

# INTERNATIONAL INSTITUTE FOR CARBON-NEUTRAL ENERGY RESEARCH

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*The International Institute for Carbon-Neutral Energy Research (I<sup>2</sup>CNER) at Kyushu University, Japan is actively seeking outstanding candidates for non-tenured faculty at the assistant or associate professor rank.*

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## OUTLINE

The International Institute for Carbon-Neutral Energy Research (I<sup>2</sup>CNER) is a member Center of the “WPI Academy” founded by MEXT’s Research Promotion Bureau. I<sup>2</sup>CNER’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, I<sup>2</sup>CNER 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/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.

Each team in the Center is led by a junior PI (see diagram). In collaboration with I<sup>2</sup>CNER faculty members, faculty members of the collaborating research institutes, postdoctoral researchers, etc., junior PIs are given a start-up budget and prescribed research expenses. In addition, each team will employ one postdoc (recruitment will be conducted in consultation with the appointed junior PIs).

I<sup>2</sup>CNER is seeking to recruit non-tenured junior PIs at the assistant professor or associate professor rank. *Successful candidates will be those who are capable of establishing and maintaining an active and independent research program anchored in I<sup>2</sup>CNER and the Center and carrying out interdisciplinary research that meets the goals of the Center. In addition, the relevance of the candidate’s expertise to I<sup>2</sup>CNER’s mission according to the thematic Thrust organization will constitute an important criterion at the stage of document Screening.*

\*The starting date of employment may change depending on the completion date of the recruiting process.

\*\*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

I<sup>2</sup>CNER is seeking two non-tenured faculty members in the Center for Energy Systems Design at the assistant or associate professor rank with expertise in the following area(s):

- Data science which contributes to enhancement of the performance and functionality of materials and processes, such as material development using machine learning and recommendation systems based on metadata analysis
- Energy Analysis: Evaluation of the social implementation of energy science and technology and setting of technology goals. More specifically, LCA (cost, CO<sub>2</sub> emissions, etc.), energy system conception, energy technology potential evaluation and mapping

In addition to working as junior PIs in the Center, the faculty will have the opportunity to interact with I<sup>2</sup>CNER researchers from all three research Thrusts. While preference will be given to candidates with the above scholarly expertise, I<sup>2</sup>CNER welcomes and will consider outstanding applicants with expertise also in other areas of relevance to the Institute.

## REQUIRED APPLICATION MATERIALS\*

1. Cover letter
2. Application form (located on website: <https://i2cner.kyushu-u.ac.jp/en/recruit/> )
3. Curriculum vitae which details research experience and interests
4. Three-page research proposal that includes the following: i) Project description addressing one of the themes listed in the previous section, describing the state-of-the-art in the field, and the importance of the problem(s) to be solved; ii) Proposed research including the technical approach and the methods to be used; iii) Relevance of the proposed research to I<sup>2</sup>CNER's project roadmaps, milestones, targets, and benchmarks; iv) Potential impact of the proposed research; v) References. Section on references does not count toward the 3-page limit of the proposal
5. List of publications (separate lists for refereed journals and conference proceedings)
6. Names and contact information of four references

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

## SALARY & STARTING DATE

Salary will be considered based on qualifications and experience. The starting date will be as soon as possible after the closing date.

## APPLICATION DEADLINE

- October 17, 2022, 13:00 (Japan)
- Document screening addressing the application's relevance to the current I<sup>2</sup>CNER needs as described in section "current openings" and the candidate's ability to establish an independent research program anchored in I<sup>2</sup>CNER will determine whether a candidate will be interviewed.
- Interviews may take place prior to closing date; however, no final decisions will be made until after this time.

## APPLICATION SUBMISSION

Please email your application materials via email attachment to: [wpi-office@i2cner.kyushu-u.ac.jp](mailto:wpi-office@i2cner.kyushu-u.ac.jp)

## QUESTIONS?

Please contact the I<sup>2</sup>CNER Administrative Office at: [wpi-office@i2cner.kyushu-u.ac.jp](mailto:wpi-office@i2cner.kyushu-u.ac.jp)

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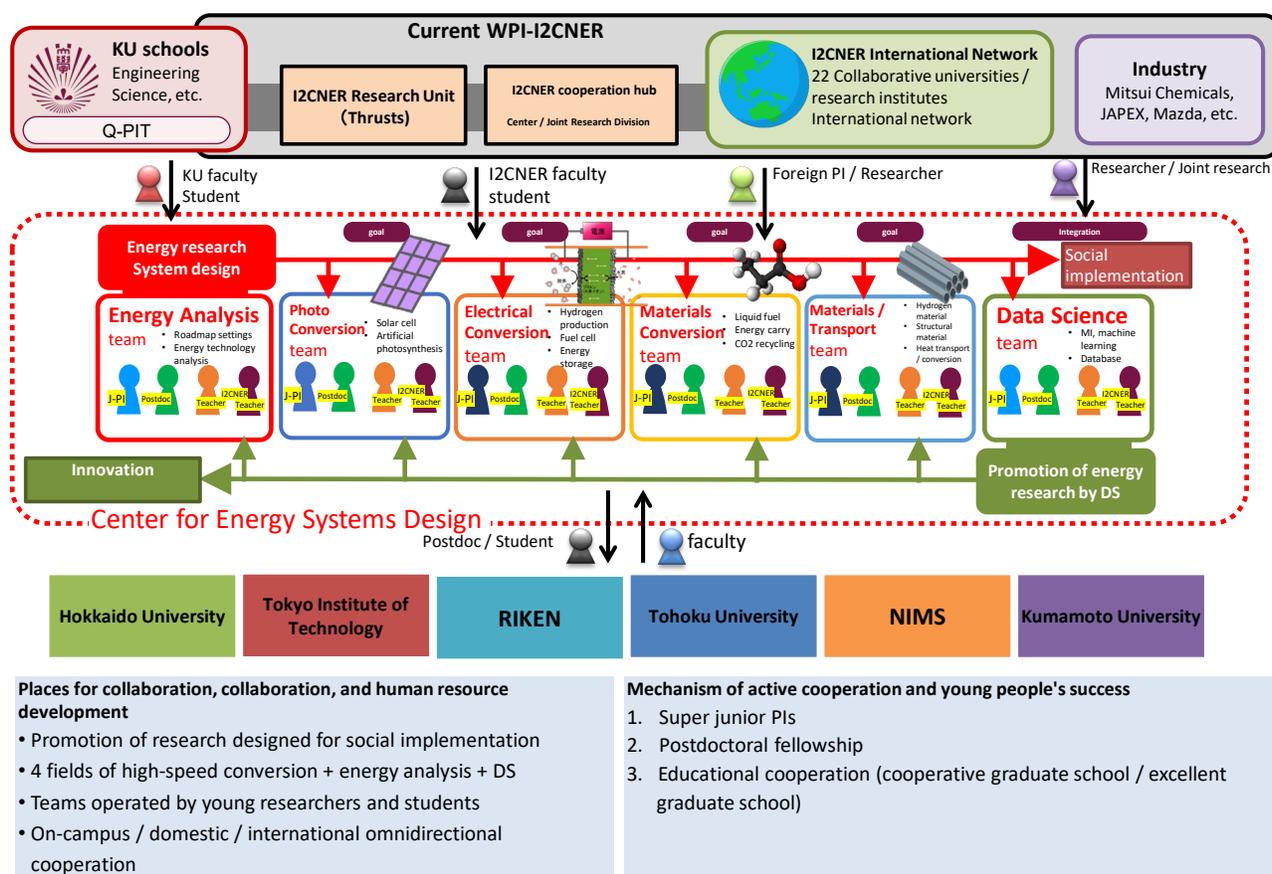
Kyushu University is an Equal Opportunity/Affirmative Action Employer. The administration, faculty and staff embrace diversity and are committed to attracting qualified candidates who also embrace and value diversity and inclusivity.

## 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/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 I<sup>2</sup>CNER faculty members, faculty members of the collaborating research institutes, and postdoctoral researchers. I<sup>2</sup>CNER 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