<table>
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<tr>
<th>No</th>
<th>Department</th>
<th>Theme</th>
<th>Location</th>
<th>The person in charge</th>
<th>Section</th>
<th>Tel</th>
<th>E-mail</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Center for Computational Science and E-sciences</td>
<td>Research and development of simulation technique in the field of scientific engineering</td>
<td>Kashiwa</td>
<td>Hiroshi Takayama</td>
<td>Computer Science Research and Development Office</td>
<td>04-6-7135-0103</td>
<td><a href="mailto:takayama.hiroshi@jaea.go.jp">takayama.hiroshi@jaea.go.jp</a></td>
<td>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 techniques of fluid dynamics, heat transfer, and nuclear reaction, coupled with structural dynamics, conducting virtual experiment and safety assessment by using a three-dimensional virtual plant simulation, and efficient and effective analysis technique of a large volume of data generated from the simulator.</td>
</tr>
<tr>
<td>2</td>
<td>Center for Computational Science and E-sciences</td>
<td>Numerical Research and development for functional and structural materials in the field of nuclear energy</td>
<td>Kashiwa</td>
<td>Masahiko Machida</td>
<td>Simulation Technology Research and Development Office</td>
<td>04-6-7135-0103</td>
<td><a href="mailto:machida.masahiko@jaea.go.jp">machida.masahiko@jaea.go.jp</a></td>
<td>Nowadays, there are three research and development (R&amp;D) items to be effectively solved by numerical simulation techniques as follows: 1) RED for relationship between structure and function in advanced energy materials with quantum-beam probes 2) R&amp;D for tough structural materials against fracture phenomena and their embrittlement mechanisms 3) R&amp;D for embrittlement and corrosion mechanisms of structural materials in fast nuclear reactors using liquid-metal coolants, which are expected to contribute to the first-principle schemes and contribute to the above three problems.</td>
</tr>
<tr>
<td>3</td>
<td>Department of Science and Technology for Nuclear Material Management</td>
<td>Research on further improvement on the effectiveness of global nuclear non-proliferation regime</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Tetsuya Yanagawa</td>
<td>Policy Research Office</td>
<td>04-29-284-1085</td>
<td><a href="mailto:yanagawa.tetsuya@jaea.go.jp">yanagawa.tetsuya@jaea.go.jp</a></td>
<td>The Fukushima Daiichi NPP Accident, as well as recent global nuclear security concerns, will lead to strengthening of international safety and security rules and regulatory framework of nuclear power plant and transportation of nuclear material. In this study, in order to improve evaluation methodology and to provide cost-effective countermeasures for design basis (DB) and nuclear security vulnerabilities in Japan, risk evaluation studies on nuclear terrorism, such as dirty bomb in transportation, sabotage in nuclear facilities, and nuclear threat, will be performed with simulation and modeling based on probabilistic safety analysis (PSA) developed in nuclear safety, assuming DBE defined by malicious and intentional the probabilistic method with risk-informed evaluation for nuclear security will be explored in this study.</td>
</tr>
<tr>
<td>4</td>
<td>Department of Science and Technology for Nuclear Material Management</td>
<td>Study on Strengthening Nuclear Security for Nuclear Power Plant and Transportation of Nuclear Material</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Mitsutoshi Suzuki</td>
<td>–</td>
<td>04-29-284-1085</td>
<td><a href="mailto:suzuki.mitsutoshi@jaea.go.jp">suzuki.mitsutoshi@jaea.go.jp</a></td>
<td>In the Fukushima Daiichi NPP Accident, as well as recent global nuclear security concerns, will lead to strengthening of international safety and security rules and regulatory framework of nuclear power plant and transportation of nuclear material. In this study, in order to improve evaluation methodology and to provide cost-effective countermeasures for design basis (DB) and nuclear security vulnerabilities in Japan, risk evaluation studies on nuclear terrorism, such as dirty bomb in transportation, sabotage in nuclear facilities, and nuclear threat, will be performed with simulation and modeling based on probabilistic safety analysis (PSA) developed in nuclear safety, assuming DBE defined by malicious and intentional the probabilistic method with risk-informed evaluation for nuclear security will be explored in this study.</td>
</tr>
<tr>
<td>5</td>
<td>Nuclear Safety Research Center</td>
<td>Research and development of thermal-hydraulic safety evaluation method</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Tadashi Watanabe</td>
<td>Thermo-hydraulic safety research group</td>
<td>04-29-282-5069</td>
<td><a href="mailto:watanabe.tadashi@jaea.go.jp">watanabe.tadashi@jaea.go.jp</a></td>
<td>Research on thermal-hydraulic phenomena and evaluation technologies are performed for improvement of nuclear reactor safety. Mechanistic phenomenological and analytical models/methods, especially on multi-phase and fluid flows in accidental and abnormal transients, will be developed in this 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 within parallel computer systems and PC clusters in JAEA.</td>
</tr>
<tr>
<td>6</td>
<td>Nuclear Safety Research Center</td>
<td>Computer simulations of the microstructure formation of the stainless steels for nuclear power plants based on the phase-field modeling.</td>
<td>Tsunaga</td>
<td>Toshiyoshi Abe</td>
<td>Aging and Maintenance Technology Research Group</td>
<td>04-7-21-2009</td>
<td><a href="mailto:tsunaga.toshiyoshi@jaea.go.jp">tsunaga.toshiyoshi@jaea.go.jp</a></td>
<td>In the accident at the Fukushima-Daiichi NPP, fuel temperature rise due to low-oxygen 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 modeling 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 predict progression of the core damage and ensure safety during the post-accident handling and long term cooling of damaged fuels.</td>
</tr>
<tr>
<td>7</td>
<td>Nuclear Safety Research Center</td>
<td>Evaluation of Fuel Behavior and Fuel Property Changes under Loss of Coolant Accident Conditions</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Tomotsuki Sugiyama</td>
<td>Fuel Safety Research Group</td>
<td>04-29-282-1062</td>
<td><a href="mailto:sugiyama.tomotsuki@jaea.go.jp">sugiyama.tomotsuki@jaea.go.jp</a></td>
<td>In the accident at the Fukushima-Daiichi NPP, fuel temperature rise due to low-oxygen 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 modeling 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 predict progression of the core damage and ensure safety during the post-accident handling and long term cooling of damaged fuels.</td>
</tr>
<tr>
<td>8</td>
<td>Nuclear Safety Research Center</td>
<td>Development of dose evaluation methods using voxel models</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Sakae Kinose</td>
<td>Risk Analysis and Applications Research Group</td>
<td>04-29-282-5069</td>
<td><a href="mailto:kinose.sakae@jaea.go.jp">kinose.sakae@jaea.go.jp</a></td>
<td>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 assessments are also studied. In addition, dose evaluation methods for the public are developed to support the protective actions for the Fukushima-Daiichi Nuclear Power Plant Accident.</td>
</tr>
<tr>
<td>9</td>
<td>Nuclear Safety Research Center</td>
<td>Research on Structural Integrity Assessment Technology for Light Water Reactor Components</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Kunio Okazawa</td>
<td>Reactor Component Reliability Research Group</td>
<td>04-29-282-4099</td>
<td><a href="mailto:okazawa.kunio@jaea.go.jp">okazawa.kunio@jaea.go.jp</a></td>
<td>Due to the light water reactor power plant(PLWR), in the 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. This study aims at investigations of material degradation, such as fracture toughness degradation of the reactor pressure vessel (RPV) due to radioactivity irradiation and stress corrosion cracking driven by the residual stress in a weld, are important issues for the long-term operation. Proper evaluations of irradiation and irradiation-driven swelling of the RPV and the structural integrity, etc., during the core damage are important for estimating the accident situation and for the reconstruction measures. In this theme, the research is performed to contribute to the establishment of highly reliable technology that considers material degradation, a structural discontinuous pattern, and a different material, etc; for safety-assessment methods and to improve safety assessment methods for light water reactors.</td>
</tr>
<tr>
<td>10</td>
<td>Advanced Science Research Center</td>
<td>Study for biomolecular damage induced by radiation and its biological consequences</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Akinaru Yokoyama</td>
<td>Research group for Radiation and Biomedical Sciences</td>
<td>04-29-284-1089</td>
<td><a href="mailto:yokoyama.akinaru@jaea.go.jp">yokoyama.akinaru@jaea.go.jp</a></td>
<td>In this study, biomolecular damage induced by ionizing radiation and its biological consequences are explored. Particularly, synchrotron radiation or other high-power beams obtained from advanced accelerators in JAEA will be used in irradiation experiments to realize atomic selection or spatially localized energy deposition in biological systems such as DNA, chromosomes or organelles. The study also aims to obtain experimental evidences showing correlation between damage and cellular effects which play critical roles of transgenenational effect of radiation.</td>
</tr>
<tr>
<td>11</td>
<td>Advanced Science Research Center</td>
<td>Study on formation mechanism of biogenic actinides nano-particles</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Yoshitaka Onuki</td>
<td>Research group for Biocellistics</td>
<td>04-29-282-5069</td>
<td><a href="mailto:onuki.yoshitaka@jaea.go.jp">onuki.yoshitaka@jaea.go.jp</a></td>
<td>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 bioencrusted are elucidated. The physico-chemical properties of the NPs are characterized by using advanced analytical techniques of XAPS, SANS, SXS, SEC-ICPMS, SEM-EDS, and UV/VIS spectroscopy.</td>
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## Recruitment Field for Postdoctoral Fellow of JAEA

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<th>Radiation Worker/Non-Radiation Worker</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Advanced Science Research Center</td>
<td>Research for atomic ordered acetate epitaxial film growth and electron spin physics</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Yoshikazu Haga</td>
<td>Research group for Condensed Matter Physics of Heavy Element Systems</td>
<td>03-29-282-6707</td>
<td><a href="mailto:haga.yoshikazu@jaea.go.jp">haga.yoshikazu@jaea.go.jp</a></td>
<td>We focus on atomic ordered acetate epitaxial film growth by using molecular beam in order to reveal novel electronic characters and spintronics physics. We use various techniques, MBE, RHEED, XPS, and SPM for the crystal growth and characterization of the films.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>13</td>
<td>Advanced Science Research Center</td>
<td>Study of Spintronics materials using Spin-Polarized Positron Beam</td>
<td>Kansai Research Center</td>
<td>Kazuki Takasaki</td>
<td>Research Group for Superheavy Elements</td>
<td>03-29-282-5680</td>
<td><a href="mailto:takasaki.kazuki@jaea.go.jp">takasaki.kazuki@jaea.go.jp</a></td>
<td>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 magnetic and novel spin-related phenomena. Conventional tools such as magnetization measurement, photo-emission electron spectroscopy and x-ray diffraction are also utilized.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>14</td>
<td>Advanced Science Research Center</td>
<td>Chemical and nuclear study of superheavy elements</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Kazuki Takasaki</td>
<td>Research Group for Superheavy Elements</td>
<td>03-29-282-5680</td>
<td><a href="mailto:takasaki.kazuki@jaea.go.jp">takasaki.kazuki@jaea.go.jp</a></td>
<td>The main objective is to understand chemical and nuclear properties of superheavy elements (SHEs) placed at the apparent end of the Periodic Table as well as 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, reduct potentials, basic radii, and spin-orbital couplings. And to elucidate the limits of stability of superheavy nuclei (SHN), the shell structure of SHN is investigated through nuclear spectroscopy.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>15</td>
<td>Advanced Science Research Center</td>
<td>Development for new spintronics techniques</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Satoru Okuyama</td>
<td>Research Group for Mechanical Control of Materials and Spin Systems</td>
<td>03-29-282-5680</td>
<td><a href="mailto:okuyama.satoru@jaea.go.jp">okuyama.satoru@jaea.go.jp</a></td>
<td>In pioneer new spintronics technology utilizing with micro-electron mechanical systems (MEMS) or nuclear-electron spin resonant techniques.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>16</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Fundamental research on the irradiation behavior of high-burnup MOX fuel for LWRs.</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Yosuke Arai</td>
<td>Research Group for Transuranium Fuel Behavior and Properties</td>
<td>03-29-282-1988</td>
<td><a href="mailto:arai.yosuke@jaea.go.jp">arai.yosuke@jaea.go.jp</a></td>
<td>A long period usage of plutonium recovered in RHR part in domestic LWRs is one of the options for future nuclear energy systems in Japan after the Fukushima Daiichi accident. Since in MOX fuel, especially at high burnup, the accumulation of plutonium 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 elements/salt–vapor 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 safe evaluation.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>17</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Studies of collecting and detecting radioactive materials and harmful substances in waste waters</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Shinjiro Kojima</td>
<td>Research group for green chemistry</td>
<td>03-29-282-5680</td>
<td><a href="mailto:kojima.shinjiro@jaea.go.jp">kojima.shinjiro@jaea.go.jp</a></td>
<td>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 molecule–monolayer 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 and detection and analysis techniques to practical use with an emulsion flow-process.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>18</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Experimental verification and improvement of the nuclear reaction model implemented in the PHITS code</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Tatsuhiko Sato</td>
<td>Research Group for Radiation Protection</td>
<td>03-29-282-1988</td>
<td><a href="mailto:satotatsuhiko@jaea.go.jp">satotatsuhiko@jaea.go.jp</a></td>
<td>A Monte Carlo particle transport simulation code PHITS used the motion of all particles over wide energy ranges. It has been widely used for various purposes such as design of accelerator shielding, radiation therapy and space exploration.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>19</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Studies on technologies to clean up radioactive materials and harmful substances from contaminated soils and waters</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Nanawo Hiroshika</td>
<td>Research group for green chemistry</td>
<td>03-29-282-4271</td>
<td><a href="mailto:hiroshika.nanawo@jaea.go.jp">hiroshika.nanawo@jaea.go.jp</a></td>
<td>Studies intended to clean up contaminated soils and water containing radioactive materials will be conducted. For contaminated soils, basic study to establish the decontamination procedures based on &quot;polychloro/benzotriazole&quot; method. For contaminated water, a new technology of &quot;emulsion flow&quot; is examined with basic tests toward the practical use,</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>20</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Research for effect of irradiation on in-core materials</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Yoshikyo Kojo</td>
<td>Research Group for Nuclear Materials Modeling</td>
<td>03-29-282-4271</td>
<td><a href="mailto:kojo.yoshikyo@jaea.go.jp">kojo.yoshikyo@jaea.go.jp</a></td>
<td>In order to conduct the evaluation for behavior of structures under severe accident conditions including coolant loss and the development of high-performance core for next-generation type reactors, it is important to confirm the evaluation methods for the irradiation behavior of core materials. In addition, since there are various evaluated irradiation conditions and only experimental evaluation methods have 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 prediction methods for irradiation behavior by mechanical models based on computational multi-scale simulation and basic irradiation experiments. Target materials are stainless steels for the light water reactor, maraging steels for new generation type reactors, or functional ceramic materials, and the planning and experiments for microstructural observation by the use holographic interferometry are also planned.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>21</td>
<td>Nuclear Science and Engineering Directorate</td>
<td>Development of evaluation method about material properties of graphite and ceramic for the application of HTGR</td>
<td>Tadaki Shibata</td>
<td>Research Group for VHTR Fuel &amp; Materials</td>
<td>03-29-282-1988</td>
<td><a href="mailto:Shibata.tadaki@jaea.go.jp">Shibata.tadaki@jaea.go.jp</a></td>
<td>The target of fast neutron fluence for the graphite blocks in the Very High Temperature Gas-cooled Reactor (VHTR) is 6E+23m-2(E&gt;29eV). Heat-resistant ceramic composite materials are expected to be used in the VHTR. This study aims to develop the evaluation method for those materials to be applied to the VHTR. It is characterization for the material properties of graphite and ceramic composite material from their microstructures 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.</td>
<td>Non-Radiation Worker</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Quantum Beam Science Directorate</td>
<td>Generation and application of high-brilliance laser Compton scattered gamma-rays</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Ryoichi Takamura</td>
<td>Gamma-ray Nondestructive Assay Research Group</td>
<td>03-29-282-4271</td>
<td><a href="mailto:takamura.ryoichi@jaea.go.jp">takamura.ryoichi@jaea.go.jp</a></td>
<td>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-brightness gamma-ray measurement system, Monte Carlo simulation code for nuclear resonance fluorescence, the candidate will take charge of one of the research items.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>23</td>
<td>Quantum Beam Science Directorate</td>
<td>Study of Radiation Hardness Technologies for Wide Bandgap Semiconductors</td>
<td>Takasaki</td>
<td>Takeo Ohsuna</td>
<td>Semiconductor Analysis and Radiation Effects Group</td>
<td>03-5926-0920</td>
<td><a href="mailto:takeo.takahashi@jaea.go.jp">takeo.takahashi@jaea.go.jp</a></td>
<td>Radiation resistant devices are required for applications in space, nuclear reactors, and accelerator facilities. In addition, high power devices and life for terrestrial applications and life for modernization are known to be enabled 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 develop radiation hardness-related technologies. Specifically, the fabrication of go-solids, 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 mechanisms causing device failures upon irradiation will be revealed. Furthermore, fabrication techniques of radiation-hard devices will be developed.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>24</td>
<td>Quantum Beam Science Directorate</td>
<td>Radiation hardness technologies for wide bandgap semiconductors</td>
<td>Kansai (Harima)</td>
<td>Kentaro Ishii</td>
<td>Structural Physics Group</td>
<td>03-776-28-0643</td>
<td><a href="mailto:kentaro@spring8.or.jp">kentaro@spring8.or.jp</a></td>
<td>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 states of electrons and related excited states by diffraction and inelastic scattering of the beam and clarify the origin of the electronic properties.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>25</td>
<td>Quantum Beam Science Directorate</td>
<td>Research and Development of Neutrons Material Evaluation Technique on Neutron Engineering Diffuclumeter</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Koichi Akita</td>
<td>Laser-accelerator Materials Characterization Group</td>
<td>03-2926-0548</td>
<td><a href="mailto:aka@spring8.or.jp">aka@spring8.or.jp</a></td>
<td>The aim of this research is to develop new neutron diffraction techniques at J-Peak and J-PARC to evaluate residual stresses and micro-structural factors, such as texture, micro-strain and phase transformation, of engineering materials.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>26</td>
<td>Quantum Beam Science Directorate</td>
<td>Laser-driven proton accelerator development</td>
<td>Kansai (Niiza)</td>
<td>Hirota Sasaki</td>
<td>Radiation Effects Group</td>
<td>03-776-28-1153</td>
<td><a href="mailto:sasaki@spring8.or.jp">sasaki@spring8.or.jp</a></td>
<td>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). The accelerator development for a variety of prototypes will be conducted. Confirmation of shielding requirements for safety will also be addressed.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>27</td>
<td>Quantum Beam Science Directorate</td>
<td>Development of radioscopes production method and their labeled compounds for medical use</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Katsuyuki Hashimoto</td>
<td>Medical Radioscopes Application Group</td>
<td>03-2926-0569</td>
<td><a href="mailto:hashimoto@jaea.go.jp">hashimoto@jaea.go.jp</a></td>
<td>Radioscopes, 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 medical science. In order to develop the radiopharmaceuticals labeled with those useful radioscopes, the production methods of metal radioscopes with good physical properties are studied. The synthesis methods of useful labeled compounds are also studied in order to conjugate the radioscopes with bioactive compounds like monoclonal antibodies or peptides with specific affinity to cancer cells.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>28</td>
<td>Quantum Beam Science Directorate</td>
<td>Design and synthesis of new functional group to control Nano-space formed by self-organized organic compounds</td>
<td>Kansai (Harima)</td>
<td>Tatsushi Yaka</td>
<td>Actinide Coordination Chemistry Group</td>
<td>03-776-28-1153</td>
<td><a href="mailto:yaka@spring8.or.jp">yaka@spring8.or.jp</a></td>
<td>The research project focuses on the development of a new method to control the formation of nanostructures through the control of the reaction between a metal complex and an organic molecule. The project aims to develop a new method to control the formation of nanostructures through the control of the reaction between a metal complex and an organic molecule. The project aims to develop a new method to control the formation of nanostructures through the control of the reaction between a metal complex and an organic molecule.</td>
<td>Radiation Worker</td>
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<tr>
<td>29</td>
<td>Quantum Beam Science Directorate</td>
<td>Creation of a new functional protein interacting with particular metal ions</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Mototsugu Ando</td>
<td>Molecular Structural Biology Group</td>
<td>03-2926-0572</td>
<td><a href="mailto:ando.mototsugu@jaea.go.jp">ando.mototsugu@jaea.go.jp</a></td>
<td>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.</td>
<td>Radiation Worker</td>
</tr>
<tr>
<td>30</td>
<td>Quantum Beam Science Directorate</td>
<td>Development of separation and recovery techniques for platinum group metals based on particle-formation process induced by laser photoreduction</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Hiroshi Ohtsu</td>
<td>Applied Laser Quantum Control Group</td>
<td>03-2926-0550</td>
<td><a href="mailto:ohtsu.hiroshi@jaea.go.jp">ohtsu.hiroshi@jaea.go.jp</a></td>
<td>The post-doctoral fellow for this subject will develop separation and recovery techniques for platinum group metals from solution by photoreduction of high-level radioactive waste by using laser-induced particle-formation (LIPPs). Not only the development of LIPP-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.</td>
<td>Non-Radiation Worker</td>
</tr>
<tr>
<td>31</td>
<td>Quantum Beam Science Directorate</td>
<td>Computational Design of Macromolecules with Novel Function</td>
<td>Kansai (Niiza)</td>
<td>Hidetoshi Kono</td>
<td>Molecular Modeling and Simulation Group</td>
<td>03-776-28-1153</td>
<td><a href="mailto:kono.hidetoshi@jaea.go.jp">kono.hidetoshi@jaea.go.jp</a></td>
<td>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.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>32</td>
<td>Fusion Research and Development Directorate</td>
<td>Study on disruption</td>
<td>Naka</td>
<td>Fujita Takashi</td>
<td>Plasma Design gr</td>
<td>03-29-270-1509</td>
<td><a href="mailto:tkf@jaea.go.jp">tkf@jaea.go.jp</a></td>
<td>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.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>33</td>
<td>Fusion Research and Development Directorate</td>
<td>Study on tritium behavior in blanket systems</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Yamashita Yoshihiko</td>
<td>Tritium Technology Group</td>
<td>03-2926-0569</td>
<td><a href="mailto:yoshihiko@jaea.go.jp">yoshihiko@jaea.go.jp</a></td>
<td>Study on tritium behavior in blanket systems. The successful candidate of this position will study the behavior of tritium in the blanket of a fusion reactor. The behavior of tritium is important for the design of blankets and the optimization of blanket structures. The successful candidate will be expected to study the behavior of tritium in the blanket by using experimental and computational methods.</td>
<td>Radiation Worker</td>
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<td>No.</td>
<td>Department</td>
<td>Theme</td>
<td>Location</td>
<td>The person in charge</td>
<td>Section</td>
<td>Tel</td>
<td>E-mail</td>
<td>Summary</td>
<td>Radiation Worker Type</td>
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<tr>
<td>34</td>
<td>Fusion Research and Development Directorate</td>
<td>Development of Petascale burning plasma transport simulation</td>
<td>Aomori</td>
<td>Idomura Yasuhiro</td>
<td>Plasma Theory &amp; Simulation gr</td>
<td>03-37-74-4485</td>
<td><a href="mailto:idomura.yasuhiro@jaea.go.jp">idomura.yasuhiro@jaea.go.jp</a></td>
<td>Peta-scale plasma turbulence simulations are simulated in evaluating properties of plasmas transport in HERL size burning plasma for such Petascale simulations, we call for a computational physicist who participates in the development 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.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>35</td>
<td>Fusion Research and Development Directorate</td>
<td>Research and development on high energy and high-current negative ion source for JT-60 SA</td>
<td>Naka</td>
<td>Haneda Masaya</td>
<td>JT-60SA Heating gr</td>
<td>03-28-05-1249</td>
<td><a href="mailto:haneda.masaya@jaea.go.jp">haneda.masaya@jaea.go.jp</a></td>
<td>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 uniformly and long-pulse beam production are carried out using the JT-60 negative ion source. In addition to the experimental studies, permanent magnets around the JT-60 SA negative ion source is designed in this theme.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>36</td>
<td>Fusion Research and Development Directorate</td>
<td>Theoretical and simulation study on disruption generated runaway electrons</td>
<td>Aomori</td>
<td>Yagi Satoshi</td>
<td>Plasma Theory &amp; Simulation gr</td>
<td>03-37-74-4485</td>
<td><a href="mailto:yagi.satoshi@jaea.go.jp">yagi.satoshi@jaea.go.jp</a></td>
<td>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 stochastic magnetic field based on 3D MHD simulation of disruption. There study will identify important parameters on disruption physics to develop the disruption control method.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>37</td>
<td>Fusion Research and Development Directorate</td>
<td>A new approach for fusion neutronics toward fusion DEMO reactor</td>
<td>Nuclear Science Research Institute (Tokai)</td>
<td>Ochiai Masatoshi</td>
<td>Fusion Neutronics gr</td>
<td>03-28-02-3646</td>
<td><a href="mailto:ochiai.masatoshi@jaea.go.jp">ochiai.masatoshi@jaea.go.jp</a></td>
<td>A variety of researches and developments toward fusion DEMO reactor has been studied in ITER and BA activities. In this theme, new fusion neutronics studies for the above activities are tried to perform. Specifically, the tritium recovery experiment for breeding blanket is carried out 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.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>38</td>
<td>J-PARC Center</td>
<td>Research on materials science and engineering from low to high temperatures using the Engineering Materials Diffraction at J-PARC</td>
<td>J-PARC</td>
<td>Stefanos Harjo</td>
<td>Neutron Science Section</td>
<td>03-28-02-3602</td>
<td><a href="mailto:stefanos.harjo@jaeah.jp">stefanos.harjo@jaeah.jp</a></td>
<td>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.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>39</td>
<td>J-PARC Center</td>
<td>Study on behavior of spallation products in J-PARC pulsed spallation neutron source</td>
<td>J-PARC</td>
<td>Masatoshi Futsuken</td>
<td>Neutron Source Section</td>
<td>03-28-02-3602</td>
<td><a href="mailto:futsuken.masatoshi@jaea.go.jp">futsuken.masatoshi@jaea.go.jp</a></td>
<td>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 using the Engineering Diffraction at the Materials and Life Science Experimental Facility, J-PARC. The development of the sample environment to study above mentioned theme will be included.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>40</td>
<td>Takasaki Advanced Radiation Research Institute</td>
<td>Studies on radiation effect of swift cluster ions and development of cluster-ion beam technology</td>
<td>Takasaki</td>
<td>Kazimasa Nunami</td>
<td>Beam Engineering Section, Department of Advanced Radiation Technology</td>
<td>03-27-18-06-221</td>
<td><a href="mailto:nunami.kazimasa@jaea.go.jp">nunami.kazimasa@jaea.go.jp</a></td>
<td>When molecular/cluster ions irradiate solid target, lifetime effects on collision processes such as charge exchange, energy loss, secondary particle emission, etc. are observed, which have not yet been fully understood. At the aim of the study is to understand the origins of the lifetime effects by means of NAC cluster ions or 10- to 100 keV region C40 ions which are available at TIIA Takasaki. The study could reveal physical processes, which could have been behind the conventional collision processes between monatomic ions and solids, and, thus, could lead to understanding unsolved problems about atomic collisions in solids. In parallel, advancement of 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 researches.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>41</td>
<td>Advanced Nuclear System Research and Development Directorate</td>
<td>Study on Evaluation of Tube Failure Accident in a Fast Reactor Steam Generator</td>
<td>O-arai</td>
<td>Akihito Uchibori</td>
<td>Thermal-hydraulic Research Group</td>
<td>03-28-02-36-413</td>
<td><a href="mailto:uchibori.akihito@jaea.go.jp">uchibori.akihito@jaea.go.jp</a></td>
<td>When pressurized water or vapor leaks from a failed heat transfer tube in a steam generator of sodium-cooled fast reactor, 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 JAERCA.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>42</td>
<td>Advanced Nuclear System Research and Development Directorate</td>
<td>Study on the analytical method of multi-phase flow in the core disruptive accident of fast reactor</td>
<td>O-arai</td>
<td>Yoshikazu Toda</td>
<td>Reactor Safety Engineering Group</td>
<td>03-28-02-36-221</td>
<td><a href="mailto:toda.yoshikazu@jaea.go.jp">toda.yoshikazu@jaea.go.jp</a></td>
<td>A modified fluid-structure hydrodynamic analysis models which are applicable to the analysis of various multi-phase flow in disrupted core during the core disruptive accident (CDA) of fast reactor and validate the models using existing in- and out-of-pile experiments. In the assessment of CDA fast reactors, the analysis of multi-phase flow in core, which consists of the mixture of molten fuel/steel, fission product gas, and their vapor, is necessary. This study firstly makes consideration on the dominant thermohydraulic phenomena in multi-phase flow in the disrupted core, secondly develops the physical models and implement the models into computer code, and thirdly validates the computer code using existing experimental knowledge, aiming at the development of analytical methodology of CDA.</td>
<td>Non-Radiation Worker</td>
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<td>43</td>
<td>Geological Isolation Research and Development Directorate</td>
<td>Study on solute migration in engineered barriers and the surrounding rock</td>
<td>Horumbe</td>
<td>Haruo Satoh</td>
<td>Sedimentary Environmental Engineering Group</td>
<td>03-35-20-36-028</td>
<td><a href="mailto:satoh.haruo@jaea.go.jp">satoh.haruo@jaea.go.jp</a></td>
<td>Environmental studies on safety assessment methodology for the geological disposal of high level radioactive waste (HLW) intended for a temporary store, we have been pursuing a study on solute migration in the underground facility (Horumbe underground research laboratory Horumbe URS). In November 1995, we have a plan to carry out in situ migration experiments (migration in fracture zone 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 water-marking and tracking tracer in the 36th depth gallery. The applicant job is a series of work such as arrangement of the detailed experiment plan, implementation of the experiments, construction of safety assessment model based on the investigation results of the geological environment property and hydrogeological background, analysis for prediction and interpretation, etc. It is preferable that the applicant have knowledge for isotope migration in the buffer and the surrounding rock.</td>
<td>Non-Radiation Worker</td>
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<tr>
<td>44</td>
<td>Geological Isolation Research and Development Directorate</td>
<td>Radiometric dating and isotope research using noble gas mass-spectrometry</td>
<td>Tomo</td>
<td>Koji Umeda</td>
<td>Neutronics Research Group</td>
<td>03-23-15-06-081</td>
<td><a href="mailto:umeda.koji@jaea.go.jp">umeda.koji@jaea.go.jp</a></td>
<td>In order to evaluate geosphere stability for long-term isolation of radioactive waste, we recuit postdoctoral fellow who can demonstrate his/her ability for radiometric dating and isotope research using noble gas mass-spectrometry. Applicants are required to have sufficient background in mass spectrometric analysis.</td>
<td>Non-Radiation Worker</td>
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<td>No.</td>
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<td>Theme</td>
<td>Location</td>
<td>The person in charge</td>
<td>Section</td>
<td>Tel</td>
<td>E-mail</td>
<td>Summary</td>
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<td>45</td>
<td>Geological Isolation Research and Development Directorate</td>
<td>Exploring the intercellular transmitters for the forming activities of biofilm</td>
<td>Radiation Worker/Nuclear Fuel Cycle Engineering (Tokai)</td>
<td>Hiduki Yoshikawa</td>
<td>Radionuclide Migration Research Group</td>
<td>01-298-282-1111</td>
<td><a href="mailto:yoshikawa.hiduki@jaea.go.jp">yoshikawa.hiduki@jaea.go.jp</a></td>
<td>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.</td>
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<tr>
<td>46</td>
<td>Applied Laser Technology Institute</td>
<td>Research and development on adaptive control for the assist gas jet flows in laser cutting processes</td>
<td>Non-Radiation Worker/Applied Laser Technology Development Office</td>
<td>Tsuruga Muramatsu</td>
<td>Applied Laser Technology Development Office</td>
<td>04-728-21-5409</td>
<td><a href="mailto:muramatsu.toshiharu@jaea.go.jp">muramatsu.toshiharu@jaea.go.jp</a></td>
<td>Japan Atomic Energy Agency (JAEA) is performing research and development on establishing decommissioning technologies for various nuclear power plants and dismantling technologies for spent fuels of fast breeder reactor(FBRs). The post doctoral fellow is expected to work on the development and standardization of the cutting and dismantling technologies using a high power fiber laser. Especially, adaptive control techniques for the assist gas jet flows are focused in the developments. With these technologies, the post doctoral fellow is expected to develop cutting and dismantling system for the plants including their monitoring techniques. The techniques developed by the post doctoral fellow should be synthesized with the on-going developments performed by the group.</td>
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<td>47</td>
<td>Ningyo-toge Environmental Engineering Center</td>
<td>Optimization studies of waste treatment process of uranium</td>
<td>Radiation Worker/Ningyo-toge Environmental Research and Development Department</td>
<td>Tatsuo Matsubara</td>
<td>Environmental Research and Development Department</td>
<td>01-888-98-2811</td>
<td><a href="mailto:matsubara.tatsuo@jaea.go.jp">matsubara.tatsuo@jaea.go.jp</a></td>
<td>We are developing the radioactivity reduction process for uranium waste using wet/dry chemical process for used adsorbent of uranium and chemically precipitated sludges. In addition, we are improving the efficiency of wet uranium recovery process, and are also evaluating the dry recovery process and behavior of radionuclides (Pu/Am) other than uranium, and to research the process optimization for the minimization of radioactive waste disposal cost.</td>
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