Research Institute for Sustainable Humanosphere, Kyoto University seek applicants for “Mission Research Fellows” from the public

The Research Institute for Sustainable Humanosphere, Kyoto University is seeking applicants for the mission research fellows, as described below.

As a Joint Use/Research Center in the field of Humanosphere Sciences, this Institute defines, from a global viewpoint, the regions and spheres vital to human existence- involving “outer space”, “the atmosphere”, “the forest-sphere” and “the human living environment”- as the humanosphere, and strives to explore and develop innovative interdisciplinary fields that provide “scientific diagnoses and technological solutions” regarding this humanosphere.

Mission research fellows are young researchers who belong to the Institute’s Center for Exploratory Research on Humanosphere and work on exploratory/fusion research projects relating to the five missions with the aim of establishing Humanosphere Sciences.

Before starting the “3rd Midterm Targets and Plans of National Universities” in 2016, RISH reconsidered the roles of its current missions, expanded the four missions, and defined a new mission.
Outlined below are the five new missions set for expanding new interdisciplinary fields of the humanosphere through amalgamation of the four spheres - “outer space”, “the atmosphere”, “the forest-sphere” and “the human living environment”

Mission 1: Environmental Diagnosis and Regulation of Circulatory Function

To develop predictions of environmental change, such as global warning and extreme weather events, Mission 1 diagnoses at-mospheric conditions by highly sensitive radar and satellite measurements. This work elucidates material transport and ex-change mechanisms between the atmosphere and the biosphere, including the pedosphere. To establish a fossil fuel-independent, biomass-based sustainable energy production and utilization system, this mission views the humanosphere from a material cycling perspective. Research projects include investigating the biological functions of plants and microbes in biomass produc-tion and cycling using techniques such as metabolic engineering.

Mission 2: Advanced Development of Science and Technology Towards a Solar Energy Society

Mission 2 aims to develop technology for advanced solar energy conversion by means of microwave technology, biotechnology, and chemical reactions. We study the direct conversion of solar energy into electric and electromagnetic wave energies, as well as the indirect conversion of solar energy into highly functional materials via wood biomass, a carbon fixation product of photosynthesis. Mission 2 intensively focuses on the conversion of solar energy to highly functional materials, which includes an understanding not only of basic humanosphere science but also of how total systems are implemented in the humanosphere.

Mission 3: Sustainable Space Environments for Humankind

The aim of Mission 3 is to advance research for the understand-ing of space and atmospheric environments and their interac-tions with the human living environment-sphere and the for-est-sphere by using satellites, space stations, sounding rockets, ground-based radar, and computer simulations. This mission also aims to respond to the societal demand for the utilization of sus-tainable space environments by deepening our understanding of the fluctuations in radiation belts and geomagnetic storms due to solar flares and by proposing measures to tackle threats from space, including potentially hazardous space debris and asteroids. For example, we study an engineering approach to prevent as-teroid impacts on the Earth, as these events cause severe dam-age. This mission not only deals with understanding and utilizing space environments, but it also emphasizes the maintenance and improvement of space environments for daily human life, as well as interactions with the atmosphere, the forest-sphere, and the human living environment-sphere.

Mission 4: Development and Utilization of Wood-based Sustainable Materials in Harmony with the Human Living Environment

Mission 4 aims to develop a sustainable, renewable and coop-erative human living environment by constructing a novel social system based on wood-based resources. To create harmony be-tween nature and human activities, this mission focuses on hu-man habitation by examining biologically-based and sustainable materials, the architectural function of structures and the hu-man habitability of these structures. Technologies with low en-vironmental impacts are possible if the structure and function of these bio-resources is well understood. Our research is directed towards the development of these technologies throughout the carbon life cycle, including the manufacturing, modification, use, disposal, and recycling of wood-based materials. The principle of this mission is to unify state-of-the-art

technologies in en-gineering, agriculture, biology and anthropology through wood and material sciences. This mission is designed with creativity in mind and will be conducted through the development of novel ideas and thinking. Nonetheless, ancient knowledge and tech-niques will still play an important role in this mission to uphold a safe and pleasant environment on earth.

Mission 5: Quality of the Future Humanosphere

Rapid expansion of human industrial exploitation has brought drastic changes to various aspects of the humanosphere, which threatens human health and the circumstances necessary for a safe and secure life. The purpose of Mission 5 is to take effective measures, based on the achievements of Missions 1 to 4, to harmonize human health and environmental issues, establish a society independent from fossil resources, maintain a space infrastructure that supports the human living environment, and contribute to society by creating a renewable wood-based civilization. In this way, Mission 5 aims to improve of the quality of the humanosphere in the future. This mission is based on collaborative research activities carried out from 2011 to 2015 as "Frontier Research on the Sustainable Humanosphere", which is an institute-driven top-down project studying the five main themes for human life by means of humanosphere sciences.

For details, see the RISH website http://www.rish.kyoto-u.ac.jp/?lang=en

Application Guideline for Mission Research Fellows, Research Institute for Sustainable Humanosphere, Kyoto University

- Positions available: Mission research fellows: a few (employment will start on April 1st, 2021)

- Location: Uji Campus,Kyoto University, Gokasho, Uji City

- Application period: December 10th, 2020 to January 14th, 2021 (17:00 Japan Time)

- Eligible applicants: Those who have acquired or are definitely scheduled to acquire a doctorate by April 1st of the academic year of selection, and who have no full-time job.

• Term of office: April 1st, 2021 to March 31st, 2022 (Although the term basically ends on March 31st, 2022, it can be extended if a post is secured after assessment of the research results. The longest 2 years.)

 # Applicant must contact your host-researcher in RISH about your research project in advance of application.

• Application documents:

(a) Resume (attach your face photo): applicant's name, birthday, age, academic history, job history, e-mail address etc.
(b) Specialized field, related mission. Give one project title you are proposing.
(c) List of research achievements (original papers, books, patents, other) and a maximum 3 reprints or copies of major papers
(d) Outline of past research activities (in approx. 800 words)
(e) What you want to achieve in research (in approx. 400 words)
(f) Research plan (write specifically in approx. 1600 words)
(g) Names and contacts of references (2 persons) regarding the applicant's research and personality
(h) Host-researcher (in RISH)

• Submit application documents to:

Administration Office, Research Institute for Sustainable Humanosphere, Kyoto University Gokasho, Uji City, Kyoto 611-0011, JAPAN
(Write "Application documents for mission research fellow enclosed" in red on the front of the envelope. If using postal mail, send by simple registered mail.)

• Contact: Prof. Naoki Shinohara (rish-center@rish.kyoto-u.ac.jp)

• Employment conditions:

(a) Status: Hourly staff (Research Staff)
(b) Payment: 1,900-3,900 yen per hour
(c) Work schedule: 20-30 hours per week, 3-5 days per week (excluding Saturdays, Sundays, national holidays, year-end and New Year holidays, and Foundation Day). Work schedules are subject to negotiation.
(d) Social insurance: Health insurance, employee's pension insurance, employment insurance, workmen's accident compensation insurance
(e) Allowance : Commuting allowance will be paid according to the payment base on Kyoto University
(Other allowances, bonus compensation, retirement benefits will not be

covered.)

- Other:

The application documents you submitted will be used for recruitment and selection purposes only.
These documents will not be disclosed, transferred or lent to any third parties without due reasons.
Please note that the application documents will not be returned to you.

Smoking is prohibited in any indoor and outdoor areas of the Kyoto University campus, except for designated smoking areas.