

## **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 contribute to future projections of environmental change, such as global warming and the increase of extreme weather events, this mission diagnoses atmospheric conditions by highly sensitive radar and satellite measurements. This work elucidates the mechanisms of material transport and exchange processes between the biosphere and the atmosphere, with the aim of establishing a fossil fuel-independent sustainable production and utilization system that is based on biomass resources and other useful materials. This is accomplished by analyzing and regulating the biological functions of plants and microbes involved in the circulation of materials. Mission 1 incorporates the underground biosphere in its research and sees the whole humanosphere from the viewpoint of the circulation of materials.

## **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 leading to the reduction of CO<sub>2</sub> emissions. 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 through 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 understanding space and atmospheric environments and their interactions with the human living environment sphere and the forest-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 sustainable 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. 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, forest-sphere, and 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 actualize a sustainable, renewable and cooperative human living environment by constructing a novel social system based on wood-based resources. To prevent the deterioration of the humanosphere due to the mass consumption of fossil resources and to create the living circumstances necessary for a safe and secure life, this mission focuses on the development of technologies with low environmental impact throughout their life cycles, including the manufacturing, modification, use, disposal, and recycling of wood-based materials. This is possible based on the profound understanding of the structure and function of these bio-resources. The principle of this mission is to unify state-of-art technologies in wood and material sciences with the creation of a safe living environment.

### **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, investigate the space-atmosphere-ground interaction in daily life, and contribute to society by creating a wood-based civilization. In this way, Mission 5 aims to improve of the quality of the humanosphere in the future.

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 1<sup>st</sup>, 2020)
  
- Location: Uji Campus, Kyoto University, Gokasho, Uji City
  
- Application period: December 12<sup>th</sup>, 2019 to January 14<sup>th</sup>, 2020 (17:00 Japan Time)
  
- Eligible applicants: Those who have acquired or are definitely scheduled to acquire a doctorate by April 1<sup>st</sup> of the academic year of selection, and who have no full-time job.
  
- Term of office: April 1<sup>st</sup>, 2020 to March 31<sup>st</sup>, 2021 (Although the term basically ends on March 31<sup>st</sup>, 2021, 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. Junji Sugiyama (rish-center@rish.kyoto-u.ac.jp)

- Employment conditions:

- (a) Status: Hourly staff (Research Staff)

- (b) Payment: 2,300-3,900 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.