

Recruitment Field for Researcher

101 (1) Theme and Contents	Development of analytical technique and evaluation method for characterization of fuel debris
	Toward the decommissioning of the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company Holdings, Inc., development of analytical techniques and experiments should be required for contribution to fuel debris retrieval from small to large scale and storage for long period. Specifically, we will develop technology to estimate the properties of fuel debris through fundamental testing and analytical research, and the development of evaluation methods including non-destructive measurements.
(2) the ideal type of human resources being sought	Boundary conditions for analysis can be appropriately set and analyzed, and the validity of analysis models and analysis results can be evaluated through comparison with experimental verification.
(3) the attraction of our department	This is a field in which the knowledge and skills acquired during student days can contribute to solving the problem of decommissioning the Fukushima Daiichi Nuclear Power station.
	«Branches of knowledge related to this theme»
	Physics, Chemistry, Mechanical Systems Engineering, Materials, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Yuji NAGAE Collaborative Laboratories for Advanced Decommissioning Science, Fuel Debris Research and Analysis Division, Core Status Evaluation Group, Leader E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://clads.jaea.go.jp/jp/koho/pamphlet.html
102 (1) Theme and Contents	Development on radioactive waste management technologies for decommissioning of Fukushima Daiichi Nuclear Power Station
	Along with decommissioning of Fukushima Daiichi Nuclear Power Station owned by Tokyo Electric Power Company Holdings, Inc., radioactive waste is generated. Waste management technologies including characterization, store, process and disposal should be developed based on chemical behavior of radioactive nuclides. In particular, estimating/determining method of radioactivity contained in waste, processing method and specification of waste package, which are consistent with waste disposal, and engineering concept for safe disposal are important, and development target should be chosen from them with consideration on technical priority and so on.
(2) the ideal type of human resources being sought	Based on knowledge and experience of chemistry or radiochemistry, the applicant will work on resolving the technological issues with consideration on the aspect of system engineering of the waste management technologies.
(3) the attraction of our department	To accomplish decommissioning Fukushima Daiichi Nuclear Power Station, radioactive waste management is an inevitable technical issue as a national project, and requires effort by an applicant to elucidate it. Besides, the result will contribute to Sustainable Development Goals (SDGs), especially for energy (No. 7) and climate action (No. 13).
	«Branches of knowledge related to this theme»
	Chemistry, Mechanical Systems Engineering, Materials, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
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(5) Related HP	https://clads.jaea.go.jp/en/rd/

103 (1) Theme and Contents	Research and development work of workspace visualization for reducing exposure and improving work efficiency
	At the decommissioning site of TEPCO Holdings Fukushima Daiichi Power Plant, It is expected that the use of radiation visualization technology will enable effective decontamination by identifying contaminated areas, ensure work safety by reducing radiation exposure for workers, and promote efficient work by remote control operation. In order to estimate and understand information on contamination and spatial structure, such as radiation source intensity, source direction, and dose distribution, based on measurement data of radiation and work spaces, We will conduct research and development on systems that can efficiently generate 3D spatial digital content using computational intelligence technology represented by AI, visualization and spatial modeling technology, and perform remote control operations using this content.
(2) the ideal type of human resources being sought	<ul style="list-style-type: none"> ○ The person who is interested in radiation measurement, digital content generation and display technology, and information processing such as AI, and who can actively engage in research and development on their own. ○ The person who can flexibly and proactively take on challenges, such as the fusion of different fields. ○ The person who is willing to contribute to the decommissioning of nuclear power plants and the reconstruction of Fukushima.
(3) the attraction of our department	We will conduct cutting-edge research and development of various technologies, including radiation measurement technology and digital technology such as AI and inverse estimation, to solve technical problems. The developed devices and systems are actually tested at JAEA's facilities and decommissioning sites, aiming for on-site implementation. We believe that this is a challenging and rewarding job that enables us to contribute to decommissioning and society.
«Branches of knowledge related to this theme»	
	Mathematics and Informatics, Physics, Mechanical Systems Engineering, Electrical and Electronics, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Kuniaki KAWABATA Radiation Digital Group, Collaborative Laboratories for Advanced Decommissioning Science, Group Leader E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://clads.jaea.go.jp/en/rd/index.html#env
104 (1) Theme and Contents	Safety Research on Risk Assessment for Nuclear Installations
	Nuclear Safety Research Center conducts multifaceted and comprehensive research on nuclear facilities such as light water reactors and nuclear fuel reprocessing plants. Following the experience of the Fukushima Daiichi Nuclear Power Station accident, we place additional emphasis on prevention and mitigation in the progression of severe accidents, preparation for and response to emergency situations, and external phenomena subject to the new regulation.
(2) the ideal type of human resources being sought	Persons who are motivated by scientific interests on nuclear safety research field.
(3) the attraction of our department	Nuclear Safety Research Center aims to be trusted by society by developing human resources of specialists who are able to respond to the social needs such as nuclear safety and nuclear emergency preparedness. The center offers a wide range of research opportunities, such as activities using large experimental facilities, conducting elemental experiments, developing codes, etc. Every researcher in the center enjoys the freedom to utilize his/her own personality and strengths in the wide variety of research fields. The center encourages researchers to be autonomous, allows them to propose and expand research even early in their careers. In addition, through joint researches with utility companies, manufacturers and/or foreign organizations, they will be able to tackle issues in the worldwide nuclear industry and to gain knowledge by studying in foreign research institutes or universities.
«Branches of knowledge related to this theme»	
	Mathematics and Informatics, Physics, Chemistry, Biology, Agriculture, Geology, Earth Science, Quantum Science Mechanical Systems Engineering, Electrical and Electronics, Materials, Civil Engineering and Construction, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Kotaro TONIKI Research Planning and Co-ordination office, Nuclear Safety Research Center, Director E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://www.jaea.go.jp/04/anzen/

105 (1) Theme and Contents	Research and development of new technology to make “ Nuclear x Renewable”
	Nuclear technology is made up of a combination of technologies that have ripple effects on variety of fields. There are a number of technologies used in environmental, medical, space applications, and material creation fields related to atomic nuclei, radiation, and radioactive materials. The NXR Development Center conducts research and development with three main tasks: development of R heat source for semi-permanent batteries, development of large capacity energy storage systems using radioactive materials, and recycling and utilizing of radioactive waste.
(2) the ideal type of human resources being sought	Successful candidates would be self-motivated to work on research and development regardless of major field of study.
(3) the attraction of our department	Starting in the new fiscal year, a new center will be established to realize JAEA's vision of “Nuclear x Renewable”. The new center will develop cutting-edge technologies that represent JAEA in order to open up the future of nuclear energy.
«Branches of knowledge related to this theme»	Mathematics and Informatics, Physics, Chemistry, Geology, Earth Science, Quantum Science, Mechanical Systems Engineering, Materials, Civil Engineering and Construction, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Masatoshi KURETA Sector of Nuclear Science Research Planning and Co-ordination Office, Director E-mail: jinji-saiyo*jaea.go.jp (Replace * with @)
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In order to ensure the structural integrity of current nuclear energy systems and to conduct research and development (R&D) of structural materials for the practical application of next-generation nuclear energy systems, exemplified by innovative light water reactors, one or more of the following R&D themes will be pursued utilizing large experimental facilities.

- (1) Research for irradiation damage behavior and strength properties of nuclear materials
- (2) Research for corrosion behavior of nuclear materials
- (3) Research for material degradation modeling using computer science

(2) the ideal type of human resources being sought

The candidate should be enthusiastic and motivated to work on research and development in the field of nuclear materials, regardless of his/her field of expertise.

(3) the attraction of our department

The research theme is quite important not only for existing nuclear energy-related facilities but also for the development of innovative nuclear energy systems that will contribute to future energy demand. You can be active not only in Japan through joint research with domestic and overseas research facilities and universities, but also in global research activities through study abroad at overseas research facilities and joint research dispatches.

《Branches of knowledge related to this theme》

Mathematics and Informatics, Physics, Chemistry
Mechanical Systems Engineering, Electrical and Electronics, Materials, Nuclear Power Engineering

(3) Qualification Requirements

Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025

(4) Contact Person

Chiaki KATO

Research Co-ordination and Promotion Office, Nuclear Science and Engineering Center, Director

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(5) Related HP

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107 (1) Theme and Contents	Research and development of nuclear data
	Japan Atomic Energy Agency is developing a nuclear data library required for nuclear research and development. In this theme, the candidate will develop a nuclear data library by conducting theoretical and experimental research on the reactions between radiation such as neutrons, protons, and photons and atomic nuclei. This nuclear data library covers all data related to atomic nuclei needed in a wide range of fields such as nuclear energy, medicine, space utilization, and science.
(2) the ideal type of human resources being sought	We hope the candidates who have expertized knowledge about atomic nuclei and are willing to engage in various research and development considering the use of nuclear data, and who can collaborate with other researchers and related parties to develop a nuclear data library.
(3) the attraction of our department	It is possible to engage in a wide range of research and development related to atomic nuclei, such as scientific one on reactions between radiation and atomic nuclei, as well as applicational one on nuclear power, accelerators, medical care, and space applications. It is also encouraged to promote research and development using data science technologies such as AI and machine learning.
«Branches of knowledge related to this theme»	
	Physics, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
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(5) Related HP	https://www.ndc.jaea.go.jp/

108 (1) Theme and Contents	Research and Development for Performance Improvement of Neutron Source Components and/or Neutron Instruments of Spallation Neutron Source Facility at J-PARC
	At the Japan Proton Accelerator Research Complex (J-PARC), high intensity proton beam with a beam power of 1 MW is injected onto a mercury target to generate neutrons with world's highest intensity per pulse. The pulsed neutrons are utilized for a variety of researches of advanced structural materials, energy devices such as fuel cell and so on at a suit of neutron instruments. This theme will focus on the research and development of the target container in terms of improving its durability and volume reduction after the use, and/or utilization technique of polarized neutrons at the neutron instruments.
(2) the ideal type of human resources being sought	Enough ability of mechanics, structural mechanics, materials or material irradiation is required for the R&D of neutron source. Enough ability of physics and/or chemistry to understand scattering principle of the neutron spin is required for the R&D of neutron instrument.
(3) the attraction of our department	The spallation neutron source facility of J-PARC includes neutron source components providing neutrons with world's highest intensity per pulse and a suit of state-of-the-art neutron instruments for promoting a variety of researches of materials sciences. This facility provides R&D environment suitable for performance improvement of the neutron source components and creation of scientific results using the neutron instruments. It also provides opportunities to cooperate with the same type of neutron source facilities in the USA and Europe.
«Branches of knowledge related to this theme»	
	Mathematics and Informatics, Physics, Chemistry, Quantum Science Mechanical Systems Engineering, Electrical and Electronics, Materials, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Yukinobu KAWAKITA Materials and Life Science Division, J-PARC Center, Deputy Division Head E-mail: jinji-saiyo*jaea.go.jp (Replace * with @)
(5) Related HP	https://j-parc.jp/c/

109 (1) Theme and Contents	Research and development for the realization of fast reactor cycle systems
	To achieve 2050 carbon neutrality, the fast reactor cycle has attracted a lot of attention. It will offer energy security by the efficient use of the finite resource uranium and reduce radioactive waste radio-toxicity by recovery and transmutation of minor actinide. Our sector's research activities include 1) studies and experiments of thermal hydraulics, and fast reactor components, structures, and materials, 2) analysis method development for heat transfer, reactor physics, reactor safety, and ex-vessel phenomena, and 3) fuel and material development considering irradiation behavior and material properties.
(2) the ideal type of human resources being sought	We are looking for persons who are aspiring and motivated to actively participate in our research activities for the sustainable energy system
(3) the attraction of our department	The fast reactor cycle is an innovative system that makes the most efficient use of uranium and supplies energy for us for thousands of years. It also significantly reduces the toxicity of radioactive waste so that it can solve the spent fuel issue from nuclear power plants in operation today. Our experimental fast reactor Joyo is planned to resume soon, and the Japanese government's Strategic Roadmap clarifies a wide range of research activities to come for the start of a demonstration reactor around 2050. We, therefore, need passionate and creative youths to work with as a team
	«Branches of knowledge related to this theme» Mathematics and Informatics, Physics, Chemistry, Quantum Science Mechanical Systems Engineering, Electrical and Electronics, Materials, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Masaru HIRATA Strategy and Planning Office, Sector of Fast Reactor and Advanced Reactor Research and Development, Director E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://www.jaea.go.jp/04/sefard/
110 (1) Theme and Contents	Research and development on heat application systems using High Temperature Gas-cooled Reactor (HTGR)
	Research and development on connection technologies between HTGR and heat application systems as well as basic technologies on heat application systems aiming at practical realization of HTGR heat application systems. • Development of connection technologies between HTGR and heat application systems such as hydrogen production system
(2) the ideal type of human resources being sought	We recruit persons who willingly engage in research or technology development in the field of heat application technologies of High Temperature Gas-cooled Reactor. Under this theme, knowledge and technology acquisition such as nuclear engineering and mechanical engineering is necessary, but we do not ask the major in the school days.
(3) the attraction of our department	To achieve carbon neutrality until 2050 in Japan, the hydrogen production project by using the High Temperature engineering Test Reactor (HTR) in the Qarai Research Institute is ongoing. This project is aimed the hydrogen production by connecting a hydrogen production facility to the HTR by 2030. The technologies necessary to produce hydrogen using high-temperature helium gas are in progress. The system design and safety analysis to obtain the permission from the Nuclear Regulation Authority are currently conducting, and an equipment fabrication and installation for the hydrogen production test operations will proceed. This project is the first challenge to develop a new usability of nuclear energy in the world.
	«Branches of knowledge related to this theme» Chemistry Mechanical Systems Engineering, Electrical and Electronics, Materials, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Masaru HIRATA Strategy and Planning Office, Sector of Fast Reactor and Advanced Reactor Research and Development, Director E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://www.jaea.go.jp/04/sefard/

111 (1) Theme and Contents	Research and development of HTGR technologies
	<p>Research and development on the following HTGR technologies aiming early commercialization of large-scale, stable H₂ production by HTGR</p> <p>(1) H₂ production demonstration using the HTTR, an HTGR test reactor in JAEA Qarai Research Institute</p> <p>(2) Improvement of a core design method towards the scale-up of HTGR reactor core</p> <p>(3) Development of reprocessing technologies for HTGR spent fuel</p> <p>(4) Development of a concept of carbon-free H₂ production system using high temperature heat from HTGR</p>
(2) the ideal type of human resources being sought	<p>We would like to recruit persons who willingly engage in research and technology development in the field of HTGR.</p> <p>Knowledge and technology acquisitions such as nuclear engineering and mechanical engineering will be necessary to perform the research and technology developments, however, we do not request these majors in the school days.</p>
(3) the attraction of our department	<p>JAEA is planning a H₂ production demonstration using the HTTR. Such demonstration can be only conducted by JAEA because the HTTR is the only operating reactor that can be used for H₂ production. Let's join our project team to achieve world's first nuclear H₂ production!</p>
«Branches of knowledge related to this theme»	
	Chemistry, Mechanical Systems Engineering, Nuclear Power Engineering
(4) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(5) Contact Person	Hiroyuki SATO HTGR Project Management Office, Deputy Director E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(6) Related HP	

112 (1) Theme and Contents	Basic R&D of Geological Disposal Technologies for High-level Radioactive Waste
	<p>Fundamental research to support the geological disposal program of high-level radioactive waste (HLW) in the following areas:</p> <p>① Characterization of the geological environment (e.g. groundwater flow, groundwater chemistry, mass transport, groundwater chemistry, behavior of microorganisms, rock mechanics)</p> <p>② Studies on long-term stability of the geological environment (including development of dating techniques)</p> <p>③ Repository engineering technologies</p> <p>④ Long-term behavior of engineered barriers (metal, clay, cementitious materials etc.)</p> <p>⑤ Physicochemical behavior of radioactive nuclides, such as solubility, sorption etc.</p> <p>⑥ Safety assessment technologies for geological disposal system</p> <p>Application of state-of-the-art technologies (e.g., digital twin technologies) to those areas is recommended.</p>
(2) the ideal type of human resources being sought	<p>Researcher who has strong sense of mission to pursue the research on geological disposal. In order to improve the reliability of geological disposal technology for high-level radioactive waste, we are looking for people with high motivations to take on the challenge of solving problems in various scientific fields and with high activities toward a single goal in cooperation with others.</p>
(3) the attraction of our department	<p>Geological disposal of high-level radioactive waste is a global common issue. Why don't you join us in research and development and contribute your abilities to the accomplishment of geological disposal in Japan?</p> <p>As a national research institute, JAEA awaits you with the environment conducive to conducting a variety of research, including research equipment for geological investigations and laboratories where radionuclides can be used.</p> <p>The research requires knowledge in a wide range of specialized fields, so the backgrounds of senior staff members are diverse.</p> <p>We also welcome the use of digital technologies!</p>
«Branches of knowledge related to this theme»	
	Mathematics and Informatics, Physics, Chemistry, Biology, Agriculture, Geology, Earth Science, Quantum Science Mechanical Systems Engineering, Electrical and Electronics, Materials, Civil engineering and Construction, Environmental Engineering, Nuclear Power Engineering
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	Akira KI TAMURA Geological Disposal Research and Development Department, Sector of Nuclear Fuel, Decommissioning and Waste Management Technology Development, Deputy Director E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)
(5) Related HP	https://www.jaea.go.jp/04/tisou/english/index/e-index.html

113 (1) Theme and Contents	R&D of atomistic simulation techniques in aquatic environment
(2) the ideal type of human resources being sought	<p>To promote R&D in various challenges within the field of nuclear engineering, we aim to utilize atomic and molecular simulations. Specifically, we focus on the development of simulation techniques for atoms and molecules in aquatic environments, which are crucial for understanding environmental dynamics of radioactive elements and biochemistry. Applicants are encouraged to choose a theme from various challenges, such as the adsorption of radioactive elements on minerals, organic molecules, and the degradation of materials in aquatic environments. They are expected to address issues like environmental recovery in Fukushima, geological disposal and reprocessing of nuclear waste, and the degradation of nuclear reactor structural materials.</p> <p>Individuals who can work closely with researchers in other departments within JAEA, facilitating effective collaboration between experimental and computational approaches, advancing research through the synergistic integration of both methods.</p>
(3) the attraction of our department	<p>In the field of atomic and molecular simulation in nuclear engineering, we have the largest research group in Japan. Our laboratory is vibrant and diverse, with half of the personnel being young professionals under the age of 40, including women and foreign researchers.</p>
«Branches of knowledge related to this theme»	Physics, Chemistry, Biology, Agriculture, Geology, Earth Science, Quantum Science
(3) Qualification Requirements	Having a master or a doctor degree / To be expected to complete a master's or a doctor's course in March 2025
(4) Contact Person	<p>M t s u h i r o I T A K U R A</p> <p>Simulation Technology Research and Development Office, Center for Computational Science & e-Systems, Director</p> <p>E-mail: jinji-saiyo@jaea.go.jp (Replace * with @)</p>
(5) Related HP	https://ccse.jaea.go.jp/index_eng.html