

INTERNATIONAL INSTITUTE FOR CARBON-NEUTRAL ENERGY RESEARCH

*The International Institute for Carbon-Neutral Energy Research (I²CNER) at Kyushu University, Japan is actively seeking outstanding candidates for post-doctoral researcher position
(Optimization in Renewable Energy Systems for Configuration and Operation).*

OUTLINE

The International Institute for Carbon-Neutral Energy Research (I²CNER) is a member Center of the “WPI Academy” founded by MEXT’s Research Promotion Bureau. I²CNER’s mission is to contribute to the creation of a sustainable and environmentally friendly society by conducting fundamental research for the advancement of low carbon emission and cost-effective energy systems, and improvement of energy efficiency. The research efforts are organized into three thematic research clusters or “Thrusts” as follows: Advanced Energy Materials, Advanced Energy Conversion Systems, and Multiscale Science and Engineering for Energy and the Environment. This structure allows us to capture our most relevant existing capabilities and organize them for the best future impact. It also provides an efficient mechanism for world-class international and Japanese researchers to work interactively to accomplish common goals which cut across disciplines.

In November 2022, I²CNER is launching the “Center for Energy Systems Design,” referred to as “the Center”, under the “Carbon Neutral Energy Alliance” in collaboration with six research institutes* to conduct research that contributes to the realization of carbon neutrality. The Center consists of six research teams: "Photo Conversion", "Electric Conversion", "Materials Conversion", "Materials, Storage and Transport", "Data Science", and "Energy Analysis". The Center’s goal is "energy system design, high-speed conversion of energy, and materials conversion through using data science" toward the realization of carbon neutrality. Details are explained on the third page of this document.

Within the Center, every team is led by a junior Principal Investigator (as illustrated in the diagram). These teams will collaborate with both I²CNER faculty members and faculty members from other collaborating research institutes. Moreover, each team will have the privilege of employing one postdoctoral researcher.

*Six collaborative institutes:

Hokkaido University, Institute for Catalysis (ICAT)

Tohoku University, Advanced Institute for Materials Research (AIMR)

Tokyo Institute of Technology, Tokyo Tech Academy of Energy and Informatics (ISE)

Kumamoto University, Institute of Industrial Nanomaterials (IINa)

RIKEN Center for Sustainable Resource Science (CSRS)

National Institute for Materials Science (NIMS), Research and Services Division of Materials Data and Integrated System (MaDIS)

CURRENT OPENINGS

CESD / I²CNER recruits one post-doctoral research associate to advance the development of operation and configuration for renewable energy systems, including configuration and operation optimization of renewable energy systems. The selected researcher will collaborate with Assistant Professor Yuan Gao in the Energy Analysis. We are seeking candidates with sufficient knowledge of economic, energy policy, and operational optimization. In particular, candidates with knowledge in any of the following areas are preferred:

- (1) Deep learning for time series forecasting
- (2) Reinforcement learning for operational optimization.
- (3) Renewable energy configuration and carbon emission analysis based on linear programming, genetic algorithm, etc.
- (4) Analysis of the long-term impact of new technologies on future social carbon emissions

Furthermore, we strongly recommend that post-doctoral research fellows engage in proactive research collaboration with faculty members, researchers from all three research Thrusts, and the six collaborative institutes at I²CNER. Consequently, we extend a warm welcome to qualified candidates who possess the capability to collaborate not only with the center but also on the relevant research at I²CNER.

REQUIRED APPLICATION MATERIALS*

1. Cover letter
2. Application form
3. Curriculum vitae which details research experience and interests
4. List of publications
 - *Separate lists for refereed journals and conference proceedings.
 - *Provide the public database information of your articles, such as “Web of Science” or “Scopus”
5. Names and contact information of three references

****All materials must be submitted in English.***

****Please note that you are requested to make these documents by separate files, and include the document numbers (no.1 through no.5) into each file name.***

CONTRACT PERIOD

June 1, 2024 - March 31, 2026 *Expected starting date may vary depending on the selection process.
Reappointment is possible upon annual evaluation (maximum: March 31, 2028).

SALARY & STARTING DATE

Salary: around 4 million JPY per year. (It will be commensurate with qualifications and experience.) The starting date is expected to be June 1st, 2024. (It depends on the recruitment process.)

APPLICATION DEADLINE

- **March 6, 2024, 15:00 (JST)**
✂Please note that this call may be closed earlier if we receive sufficient applications.

APPLICATION SUBMISSION

Please email your application materials via email attachment to: wpi-office@i2cner.kyushu-u.ac.jp
Please fill in the email subject as follows;
I²CNER Postdoc Application (Energy Analysis)

QUESTIONS?

Please contact the I²CNER Administrative Office at: wpi-office@i2cner.kyushu-u.ac.jp
International Institute for Carbon-Neutral Energy Research (I²CNER)
Kyushu University
744 Motoooka, Nishi-ku, Fukuoka
Postal Code 819-0395, JAPAN
TEL: +81-(0)92-802-6932 FAX: +81-(0)92-802-6939

**Kyushu University is an Equal Opportunity/Affirmative Action Employer. The administration, faculty and staff embrace diversity and are committed to attracting qualified candidates who also embrace and value diversity and inclusivity.*

*The application materials will be used only for the purpose of this application, and personal information will not be disclosed, transferred, or loaned to any third party without justifiable reason.

CENTER FOR ENERGY SYSTEMS DESIGN

Achieving carbon neutrality requires major advancements and innovation in energy production, storage, transportation, utilization, and social systems. The Center for Energy Systems Design consists of six research teams: "Photo Conversion", "Electric Conversion", "Materials Conversion", "Materials, Storage and Transport", "Data Science", and "Energy Analysis". By dividing the roles, we will promote research on "energy system design and high-speed conversion of energy and materials based on data science" toward the realization of carbon neutrality. In addition, an important goal of the Center is the mentoring of graduate students and postdoctoral researchers toward career development.

Fast conversion is feature lacking in the current carbon-neutral energy technologies. We will conduct research aiming at "fast conversion of device or catalytic processes" in addition to "high efficiency" that has been current research goal thus far. The "Energy Analysis" team analyzes future social demands based on a thorough understanding of energy science and technology and contributes to setting research directions, goals, and milestones for research projects in collaboration with the technical research teams. The "Data Science" team supports each research team through data analytics to enable orders of magnitude performance increase.

Each research team is led by a junior PI (see diagram) and operates in collaboration with I²CNER faculty members, faculty members of the collaborating research institutes, and postdoctoral researchers. I²CNER will also contribute through large networks of international partners and the 6 collaborating institutions through their corresponding areas of expertise. Junior PIs are required to advance the objectives of their research teams in accordance with the goals of the Center.

Center for Energy Systems Design

