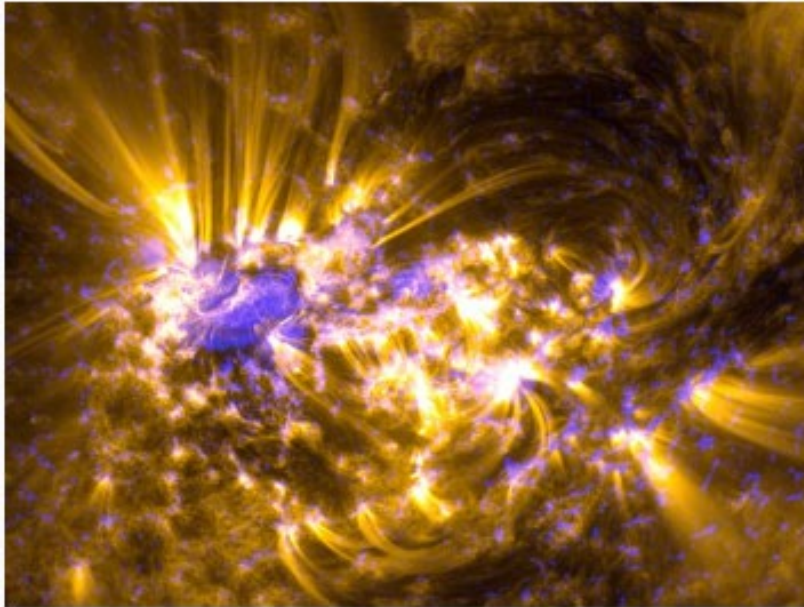
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[Read more](#)

- [National Lab Capabilities](#)
- [University Contacts](#)
- [DOE and Fusion Community Reports](#)
- [INFUSE Project Final reports](#)
- [Previous RFA Information](#)

The Library has been organized better into coherent informational areas.

INFUSE Web Site – Meetings



Innovation Network for Fusion Energy

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[Read more](#)

FY2024 Virtual Mini-Workshop

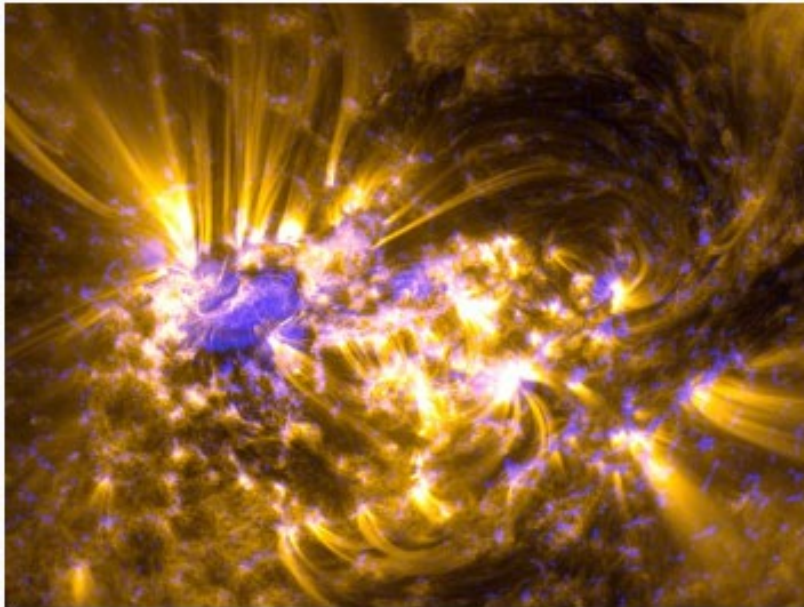
FY2023 Workshop

FY2022 Workshop

FY2021 Workshop



INFUSE Web Site – Meetings



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[Read more](#)

- RFA Announcement and Submissions
- RFA Requirements
- Previous RFA Information
- RFA Submission Information and Templates
- Frequently Asked Questions

The Submission menu has all of the information related to what is needed to submit an application.

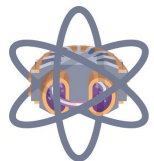


INFUSE Schedule – PROPOSED TARGET DATES

☐ FY2024

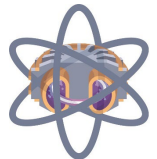
- Nov. 9, 2023 Mini-workshop
- Dec. 14, 2023 Webinar
- Jan. 3 RFA submission opens
- Feb. 15 RFA submissions closed
- **Feb. 28-29 In-person Workshop (PPPL)**
- **Mid-June Award Announcement Expected**
- Sep. 1 Work Start Date

**Dates are still
in-process**

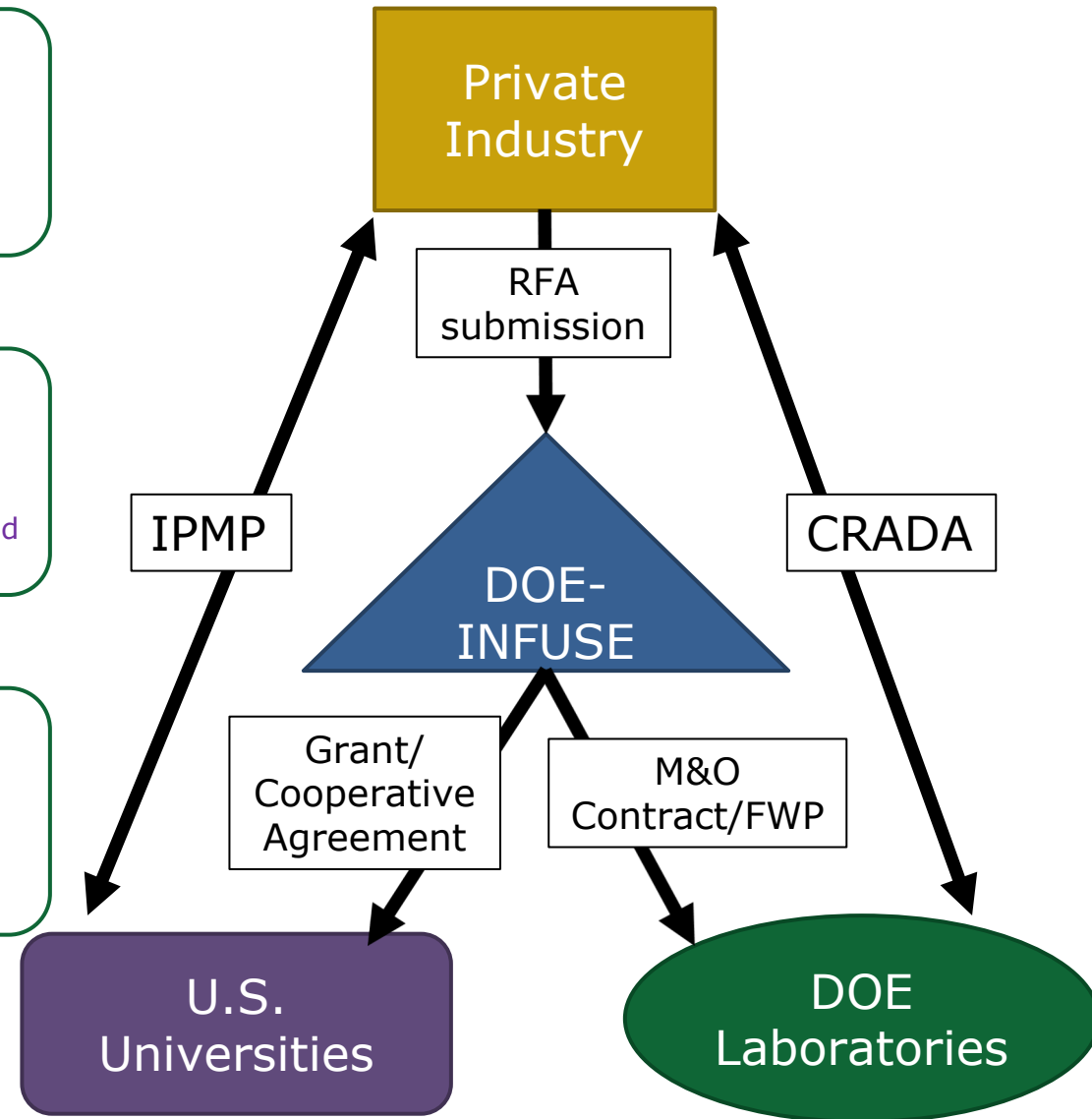
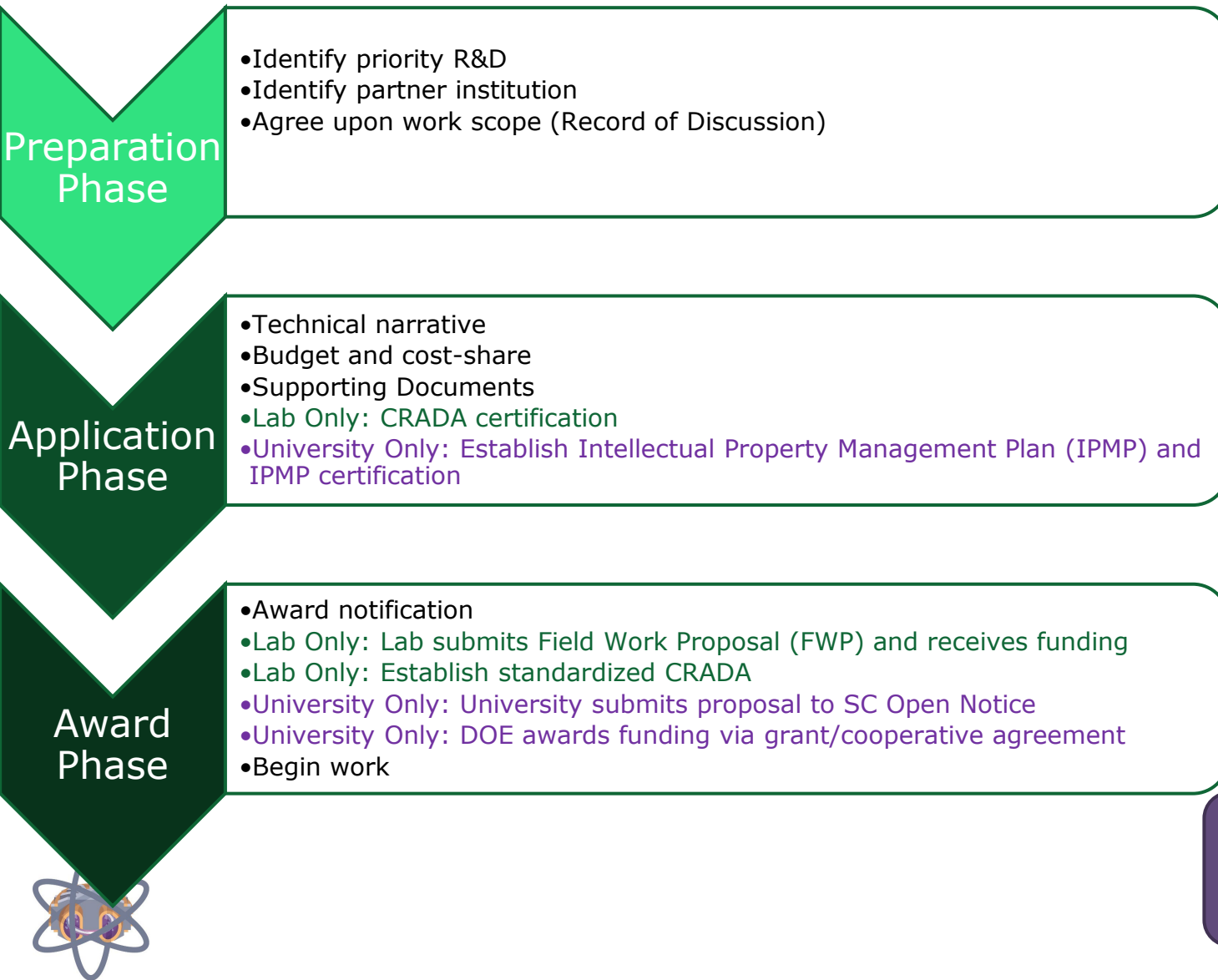


RFA Details (Preliminary)

- **Eligible Applicants:** Private companies incorporated in the United States (can be a foreign owned subsidiary – PI and all cost-share must come from US subsidiary).
- **Eligible Partner Institutions:** Any DOE national laboratory or institution of higher education with unique capability that is not available in the private sector. Partners must agree to work (record of discussion).
- **Award size:** \$100K to \$350k with a 20% cost share requirement, 12 months in duration. Requests up to \$750k and up to 24 months will be considered for work deemed to be of critical value to the company.
- **Number of Allowable Applications:** INFUSE is considering changing from a number of applicants to a total dollar value of active awards.

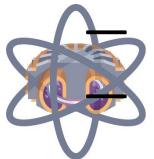


INFUSE Process



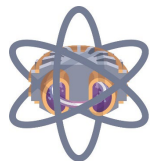
Review Criteria 5 – PIER Plan (Preliminary)

- **The new merit review criteria (as included in the FY2023 RFA):**
 - Quality and efficacy of the promoting inclusive and equitable research plan
 - Is the proposed Promoting Inclusive and Equitable Research (PIER) Plan suitable for the size and complexity of the proposed project and an integral component of the proposed project?
 - To what extent is the PIER Plan likely to lead to participation of individuals from diverse backgrounds, including individuals historically underrepresented in the research community?
 - What aspects of the PIER Plan are likely to contribute to the goal of creating and maintaining an equitable, inclusive, encouraging, and professional training and research environment and supporting a sense of belonging among project personnel?
 - How does the proposed Plan include intentional mentorship and are the associated mentoring resources reasonable and appropriate?
- **Notes on the PIER Plan evaluation for FY2024**
 - INFUSE awards are not intended to be used as a mechanism for workforce development.
 - The plan should be written for both the company and the lab / university partner.
 - The plan is understood to be the view of the organization, not the individual PI.
 - It is legitimate to propose to use funds towards executing the PIER plan (within DOE allowable costs).
 - The size of the project, and the size and maturity of the company will be taken into account in the review.
 - The PIER Plan is expected to be a plan, not a census.



What We Need From You

- In order to communicate INFUSE success stories to stakeholders . . .
 - Describe technical impact
 - Artifacts generated (papers, patents, etc.)
 - Technical readiness demonstrated / matured
 - Risks mitigated
 - Describe business impact
 - Progress towards company objectives
 - Input into other funding opportunities
 - Risks mitigated



Divertor Component Testing

Topic Area:
Experimental
Capabilities

Partner	Company
Oak Ridge National Laboratory	Commonwealth Fusion Systems
Dr. Travis Gray	Dr. Adam Kuang Dr. Matthew Reinke

Project Summary:

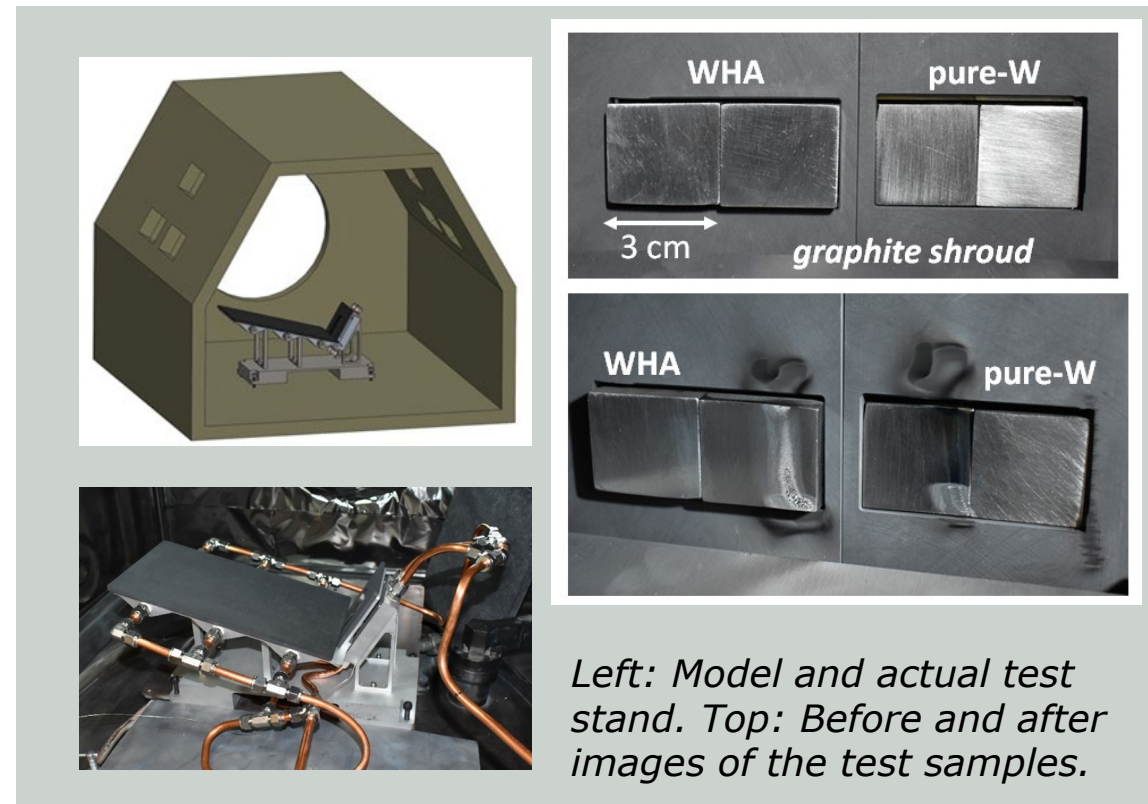
Execute high heat flux testing of the base material being considered for SPARC at representative loads.

Fusion Impact:

Qualified the use of tungsten heavy alloy (WHA) - 97% W, 2% Ni, 1% Fe by weight, for use in tokamaks under higher heat fluxes than previously assessed and documented failure mechanisms relative to pure tungsten.

Business/Market Impact:

Potential cost savings to future devices as tungsten heavy alloy has significantly lower machining cost relative to pure tungsten. Material properties also enable larger components, thus reducing part count.



Period of Performance:

3/2020 - 3/2021

Questions?

