Recruitment Field for Postdoctoral Fellow of JAEA

No.	Depertment	Theme	Location	The person in charge	Section	Tel	E-mail	Summary	Radiation Worker/ Non-Radiation
1	Center for Computational Science and E-systems	Research and development work of simulation technique in the field of seismic engineering	Kashiwa	Hiroshi Takemiya	Computer Science Research and Development Office	81-4-7135-2373	takemiya.hiroshi@jaea.go.jp	The safety of nuclear power plants will be studied, in the light of advanced computational science, by considering the following issues ・efficient algorithm of a large scale structural analysis for an entire nuclear facility, ・ modeling technique of fluid dynamics, heat transfer and nuclear reaction, coupled with structural dynamics, ・conducting virtual experiment and safety assessment by a three dimensional virtual plant vibration simulator, and ・ efficient and effective analysis technique of a large volume of data generated from the simulator	Non-Radiation Worker
2	Center for Computational Science and E-systems	Numerical Research and development for functional and structural materials in the field of nuclear energy	Kashiwa	Masahiko Machida	Simulation Technology Research and Development Office	81-4-7135-2349	machida.masahiko@jaea.go.jp	Nowadays, there are three research and development (R&D) items to be effectively solved by numerical simulation techniques as follows. i) R&D for relationship between structure and function in advanced energy materials with quantum-beam probes ii) R&D for tough structural materials against fusion plasma and their embrittlement mechanisms iii) R&D for embrittlement and corrosion mechanisms of structural materials in fast nuclear reactors using liquid-metal coolants An applicant develops simlation techniques like first-principle schemes and contributes to the above three problems.	Non-Radiation Worker
3	Department of Science and Technology for Nuclear Material Management	Research on further improvement on the effectiveness of global nuclear non-proliferation regime	Nuclear Science Research Institute (Tokai)	Tsukasa Yamamura	Policy Research Office	81-29-284-3965	yamamura.tsukasa@jaea.go.jp	There seems no significant change to the overall trend of the increase of the number of states with nuclear power plants even after the accident at Fukushima Daiichi nuclear power plant, with only a few states is reconsidering the decision to introduce nuclear power. There is a growing concern globally on how to ensure nuclear non-proliferation while promoting the introduction of nuclear power, as shown in such developments as the amendment of Nuclear Suppliers Group (NSG) guidelines and conclusion of new bilateral nuclear cooperation agreements between states capable of supplying nuclear equipment and material and entrant states. There already exist frameworks to reconcile nuclear non-proliferation and the promotion of peaceful use of nuclear energy, such as NPT, NSG, bilateral nuclear cooperation agreements. For the promotion of nuclear power, it is important to increase the overall effectiveness of nuclear non-proliferation regime through the combination of a variety of measures, multilateral and bilateral, and supply-side approach in such forum as NSG and demand-side approach such as assurance of fuel supply. This research is intended to consider the measures to increase the effectiveness of nuclear non-proliferation regime through the investigation of the possibility of more effective utilization of existing framework to reconcile nuclear non-proliferation and the promotion of peaceful use of nuclear energy and exploration of new measures.	Non-Radiation Worker
4	Department of Science and Technology for Nuclear Material Management	Study on Strengthning Nuclear Security for Nuclear Power Plant and Transportation of Nuclear Mtaerial	Nuclear Science Research Institute (Tokai)	Mitsutoshi Suzuki	-	81-29-284-3475	suzuki.mitsutoshi@jaea.go.jp	The Fukushima Daiichi NPP Accident, as well as recent global nuclear security concerns, will certainly lead to strengthening of internal safety and security rules and regulatory framework of nuclear power plant and transportation of nuclear material. In this study, in order to develop evaluation methodology and tool to provide cost-effective countermeasures for design based threat (DBT) and nuclear security vulnerabilities in Japan, risk evaluation studies on nuclear terrorism, such as duty bomb in transportation, sabotage in nuclear facilities, and insider threat, will be performed with simulation and modeling. Based on probabilistic safety analysis (PSA) developed in nuclear safety, assuming DBT defined by malicious and intentional the probabilistic method with risk-informed evaluation for nuclear security will be explored in this study.	Non-Radiation Worker
5	Nuclear Safety Research Center	Research and development of thermal-hydraulic safety evaluation method	Nuclear Science Research Institute (Tokai)	Tadashi Watanabe	Thermo-hydraulic safety research group	81-29-282-5029	watanabe.tadashi66@jaea.go.jp	Research on thermal-hydraulic phenomena and development of evaluation technologies are performed for improvement of nuclear reactor safety. Mechanistic phenomenological and analytical models/methods, especially on multi-phase heat and fluid flows in accidental and abnormal transients, will be developed in the study. Numerical simulations of thermal-hydraulic phenomena, observed at the Large Scale Test Facility (LSTF), are performed by using CFD codes and reactor safety analysis codes withthe parallel computer systems and PC clusters in JAEA.	Non-Radiation Worker
6	Nuclear Safety Research Center	Computer simulations of the microstructure formation of the stainless steels for nuclear power plants based on the phase field modeling.	Tsuruga	Teruyoshi Abe	Aging and Maintenance Technology Research Group	81-770-23-3024	abe.teruyoshi@jaea.go.jp	In a series of long-term reliability research for light water reactors using materials from the prototype ATR Fugen, computer simulations on the microstructure formation such as solidification and Spinodal decomposition of the casted stainless steels based on the phase field modeling are performed, in order to clarify the low-temperature embrittlement mechanism. The phase field modeling, the widely used simulation technologies covering from nano to mesoscopic scale at present, will be advanced for the research projects on the microstructure formation of HAZ of stainless steels for the mechanism clarification of IGSCCand on irradiated low-alloy steels of reactor pressure vessel for irradiation embrittlement.	Radiation Worker
7	Nuclear Safety Research Center	Evaluation of Fuel Behavior and Fuel Property Changes under Loss of Coolant Accident Conditions	Nuclear Science Research Institute (Tokai)	Tomoyuki Sugiyama	Fuel Safety Research Group	81-29-282-5955	sugiyama.tomoyuki@jaea.go.jp	In the accidnet at the Fukushima-Daiichi NPP, fuel temperature rise due to loss-of-coolant caused severe oxidation of fuel cladding tube, melting of the fuel rods and other core materials. This study aims at obtaining information on the damage process under the loss-of-coolant conditions by conducting oxidation and melting experiments of fuel rod components, The study is to obtain basic data for modelling fuel damage process by measuring physical and chemical properties of the fuel cladding which experienced the severe conditions. This study will finally provide knowledge to evaluate and predict progression of the core damage and ensure safety during the post-accident handling and long term cooling of damaged fuels.	Radiation Worker
8	Nuclear Safety Research Center	Development of dose evaluation methods using voxel models	Nuclear Science Research Institute (Tokai)	Sakae Kinase	Risk Analysis and Applications Research Group	81-29-282-5208	kinase.sakae@jaea.go.jp	In the present study, dose evaluation methods are developed using voxel models and Monte Carlo codes to update a safety assessments code which provides doses after an accidental release of radioactive material to the atmosphere. The uncertainties concerning organ dose evaluations are also studied. In addition, dose evaluations for the public are performed to support the protective actions for the Fukushima Daiichi Nuclear Power Plant Accident.	Non-Radiation Worker
9	Nuclear Safety Research Center	Research on Structural Integrity Assessment Technology for Light Water Reactor Components	Nuclear Science Research Institute (Tokai)	Kunio Onizawa	Reactor Component Reliability Research Group	81-29-282-6039	onizawa.kunio@jaea.go.jp	Some of the light water nuclear power plants(NPPs) in our country have already been operated exceeding for 40 years. The accident of the Fukushima Daiichi NPP in the East Japan Great Earthquake Disaster highlighted the importance of the safety and integrity assessments for reactor components. Highly accurate assessments of material degradation, such as fracture toughness decrease of the reactor pressure vessel (RPV) steel by neutron irradiation and stress corrosion cracking driven by the residual stress in a weld, are important issues for the long-term operation. Proper evaluations of structural response and damage of the RPV and the internal structure, etc. during the severe core damage are important for estimating the accident situation and for the restoration measures. In this theme, the research is performed to contribute to the establishment of fracture mechanics based integrity analysis technology that considers material deterioration, a structural discontinuous portion, and a different material weld, etc. for safety-significant structural components by using a state-of-the-art computational science analysis technology.	Non-Radiation Worker
10	Advanced Science Research Center	Study for biomolecular damage induced by radiation and its biological consequences	Nuclear Science Research Institute (Tokai)	Akinari Yokoya	Research group for Radiation and Biomolecular Science	81-29-284-3829	yokoya.akinari@jaea.go.jp	In this study, biomolecular damage induced by ionizing radiation and its biological consequences are explored. Particularly synchrotron radiation or other high performance beams obtained from advanced accelerators in JAEA will be used in irradiation experiments to realize atom selective or spatially localized energy deposition in biological systems, such as DNA, chromosome or organelles. The study also tries to obtain experimental evidences showing correlation between damage and cellular effects which play critical roles of transgenerational effect of radiation.	Radiation Worker
11	Advanced Science Research Center	Study on formation mechanism of biogenic actinides nano-particles	Nuclear Science Research Institute (Tokai)	Toshihiko Ohnuki	Research group for Bioactinide	81-29-282-5535	ohnuki.toshihiko@jaea.go.jp	The microbial cell surface is unexplored biological reaction environment to express new functions for the transformation of elements. We have found that nano-particles containing REE are formed on the cell surface of yeast. In this study, the biological and chemical processes of the formation of actinides nano-particles (NP) developed on biomolecules are elucidated. The physico-chemical properties of the NPs are characterized by using advanced analytical techniques of XAFS, SANS, SAXS, SEC-ICPMS, SEM-TEM, and UV/VIS spectroscopy.	Radiation Worker

Recruitment Field for Postdoctoral Fellow of JAEA

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12	Advanced Science Research Center	Research for atomic ordered actinide epitaxial film growth and electron spin physics	Nuclear Science Research Institute (Tokai)	Yoshinori Haga	Research group for Condensed Matter Physiscs of Heavy Element Systems	81-29-282-6735	haga.yoshinori@jaea.go.jp	We focus on atomic ordered actinide epitaxial film growth by using molecular beam in order to reveal novel 5f electronic behaviors and spintronics physics. We use various techniques, MBE, RHEED, XPS, and SPM for the crystal growth and characterization of the films.	Radiation Worker
13	Advanced Science Research Center	Study of Spintronics materilas using Spin-Polarized Positron Beam	Takasaki	Kawasuso Atsuo	Research Group for Spin-Polarized Positron Beam	81-27-346-9331	kawasuso.atsuo@jaea.go.jp	We have been developing a spin-polarized positron beam as a probe for spintronics materials. The aim of this research is to apply the spin-polarized positron beam to the studies of electronic states of spintronics materials, vacancy-induced magnetism and novel spin-related phenomena. Conventional tools such as magnetization measurement, photo-emission electron spectroscopy and x-ray diffraction are also utilized.	Radiation Worker
14	Advanced Science Research Center	Chemical and nuclear study of superheavy elements	Nuclear Science Research Institute (Tokai)	Kazuaki Tsukada	Research Group for Superheavy Elements	81-29-282-5491	tsukada.kazuaki@jaea.go.jp	The main objective is to understand chemical and nuclear properties of superheavy elements (SHEs) placed at the uppermost end of the Periodic Table as well as on the heaviest frontier of the nuclear chart. We focus on the valence electronic structure of SHEs that is experimentally evaluated from their ionization potentials, spin angular momentum, redox potentials, ionic radii, and compound formations. And to elucidate the limits of stability of superheavy nuclei (SHN), the shell structure of SHN is investigated through nuclear spectroscopy.	Radiation Worker
15	Advanced Science Research Center	Development for new spintronics techniques	Nuclear Science Research Institute (Tokai)	Satoru Okayasu	Research Group forMechanical Control of Materials and Spin Systems	81-29-282-5915	okayasu.satoru@jaea.go.jp	To pioneer new spintroncis techncis utilizing with micro electro mechanical systems (MEMS) or neclear-electron spin resonance technics.	Non-Radiation Worker
16	Nuclear Science and Engineering Directorate	Fundamental research on the irradiation behavior of high-burnup MOX fuel for LWRs.	Nuclear Science Research Institute (Tokai)	Yasuo Arai	Research Group for Transuranium Fuels Behavior and Properties	81-29-266-7420	arai.yasuo@jaea.go.jp	A long-period usage of plutonium recovered in RRP pant in domestic LWRs is one of the options for future nuclear energy system in Japan after the Fukushima Daiichi accident. Since in MOX fuel, especially at high burnup, the accumulation of platinum group elements and americium is high in comparison with those in UO2 fuel, it is important to understand the change of chemical properties (oxygen potential, phase relationship, etc.) with burnup progressing. In this study, high temperature data, such as ternary phase relations of fission product element-actinide-oxygen system, are systematically examined based on the arrangement of present knowledge. Furthermore, the database needed for analysis of irradiation behavior of high burnup MOX fuel are prepared, which will be also essential for fuel safety evaluation.	Radiation Worker
17	Nuclear Science and Engineering Directorate	Studies of collectiing and detecting radioactive materials and harmful substances in waste waters	Nuclear Science Research Institute (Tokai)	Shimojo Kojiro	Research group for green chemistry	81-29-282-5246	shimojo.kojiro@jaea.go.jp	The development of simple and inexpensive recovery/detection methods of radioactive or harmful substances in wastewater is very important from the view point of green chemistry. In this study, we create separation methods using novel ligands and biomolecule-immobilized materials, which possess high selectivity and binding ability for specific substances (e.g. Cs or Sr). Furthermore, we challenge the development of biosensor, which can cause color variation responding to radioactive substances or radiation dose. We try to put the separation methods to practical use with an emulsion-flow process.	Radiation Worker
18	Nuclear Science and Engineering Directorate	Experimental verification and improvement of the nuclear reaction model implmented in the PHITS code	Nuclear Science Research Institute (Tokai)	Tatsuhiko Sato	Research Group for Radiation Protection	81-29-282-5803	sato.tatsuhiko@jaea.go.jp	A Monte Carlo particle transport simulation code PHITS can deal with the motion of all particles over wide energy ranges. It has been widely used for various purposes such as designs of accelerator shielding, radiation therapy and space exploration. An applicant for this topic will perform the verification experiments of the nuclear reaction model implemented in PHITS by means of measuring nuclear reaction cross sections induced by high-energy particles. Utilizing the measured data, improvement of the model is also requested.	Radiation Worker
19	Nuclear Science and Engineering Directorate	Studies on technologies to clean up radioactive materials and harmful substances from contanminated soils and waters	Nuclear Science Research Institute (Tokai)	Naganawa Hirochika	Research group for green chemistry	81-29-282-6615	naganawa.hirochika@jaea.go.jp	Studies intended to clean up contaminated soils and water containing radioactive materials will be conducted. For contaminated soils, basic study to establish the decontamination procedure based on “polyion-complex/bentonite” method. For contaminated water, a new technology of “emulsion flow” is examined with basic tests toward the practical use.	Radiation Worker
20	Nuclear Science and Engineering Directorate	Research for effect of irradiation on in-core materials	Nuclear Science Research Institute (Tokai)	Yoshiyuki Kaji	Research Group for Nuclear Materials Modeling	81-29-282-6162	kaji.yoshiyuki@jaea.go.jp	In order to conduct the evaluation for behavior of structures under severe accident conditions including earthquake and the development of high performance core for next generation type reactors, it is important to confirm the evaluation methods for the irradiation behaviors of in-core materials. In addition, since there are various evaluated irradiation conditions and only experimental evaluation method has difficulty due to cost problems, it is necessary to conduct the research using the computational simulation methods. We are looking for one Post Doctoral researcher, who evaluates new prediction methods for irradiation behavior by mechanistic models based on computational multi-scale simulation and basic irradiation experiments. Target materials are stainless steels for the light water reactor, martensite steels for new generation type reactors, or functional ceramic materials, and the planning and experiments for microstructures observations by the ion irradiation experiments are aloso important.	Radiation Worker
21	Nuclear Science and Engineering Directorate	Development of evaluation method about material properties of graphite and ceramic for the application of HTGR	O-arai	Taiju Shibata	Research Group for VHTR Fuel & Materials	81-29-266-7407	shibata.taiju@jaea.go.jp	The target of fast neutron fluence for the graphite blocks in the Very High Temperature gas-cooled Reactor (VHTR) is 6x1025m-2(E>29fJ). Heat-resistant ceramic composite materials are expected to be used in the VHTR. This study aims to develop the evaluation method for these materials to be applied to the VHTR. It is the characterization method for the material properties of graphite and ceramic composite materials from their microstructures, such as grain/pore and fiber/matrix. The method to be developed in this study enables the evaluation of mechanical and thermal properties including irradiation effects of these materials from the microstructural characteristics.	Non-Radiation Worker
22	Quantum Beam Science Directorate	Generation and application of high-brilliance laser Compton scattered gamma-rays	Nuclear Science Research Institute (Tokai)	Ryoichi Hajima	Gamma-ray Nondestructive Assay Research Group	81-29-282-6701	hajima.ryoichi@jarea.go.jp	We are conducting research on generation of high-brilliance gamma-rays via laser Compton scattering and its application to nuclear industry. The research activity covers a broad range: photo-cathode electron gun, superconducting RF cavity, high counting rate gamma-ray measurement system, Monte Carlo simulation code for nuclear resonance fluorescence. The candidate will take charge one of the research items.	Radiation Worker

Recruitment Field for Postdoctoral Fellow of JAEA

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23	Quantum Beam Science Directorate	Study of Radiation Hardness Technologies for Wide Bandgap Semiconductors	Takasaki	Takeshi Ohshima	Semiconductor Analysis and Radiation Effects Group	81-27-346-9320	ohshima.takeshi20@jaea.go.jp	Radiation resistant devices are required for application in space, nuclear reactors, and accelerator facilities. In addition, even high power devices and LSIs for terrestrial applications are known to malfunction due to incidence of neutrons induced by cosmic rays. The target of this research is to understand the radiation response of wide bandgap semiconductor devices, such as silicon carbide (SiC) devices, and also to develop radiation hardness-related technologies. Specifically, the fabrication of pn diodes, metal-oxide-semiconductor field effect transistors (MOSFETs) will be carried out. The effects of ions, electrons and gamma-ray irradiation on such devices will be investigated, and the mechanism causing device malfunction upon irradiation will be revealed. Furthermore, fabrication techniques of radiation hardness devices will be developed.	Radiation Worker
24	Quantum Beam Science Directorate	Electron dynamics in correlated electron systems studied by complementary use of quantum beams	Kansai (Harima)	Kenji Ishii	Structural Physics Group	81-791-58-2643	kenji@spring8.or.jp	The successful candidate of this position will study electron dynamics in correlated electron systems by complementary use of quantum beams. Taking the advantage of each beam, he/she will measure ordered state of electrons and related excited states by diffraction and inelastic scattering of the beam and clarify the origin of the electronic properties.	Radiation Worker
25	Quantum Beam Science Directorate	Research and Developement of In-situ Material Evaluation Technique on Neutron Engineering Diffractometer	Nuclear Science Research Institute (Tokai)	Koichi Akita	Elasto-plastic Materials Characterization Group	81-29-282-5478	akita.koichi@jaea.go.jp	The aim of this research is to develop in-situ neutron diffraction techniques at JRR-3 and J-PARC to evaluate residual stresses and micro-structural factors, such as texture, micro-strain and phase transformation, of engineering materials.	Radiation Worker
26	Quantum Beam Science Directorate	Laser-driven proton accelerator development	Kansai (Kizu)	Hironao Sakaki	Laser -driven Accelerator Systems and Medical Applications Group	81-774-71-3086	sakaki.hironao@jaea.go.jp	The design and development of laser-driven proton beamline configurations, beam optics and diagnostics appropriate for beam measurements and machine control. Diagnostics can include both beamline instrumentation and laser-plasma diagnostics at the proton source (laser target). Injector development for a variety of prototypes will be conducted. Confirmation of shielding requirements for safety will also be addressed.	Radiation Worker
27	Quantum Beam Science Directorate	Development of radioisotopes production method and their labeled compounds for medical use	Nuclear Science Research Institute (Tokai)	Kazuyuki Hashimoto	Medical Radioisotope Application Group	81-29-282-5797	hashimoto.kazuyuki@jaea.go.jp	Radioisotopes, which could emit both beta-particles suitable for cancer therapy and gamma-rays suitable for real time imaging of biodistribution, have been useful in the nuclear medicine. In order to develop the radiopharmaceuticals labeled with those useful radioisotopes, the production methods of metal radioisotopes with good physical properties are studied. The synthesis methods of useful labeled compounds are also studied in order to conjugate the radioisotopes with bioactive compounds like monoclonal antibodies or peptides with specific affinity to cancer cells.	Radiation Worker
28	Quantum Beam Science Directorate	Design and synthesis of new functional-group to control Nano-space formed by selforganized organic compound	Kansai (Harima)	Tsuyoshi Yaita	Actinide Coordination Chemistry Group	81-791-58-2603	yaita@spring8.or.jp	This research project focuses on, 1) the development for separation science of actinides and lanthanides based on controlling of “Nano-structure” formed by combination of a polymer and an inorganic material, and 2) the design and synthesis of new functional materials which appears through hybridized interaction between a “Nano-structure” and a rare metal. In addition to the molecular design and synthesis for a ligand that recognizes a specific rare metal ion, this project also promotes the elucidation for the structure and functionality of the material forming “Nano-structure” by analyses using neutron and synchrotron radiation probes. We hope that applicant has experiences for organic synthesis and/or neutron and synchrotron radiation works; however, it doesn’t matter whether applicant has these experiences described above or not if applicant works energetically with great interest in this project.	Radiation Worker
29	Quantum Beam Science Directorate	Creation of a new functional protein interacting with particular metal ions	Nuclear Science Research Institute (Tokai)	Motoyasu Adachi	Molecular Structural Biology Group	81-29-282-6727	adachi.motoyasu@jaea.go.jp	The aim of the research is to develop a new functional protein which selectively and reversibly binds target atoms such as rare metals and radioactive metals. We prefer the candidates with technical experiences in protein expression, purification, and structure analysis by x-ray crystallography.	Radiation Worker
30	Quantum Beam Science Directorate	Development of separation and recovery technique for platinum group metals based on particle-formation process induced by laser photo-reduction	Nuclear Science Research Institute (Tokai)	Hironori Ohba	Applied Laser Quantum Control Group	81-29-282-5500	ohba.hironori@jaea.go.jp	The post-doctoral fellow for this subject will develop separation and recovery technique for platinum group metals from simulated solution of high-level radioactive waste by using laser induced particle-formation (LIPF). Not only development of LIPF separation system but also basic study on the LIPF process is included in the scope of the research. His/her specific research topics will be selected among them after the adoption.	Non-Radiation Worker
31	Quantum Beam Science Directorate	Computaional Design of Macromolecule with Novel Function	Kansai (Kizu)	Hidetoshi Kono	Molculear Modeling and Simulation Group	81-774-71-3465	kono.hidetoshi@jaea.go.jp	Decontamination of radioactive atoms such as Cs and Sr caused by Fukushima Power Plant accident is one of the most crucial subjects in Japan. We are searching for a postdoctoral fellow who can design a novel macromolecules that selectively bind to radioactive atoms based on computer simulation. Applicants are desirable who have experiences in carrying out molecular dynamics simulation of macromolecules, bioinformatics analysis, or wet experiments for gene recombination, protein purification and assay.	Non-Radiation Worker
32	Fusion Research and Development Directorate	Study on disruption	Naka	Fujita Takaaki	JT-60Plasma Design gr	81-29-270-7350	fujita.takaaki@jaea.go.jp	Study disruption characteristics of tokamak plasma by analysis of JT-60U experimental data and also by computer simulation, and consider strategy to predict, mitigate and avoid disruptions. Based on these results, consider requirement of devices for disruption study in JT-60SA and develop a research plan of disruption study in JT-60SA.	Non-Radiation Worker
33	Fusion Research and Development Directorate	Study on tritium behavior in blanket systems	Nuclear Science Research Institute (Tokai)	Yamanishi toshihiko	Tritium Technology gr	81-29-282-6390	yamanishi.toshihiko@jaea.go.jp	A series of basic studies on tritium behavior has actively been started under the BA program at TPL (Tritium Process Laboratory, Tokai, Ibaraki) and a facility of Rokkasho. The main activities of the above studies are the tritium behavior in the blanket system of a fusion reactor (surface reaction, dissolution, diffusion, and chemical reactions induced by radiation). A research fellow is accepting to carry out above studies and to build database of tritium. Especially, the following studies are carried out as a set of main activities: 1) Chemical form and dynamics of tritium released from blanket materials (interacton between tritium and blanket materials); and 2) Chemical form and dynamics of tritium transferred to coolant from blanket system (Reaction between tritium and surface of metal and ceramics, dissolution, diffusion, chemical reactions and behavior of radicals induced by radiation.).	Radiation Worker

Recruitment Field for Postdoctoral Fellow of JAEA

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34	Fusion Research and Development Directorate	Development of Peta-scale burning plasma transport simulation	Aomori	Idomura Yasuhiro	Plasma Theory &Simulation gr	81-175-71-6642	idomura.yasuhiro@jaea.go.jp	Peta-scale plasma turbulence simulations are needed in evaluating properties of plasma transport in ITER size burning plasmas. Towards such Peta-scale simulations, we call for a computational physisist who participates in the developments of numerical algorithms, massively parallel computation techniques, and large scale data analysis techniques in a plasma turbulence code based on a kinetic model (Boltzmann equation). He/She is also expected to work on Peta-scale burning plasma simulations using the above simulation techniques.	Non-Radiation Worker
35	Fusion Research and Development Directorate	Research and development on high energy and high current negative ion source for JT-60 SA	Naka	Hanada Masaya	JT-60NBI Heating gr	81-29-270-7450	hanada.masaya@jaea.go.jp	In this theme, a long-pulse beam production technology of large-area negative ion beams is to be developed. The experimental studies on a beam uniformity and long-pulse beam production are carried out using the JT-60 negative ion source. In addition to the experimental studies, permanent magents around the JT-60 SA negative ion source is designed in this theme.	Radiation Worker
36	Fusion Research and Development Directorate	Theoretical and simulation study on disruption generated runaway electrons	Aomori	Yagi masatoshi	Plasma Theory &Simulation gr	81-175-71-6711	yagi.masatoshi@jaea.go.jp	The parameter dependence will be investigated by using kinetic model to identify the generation mechanism of runaway electron due to disruption. In addition, the generation and transport process will be investigated with the modeled ambient electric field and stachastic magnetic field based on 3D MHD simulation of disruption. There study will identify important parameters on disruption physics to develop the disruption control method.	Non-Radiation Worker
37	Fusion Research and Development Directorate	A new approach for fusion neutronics toward fusion DEMO reactor	Nuclear Science Research Institute (Tokai)	Ochiai Kentaro	Fusion Neutronics gr	81-29-282-6858	ochiai.kentaro@jaea.go.jp	A variety of researches and developments toward fusion DEMO reactor has been started in ITER and BA activities. In this theme, new fusion neutronics studies for the above activities are tried to performe. Specifically, the tritium recovery experiment for breeding blanket is carried on with DT neutron irradiation. The verifications of nuclear analysis method and nuclear data for DEMO reactor and IFMIF facility are also conducted with neutronics experiments. Furthermore, the post-doctoral fellow is expected to conduct the detailed nuclear analysis for the complicated components in ITER and IFMIF/EVEDA.	Radiation Worker
38	J-PARC Center	Research on materials science and engineering from low to high temperatures using the Engineering Materials Diffractometer in J-PARC	J-PARC	Stefanus Harjo	Neutron Science Section	81-29-282-3934	stefanus.harjo@j-parc.jp	In this theme, various problems of the materials science and engineering, such as the relation between the property and the strain of composite materials such as practical superconductors from the low to the high temperatures will be studied by using the Engineering Diffractometer at the Materials and Life Science Experimental Facility, J-PARC. The development of the sample environment to study above mentioned theme will be included.	Radiation Worker
39	J-PARC Center	Study on behavior of spallation products in J-PARC pulsed spallation neutron source	J-PARC	Masatoshi Futakawa	Neutron Source Section	81-29-282-5363	futakawa.masatoshi@jaea.go.jp	A variety of spallation products (radioactive materials) as well as spallation neutrons are generated, when a 3-GeV proton beam is impinged on a mercury target of the 1-MW pulsed spallation neutron source in Materials and Life Science Experimental Facility of J-PARC. In this theme, distributions and behavior of the radioactive materials in the whole neutron source system will be studied experimentally, and discussed from a viewpoint of radiochemistry. In addition, the behavior of radioactive materials in environment will be revealed through elemental analysis experiments by using a neutron beam available at the neutron source.	Radiation Worker
40	Takasaki Advanced Radiation Research Institute	Studies on radiation effect of swift cluster ions and development of cluster-ion beam technology	Takasaki	Kazumasa Narumi	Beam Engineering Section, Department of Advanced Radiation Technology	81-27-346-9661	narumi.kazumasa@jaea.go.jp	When molecular/cluster ions irradiate solid target, vicinage effects on collision processes such as charge exchange, energy loss, secondary-particle emission and so on are observed, which have not yet been fully understood. The aim of the study is to understand the origins of the vicinage effects by means of MeV cluster ions or 10-to-100-keV region C60 ions which are available at TIARA of JAEA/Takasaki. The study could reveal physical prosesses, which could have been behind the conventional collision processes between monatomic ions and solids; thus, it could lead to understanding unsolved problems about atomic collisions in solids. In parallel, development of advanced ion-beam technology will be carried out using molecular/cluster ions as well: for example, control and measurement, a micro-beam technique with micro capillaries, and so on. They are intended for the application to materials research.	Radiation Worker
41	Advanced Nuclear System Research and Development Directorate	Study on Evaluation of Tube Failure Accident in a Fast Reactor Steam Generator	O-arai	Akihiro Uchibori	Thermal-hydraulic Research Group	81-29-267-4141	uchibori.akihiro@jaea.go.jp	When pressurized water or vapor leaks from a failed heat transfer tube in a steam generator of sodium-cooled fast reactors, a high-temperature and highly corrosive reacting jet is formed and may cause failure propagation to an adjacent tube. Liquid droplet impingement erosion seems to be one of the mechanisms of the failure propagation. The post-doctoral fellow will develop a fluid-structure coupled analysis method using a particle method and analyze behaviors of the fluid and structure during high-speed impingement of a liquid droplet to construct a wastage model in a theoretical analysis method which is now being developed in JAEA.	Non-Radiation Worker
42	Advanced Nuclear System Research and Development Directorate	Study on the analytical method of multi-phase flow in the core disruptive accident of fast reactor	O-arai	Yoshiharu Tobita	Reactor Safety Engineering Group	81-29-266-2471	tobita.yoshiharu@jaea.go.jp	This study develops thermo-hydraulic analytical models which are applicable to the analysis of various multi-phase flow in the degraded core during the core disruptive accident (CDA) of fast reactors and validate the models using existing in- and out-of pile experiments. In the assessment of CDA in fast reactors, the analysis of multi-phase flow in core, which consists of the mixture of molten fuel/steel, particles of fuel/steel, sodium coolant, fission product gas, and their vapor, is necessary. This study firstly makes consideration on the dominant thermo-hydraulic phenomena in multi-phase flow in the disrupted core, secondly develops the physical models and implement the models into computer code, and thirdly validate the computer code using existing experimental knowledge, aiming at the development of analytical methodology of CDA.	Non-Radiation Worker
43	Geological Isolation Research and Development Directorate	Study on solute migration in engineered barriers and the surrounding rock	Horonobe	Haruo Sato	Sedimentary Environmental Engineering Group	81-1632-5-2022	sato.haruo@jaea.go.jp	As part of the research and development on safety assessment methodology for the geological disposal of high-level radioactive waste (HLW) intended for a sedimentary rock, we have been pursuing a study on solute migration in the underground facilities (Horonobe underground research laboratory (Horonobe URL)). In Horonobe URL, we have a plan to carry out in-situ migration experiments (migration in fracture zones and single fracture, diffusion in rock matrix, diffusion in the buffer and in the coupled system of the buffer and the surrounding rock, etc.) using non-sorbing and sorbing tracers in the 350m depth galleries. The applicant joins in a series of work such as arrangement of the detailed experiment plan, implementation of the experiments, construction of a safety assessment model based on the investigation results of the geological environmental property and hydrogeological structure, analyses for prediction and interpretation, etc. It is preferable that the applicant has knowledge for solute migration in the buffer and the geological materials.	Non-Radiation Worker
44	Geological Isolation Research and Development Directorate	Radiometric dating and isotope research using noble gas mass-spectrometery	Tono	Koji Umeda	Neotectonics Research Group	81-572-53-0211	umeda.koji@jaea.go.jp	In order to evaluate geosphere stability for long-term isolation of radioactive waste, we recruit a postdoctoral fellow who can demonstrate his/her ability for radiometric dating and isotope research using noble gas mass-spectrometery. Applicants are required to have sufficient background in mass spectrometric analysis.	Non-Radiation Worker

Recruitment Field for Postdoctoral Fellow of JAEA

No.	Depertment	Theme	Location	The person in charge	Section	Tel	E-mail	Summary	Radiation Worker/ Non-Radiation
45	Geological Isolation Research and Development Directorate	Exploring the intercellular transmitters for the forming activities of biofilm	Nuclear Fuel Cycle Engineering (Tokai)	Hideki Yoshikawa	Radionuclide Migration Research Group	81-29-282-1111	yoshikawa.hideki@jaea.go.jp	In this study, we will explore the intercellular transmitters which drive the biofilm formation by environmental bacterial community for the purpose of revealing the mechanism of cell to cell communication system from a viewpoint of microbial ecology. We will find out the intercellular transmitters which trigger a biofilm formation of bacteria in groundwater, and reveal the mechanism of the biofilm formation in the deep biosphere.	Non-Radiation Worker
46	Applied Laser Technology Institute	Research and development on adaptive control for the assist gas jet flows in laser cutting processes	Tsuruga	Toshiharu Muramatsu	Applied Laser TechnologyDevelopment Office	81-770-21-5050	muramatsu.toshiharu@jaea.go.jp	Japan Atomic Energy Agency (JAEA) is performing research and development on establishing decommissioning technologies for various nuclear power plants and disassembling technologies for spent fuels of fast breeder reactors(FBRs). The post doctoral fellow is expected to work on the development and standardization of the cutting and disassembling technologies using a high power fiber laser. Especially, adaptive control techniques for the assist gas jet flows are focussed in the developments. With these technologies, the post doctral fellow is expected to develop cutting and disassembling system for the plants including their monitoring techniques. The technique developed by the post doctral fellow should be synthesized with the on-going developments performed by the group.	Non-Radiation Worker
47	Ningyo-toge Environmental Engineering Center	Optimization studies of waste treatment process of uranium	Ningyo-toge	Tatsuo Matsubara	Environmental Research and Development Department	81-868-44-2211	matsubara.tatsuo@jaea.go.jp	We are developing the radioactivity reduction process for uranium waste using wet(liquid) chemical process for used adsorbent of uranium and chemically precipitated sludge. As well as improving the efficiency of wet uranium recovery process, we have to evaluate pre-treatment dry recovery process and behavior of radionuclides FP/TRU other than uranium, and to research the process optimization for the minimization of radioactive waste disposal cost.	Radiation Worker