

**Opportunity Title:** Consortium of Hybrid Resilient Energy Systems Postgraduate Research Program (PGRP)

**Opportunity Reference Code:** NETL-CHRES-2021-PGRP

**Organization** National Energy Technology Laboratory (NETL)

**Reference Code** NETL-CHRES-2021-PGRP

**How to Apply** A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional references

All documents must be in English or include an official English translation.

If you have questions, send an email to [NETLinfo@orau.org](mailto:NETLinfo@orau.org). Please include the reference code for this opportunity in your email.

**Application Deadline** 2/26/2021 11:59:59 PM Eastern Time Zone

**Description** Hyper facility couples a physical gas turbine with the SOFC model through a cycle physical approach. This project consists of running Hyper facility to obtain dynamic data in real time while simultaneously run the algorithms of on-line system identification to obtain recursive models (state spaces models). The models obtained will be utilized for real time adaptive control. The outcome of this project would facilitate the application of linear controls in the complete bounded fuel cell turbine hybrid power system envelope. The linear identification and control could be obtained for any operating point of the system and work with several actuators at the same time.

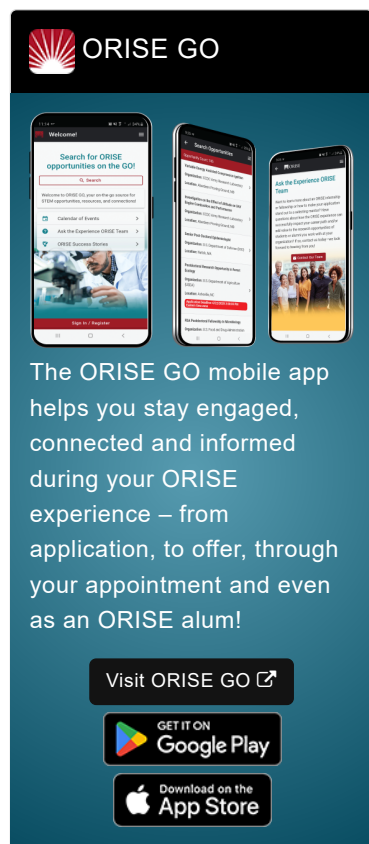
Learning objectives for this opportunity include:

- 1) Learn to operate the facility and write test plans. This will include training on thermodynamics, kinetics, electrochemistry, and fluid dynamics, as well as project specific training by the project RP.
- 2) Execute a fully coupled cyber-physical hardware simulation on the Hyper facility.
- 3) Prepare a paper based on the results for submission to a peer-reviewed conference or journal.

**Qualifications** To be eligible, you must


- be a U.S. citizen
- have received your master's degree within the last three years, or doctorate within the last five years
- be affiliated with one of the following universities:
  - Universidad Ana G. Méndez
  - University of Texas at El Paso
  - University of New Mexico
  - University of Puerto Rico at Mayaguez


The ideal candidate would have a strong background in some, but not all, of these elements: computer programming, thermodynamics, dynamic controls, advanced




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controls

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Master's Degree or Doctoral Degree.
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([12](#) )
    - **Communications and Graphics Design** ([2](#) )
    - **Computer, Information, and Data Sciences** ([17](#) )
    - **Earth and Geosciences** ([21](#) )
    - **Engineering** ([27](#) )
    - **Environmental and Marine Sciences** ([14](#) )
    - **Life Health and Medical Sciences** ([46](#) )
    - **Mathematics and Statistics** ([10](#) )
    - **Physics** ([16](#) )
    - **Science & Engineering-related** ([1](#) )
    - **Social and Behavioral Sciences** ([28](#) )

**Affirmation** I certify that I:

- Have an earned or will receive a doctoral or master's degree by appointment start date.

OR

- Have received a Master's degree no more than three years before the date of application.

OR

- Have received a doctoral degree no more than five years before the date of application.

I certify also that I am

1. a U.S. citizen
2. affiliated with one of the following universities:
  - Universidad Ana G. Méndez
  - Universidad of Texas – El Paso
  - University of New Mexico
  - University of Puerto Rico at Mayaguez