

**Opportunity Title:** DOE Fusion Energy Sciences Postdoctoral Research Program

**Opportunity Reference Code:** DOE-FES-2022

**Organization** U.S. Department of Energy (DOE)

**Reference Code** DOE-FES-2022

**How to Apply** Application Deadline is: **January 11, 2022 4:00 PM EST**  
Recommendation(s) Deadline is: **January 11, 2022 4:00 PM EST**

Click on **Apply** below to start your application.

**Application Deadline** 1/11/2022 4:00:00 PM Eastern Time Zone

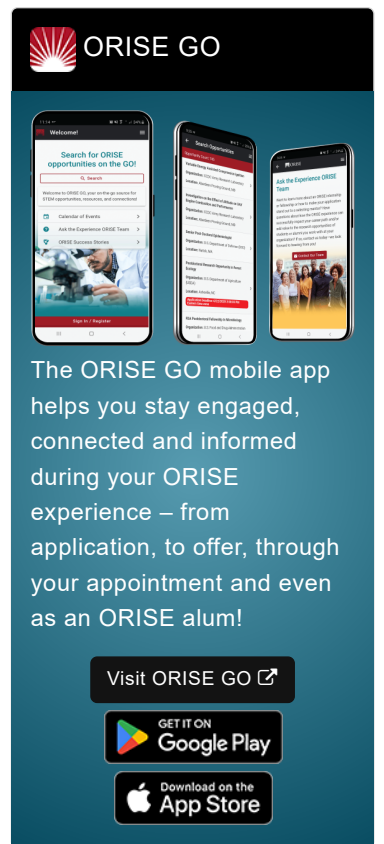
**Description** Do you have a passion for fusion energy and basic plasma science research? Are you interested in interacting with outstanding scientists and engineers in fusion energy science all while gaining insight into your research and career opportunities? We are looking for a recent or future doctoral degree recipient interested in conducting research supporting the mission of the U.S. Department of Energy's (DOE), Office of Science, Fusion Energy Sciences research and development programs.

The Office of Fusion Energy Sciences (FES) has four strategic goals: (1) Advance the fundamental science of magnetically confined plasmas to develop the predictive capability needed for a sustainable fusion energy source (2) Support the development of the scientific understanding required to design and deploy the materials needed to support a burning plasma environment (3) Pursue scientific opportunities and grand challenges in high energy density plasma science to better understand our universe, and to enhance national security and economic competitiveness (4) Increase the fundamental understanding of basic plasma science, including both burning plasma and low temperature plasma science and engineering, to enhance economic competitiveness and to create opportunities for a broader range of science-based applications

**What will I be doing?** As a postdoctoral researcher in the FES Postdoctoral Research Program, you will conduct your proposed research related to the FES mission utilizing the expertise, resources, and capabilities available at your hosting facility. You will acquire experience and training in areas related to fusion energy and basic plasma science, have access to advanced equipment and facilities, increase your marketability in fusion energy disciplines, gain access to top scientists and gain insight into research and career opportunities through your experience. You will have the opportunity to collaborate with and learn from experts researching and experimenting with fusion energy.

Research must support the program mission and its major focus, specifically in the following areas:

- [Burning Plasma Science: Foundations](#) advances the predictive understanding of plasma confinement, dynamics, and interactions with surrounding materials.
- [Burning Plasma Science: Long Pulse](#) explores new and unique scientific regimes that can be achieved with long-duration superconducting international machines and addresses the development of the materials



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and technologies required to withstand and sustain a burning plasma.

- [Discovery Plasma Science](#) supports research that explores the fundamental properties and complex behavior of matter in the plasma state to improve the understanding required to control and manipulate plasmas for a broad range of applications.

**Where will I be located?** You are responsible for finding a hosting facility and securing a mentor, so you will be embedded in a facility whose research aligns with your research goals and who can provide the resources you need for your research. Your mentor may also be a resource for your next career step. For more information on hosting facilities, visit <https://www.ornl.gov/doe-fes-postdoc/applicants/host-sites.html>.

**International Collaboration Supplement (Optional):** Research proposals that potentially involve substantial international collaboration may request special supplemental travel funds to support costs associated with foreign travel. These funds are in addition to the stipend and stipend supplements awarded as part of the base FES postdoctoral research award (or base award). The International Collaboration Supplement (ICS) only supports foreign travel costs and qualified costs associated with extended visits at a foreign institution(s).

In addition to the standard conditions for the base award, the following must be met to qualify for an ICS:

1. You must identify two project mentors - one from an institution in the United States and one from an institution abroad.
2. Your proposed research is specifically focused on developing a unique scientific competency or expertise.
3. For experimental research proposals:
  - You plan to spend a significant fraction of your appointment at a foreign facility in order to participate in various stages of an experimental campaign including but not limited to planning, preparation, execution, and data analysis.
  - Your proposal involves a collaborative research effort utilizing experimental data from both the foreign facility and either (i) experimental data from at least one facility located in the United States, and/or (ii) ongoing theory/simulation efforts by researchers in the United States
4. For theoretical or computational research proposals:
  - You plan to spend a significant fraction of the appointment at a foreign institution in order to collaborate closely with the proposed foreign mentor.
  - Your proposal contains a collaborative research effort involving fundamental theory and/or theoretical models developed abroad and either (i) ongoing theory/simulation efforts by researchers in the United States, and/or (ii) ongoing analysis of experimental data from fusion facilities in the United States.

Applicants who wish to be considered for International Collaboration Supplement should complete the special sections of the application,

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including a proposed two-year travel plan, schedule, and budget. **The incremental research enabled by the ICS should be described in a separate dedicated section of the research plan so that the base research plan may still be selected even if the funds for the supplement are not provided.**

**Who do we want?** Applicants that have recently received or are currently pursuing a doctoral degree (received prior to the desired start date) and interested in conducting research in an area of interest to FES, specifically in the areas of **Burning Plasma Science: Foundations, Burning Plasma Science: Long Pulse, and Discovery Plasma Science**. Applicants who are highly motivated and willing to independently seek and secure a hosting facility and mentor to host them for the duration of the program appointment

**The Benefits:** You will receive an annual stipend of \$71,000 plus a supplement to offset the cost of health insurance. The program will also provide a one-time \$3,000 relocation allowance (if eligible). You will also receive a \$4,000 travel allowance per year. Travel allowance can be used to support travel to FES-related conferences (domestic or foreign). Appointment periods are for up to two years. The initial appointment period is for one year. Extension of the appointment for the second year will be subject to satisfactory progress toward completion of the project assignments and availability of funds. An International Collaboration Supplement (ICS) is also available (optional). See ICS section for more information.

**Nature of the Appointment:** Participants will not enter into an employee/employer relationship with ORISE, ORAU, DOE, or any other office of agency. Instead, participants will be affiliated with ORISE for the administration of the appointment through the ORISE Appointment Letter and Terms of Appointment.

**Qualifications You must:**

- Be a U.S. Citizen or Lawful Permanent Resident.
- Have received a doctoral degree in an appropriate science or engineering discipline within four years of the desired start date or expect to complete degree requirements prior to the desired start date.
- Be available to conduct research at the hosting facility for up to two years.

**Preferred academic fields include:**

- Experimental Plasma Physics
- Theoretical Plasma Physics
- Computational Plasma Physics
- Plasma-Material Interfacial Science
- Nuclear Engineering
- Material Science
- Physics

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- Computer Science
- Mathematics

**A complete application consists of:**

- Zintellect Profile
- Responses to Questions specific to the FES program
- A Proposed Research Plan
- Letter(s) of Support from the potential research mentor(s).
- Mentors must be currently conducting or directing research in an area related to FES
- A current resume/CV, including academic history, employment history, relevant experiences & publications
- Transcripts - unofficial transcripts issued to the student may be submitted
- Recommendation Forms (2) - **2 Recommendation forms must be submitted via Zintellect by Tuesday January 11, 2022 4:00:00 PM Eastern Time (Same time as the Application)** - You may check the status of your recommendations at any time from your Zintellect Dashboard.
  - (1) Recommendation Form from your thesis or dissertation advisor - Recommendation form should include comments about the applicant.
  - (1) Recommendation Form from another individual familiar with your research and relevant experiences - Recommendation form should include comments about the applicant.

**Recommendation Forms:** Use the “**Send Now**” button to send your recommendation requests **when you start the application** to allow time for your recommenders to submit their recommendation forms via Zintellect before the recommendation **deadline of January 11, 2022.**

Recommendation forms are sent and responses are collected through the Zintellect system. Recommenders will receive an email request sent by Zintellect.

**If you are applying for the International Collaboration Supplement (Optional), you must provide:**

- Additional Section in the proposed research plan that includes a proposed two-year travel plan, schedule, and budget. See International Collaboration Supplement section for more details on what is required for this section.
- Letter of Support (including contact information) from the potential research mentor at the foreign hosting facility.

For additional information about potential hosting facilities, application components, or other program-related information, visit <https://www.orau.gov/doe-fes-postdoc/default.html>.

All documents must be in English or include an official English translation. Documents sent by email, postal mail, or fax will not be considered. All supporting materials must be uploaded as PDF files so the document can

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be searched by Zintellect's search engine. Scanned items are not optimal for search engines. PDF must not require special certificates or passwords to open. Max file size is 10MB.

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- [Burning Plasma Science: Foundations](#) advances the predictive understanding of plasma confinement, dynamics, and interactions with surrounding materials.
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If you have questions, please send an email to [Fusion@orau.org](mailto:Fusion@orau.org).

- Eligibility Requirements**
- **Citizenship:** LPR or U.S. Citizen
  - **Degree:** Doctoral Degree received within the last 48 months or currently pursuing.
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** (12 )
    - **Computer, Information, and Data Sciences** (1 )
    - **Earth and Geosciences** (3 )
    - **Engineering** (4 )
    - **Mathematics and Statistics** (1 )
    - **Physics** (16 )
    - **Science & Engineering-related** (1 )

**Affirmation** I certify that I am currently pursuing or have received my doctoral degree within 48 months of the desired program start date.