Perform a PhD thesis or post-doc research at the Belgian Nuclear Research Centre

**Following topics are available for PhD research:**

**Within the Institute for Advanced Nuclear Systems**
- The influence of heavy liquid metal environment on mechanical and corrosion properties of austenitic stainless steel welds
- Searching for heavy sterile neutrinos using the SoLid detector
- Investigation of the Hypothetical Core Disruptive Accident scenario in the MYSYRA reactor
- Volatilization of fission products from lead-bismuth eutectic nuclear coolant
- Aerosol formation, transport and deposition in lead based fast reactors

**Within the Institute for Environment, Health and Safety**
- Do plants adapt to chronic low-dose gamma exposure? A mechanistic study comparing plants exposed under field and lab conditions on (epi) genetic, biochemical and population level
- Cardiovascular-dysfunction after cancer radiation therapy: search for biomarkers and study of the underlying physiological mechanisms
- Microbial community structure and dynamics during radioactive waste disposal
- Harnessing a therapeutic microbiome as an alleviating strategy for dysbiosis and recurrence in colorectal cancer patients undergoing radiotherapy
- Assessment of relative biological effectiveness of clinical and secondary irradiation in proton therapy by microdosimetric measurements and simulations
- Improving radiological monitoring using drones
- Unravelling uranium uptake mechanisms in Arabidopsis thaliana
- Model development for the assessment of the impact of accidental and routine radioactive releases in the Meuse-Scheldt aquatic system
- Surrogate modeling of numerical flow and reactive transport simulators
- Linking naturally occurring radionuclide mobility and soil to-plant transfer with soil characteristics in order to reduce uncertainties in environmental impact assessments
- Corrosion study of the BBR1 fuel in highly alkaline conditions
- Policies and publics in radiation protection: opening up participatory practices
- Communication of uncertainties related to radiological risk situations
- A novel approach to partial defect testing of spent nuclear fuel for safeguards applications

**Within the Institute for Nuclear Materials Science**
- Fatigue crack nucleation and propagation in candidate nuclear materials under various environmental conditions
- Fuel performance behavior under flexible operating regimes
- MAX Phase Coatings for Advanced Technology Fuel (ATF) Cladding Materials
- Exploring the mechanisms of steel corrosion in heavy liquid metals
- Development of \(^{213}Ac\) and \(^{217}Bi\)-labelled somatostatin analogues with improved tumor to kidney ratio for the treatment of neuroendocrine tumors
- Development of \(^{161}Tb\)-labelled nanobodies for the treatment of colorectal cancer
- Oxidation of terbium(III) as a first step towards high purity \(^{162}Tb\) for medical applications
- Microstructural investigation of irradiation assisted stress corrosion cracking mechanism based on focused ion beam analysis of tested and industrial specimens
- Nano-indentation for sub-miniaturized testing of irradiated materials: FEM analysis and experiments
- Characterization of spent fuel upon simulated cladding breach under repository conditions
- Experimental and numerical investigations on the miniaturization for fracture toughness characterization of RPV materials
- Effect of Cu, P, Ni and Mn content, individually and synergistically, on the microstructure of irradiated chemically-tailored RPV steels
- Phase stability and oxidation behavior of high Pu content fast reactor MOX fuel

**Important dates:**
- **Deadline for applications:** March 27, 2018
- **First step: selection based on application file:** April 30, 2018
- **Second step: oral presentation on the research topic:** May 22&23, 2018
- **Notification final result:** June 30, 2018
- **Standard start date:** October 1, 2018

**More information** regarding the topics and contact data of the SCK•CEN mentors is available via http://academy.sckcen.be

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