



Contents

Nuclear I&C

- Deep learning-based RUL prediction with uncertainty quantification for photocouplers in reactor protection systems
Hye Seon Jo, Ho Jun Lee, Man Gyun Na, and Chang Hwoi Kim104053
- GPU-based high-speed reactor signal generator for Ex-core neutron flux monitoring system validation
Yujin Eom, Geon Shin, Heehun Yang, Soyeon Choi, Hyeongseok Eun, Joon-Ku Lee, and Hoyoung Yoo104078
- Reliability verification methods for artificial intelligence components in instrumentation and control systems at nuclear power plants
JaeKwan Park and SeoRyong Koo104096

Nuclear Fuel Cycle and Radioactive Waste Management

- Influence of specimen size on the small strain dynamic properties and strength of compacted Bentonil-WRK bentonite for nuclear waste repository
Jebie Balagosa, Ivan Jeff Navea, Minhyeong Lee, Seok Yoon, and Yun Wook Choo104052
- Engineering-scale flow forming of high purity copper overpacks for spent nuclear fuel disposal canisters: A preliminary study for prototyping
Jae-Deuk Kim, Young-Ho Lee, Jeongmok Oh, Jin-Seop Kim, and Yeon-oh Lee104051
- Computational analysis of electrorefiner for oxide-reduced LWR spent fuel
Jin-Mok Hur, Eunsoo Lee, Sangkwon Lee, and Jae Soo Ryu104044
- Analysis of the changes in tritium discharges from Korean pressurized heavy water reactors due to the operation of tritium removal facilities
Jiung Kim and Tae Young Kong103978
- Artificial neural network modeling and response surface methodology as efficient tools for predicting the effective parameters of uranium extraction from chloride media
Fereshte Khanramaki and Fazel Zahakifar104065
- Sandstone-type uranium mineralization coupled with extensional tectonics
Bocheng Zhang, Zhibing Feng, Fengjun Nie, Chunlian Wang, Fei Xia, Li Jiang, Tengfei Ren, and Jingyi Wang104075
- Nano-to-micro aerosol contaminants emissions from dismantling of nuclear reactor pressure vessel using mock-up experiments
Wonseok Yang, Joonsoo Ock, Kwangseo Kim, Samuel Park, Nakkyu Chae, Haewoong Kim, Kwangsoo Park, Min-Ho Lee, and Sungyeol Choi104081
- Challenges and mitigations of corrosion and scale in nuclear cogeneration desalination systems: A case study from West Kalimantan
Siti Alimah, Sriyono, June Mellawati, Sudi Ariyanto, Sunarko, Akhmad Muktaf Haifani, Djati Hoesen Salimy, Yuni Indrawati, and Khusnul Khotimah104100
- Redox-controlled sorption behavior of Re(VII) on bulk solid and colloidal bentonite
Junhyuk Ha, Sang-Ho Lee, and Jun-Yeop Lee104102

Nuclear Fuel and Reactor Materials

- Experimental validation of a physics-based CRUD growth model using dedicated PWR loop tests
Seungjin Seo, Yunju Lee, Ji Hyun Kim, Nakkyu Chae, Hee Sang Shim, Richard I. Foster, and Sungyeol Choi 104050





Contents

Physics-guided multi-task learning for predicting thermophysical properties of Ag-In-Cd absorber alloys with extremely small data
 Yi-Rui Hu, Xiaoya Wang, Zhaohe Gao, Hongxing Xiao, Hongsheng Chen, and Jie Xiong104061

Research on the regulation of welding residual stress in 316L austenitic stainless steel thick-section based on ultrasonic impact and vibration
 Ya-Qi Zhong, Zhi-Hong Liu, Hai-Biao Ji, Rui Wang, Jian-Guo Ma, Yu-Dong Su, and Hua Zhai104063

Improving hydration resistance of gadolinium-based burnable absorbers via cerium oxide additions
 Hyeong Jin Kim, Hyeongju Bae, and Ho Jin Ryu104067

Potential applications of artificial intelligence in spent nuclear fuel reprocessing research: A review
 Tianchi Li, Qi Chen, Jia Zhou, Yandong Sun, Yanhong Jia, Yang Bai, Jianhua Guo, Qiuyue Zhang, Xiaojin Wang, Fangliang Yao, Zhi Cao, Wentao Wang, Fang Liu, Taihong Yan, and Weifang Zheng104060

Nuclear Policy, Economics, and Human Resource Development

Risk concerns and sustainable development goals influencing the adoption of tiny nuclear batteries: Findings from public perceptions
 Jin-Wei Wang and Jiaojiao Li104062

A practical safeguardability evaluation framework and tool supporting SBD implementation for new nuclear facilities
 Bong Young Kim and Seong-Kyu Ahn104070

Nuclear Physics, Fusion, Laser, and Accelerator Technology

Integrated modeling of improving core confinement with ECW based on HL-3 hybrid scenario
 Peng Yu, Qianhong Huang, Xinlin Wang, Yijun Zhong, Qingyi Tan, Jun Wang, Zhe Wang, and Zhanhui Wang104082

Physical design of the 1.5 GeV LINAC injector for the WALS facility
 Zeyi Dai, Jia Li, Pengwei Huang, Chaofan An, Yongjin Ding, Dengshi Shi, Hongwei Yue, Yuxin Zhang, Xinwu Yu, Xuyang Qiao, Lianmin Zheng, and Yuancun Nie104086

Effects of Al-Ti migration-driven interfacial reactions on low-activation Al₂O₃/Ti brazed joints
 Kai-Yu Ou, Yuntao Song, Ji-Chao Wang, Xiancai Meng, Lizheng Liang, and Ping Liu104088

Investigation of plasma shape, displacement, poloidal beta, and internal inductance in the Alvand-U tokamak through the solution of the Grad-Shafranov equation
 Yahya Sadeghi104085

Validating a simplified water-activation transport model using time-resolved reactor-pulse neutron measurements at KATANA
 Julijan Peric, Domen Kotnik, Domen Govekar, Luka Snoj, and Vladimir Radulović104090

Curvature-induced singularities and stability analysis of curved perfectly matched layers for ICRF antenna-plasma coupling
 Wentao Geng, Donghui Xia, Xinyu Fang, Zhangsheng Huang, and Yonghua Ding104098

Structural Integrity Analysis and Plant Management & Maintenance

Seismic analyses of i-SMR CV supports employing a component mode synthesis technique
 Jun-Yeop Lee, Dong-Hyeon Choi, and Yoon-Suk Chang104072





Contents

Development of deep learning-based error detection model for repeated measurement data of pipe wall-thinning in nuclear secondary system
Jae Seong Im, Sanghoon Lee, Young-jin Oh, and Hun Yun104089

Nuclear Safety

One policy to rule them all: Handling multiple emergent accidents in nuclear power plants with ensemble-based behavior cloning
Aicheng Gong, Mengbei Yan, Shengjie Sun, Kaihe Kong, Jiafei Lyu, and Xiu Li103932

Metamodel of thermal hydraulic code considering dynamic accident scenarios for dynamic probabilistic safety assessment
Hyeonmin Kim, Sang Hoon Han, and Dong-San Kim104087

Impact of dispersion coefficient models on offsite consequence analyses
Dakyoung Lee, Sung-yeop Kim, Gibeom Kim, and Eung Soo Kim104093

Radiation Application

Real-time organic scintillator neutron spectrum unfolding using a deep learning approach and data generated from TRIASSIC and MCNP
Beomkyu Kwon, Junsang Hwang, Jaehyo Kim, Ill-Hyuk Han, Soobin Lim, Rin Choi, Mun Seong Cheon, Yong-Su Na, Jong-Kyu Park, and Geehyun Kim104035

Enhancing SEU tolerance efficacy in advanced FinFET FPGA devices using system-level fine-grained spatial redundancy techniques
Chang Cai, Hong-Jie Zeng, Ze-Qi Huang, Xue-Zhi Zheng, Yi Sun, Jing Zhang, Min-Chi Hu, Han-Tao Jing, Zhi-Xin Tan, Rui-Rui Fan, Jun Ge, and Shu-Sheng Pan104047

The influence of matrix effect on neutron-neutron angular correlation and energy-angle correlation of special nuclear material
Kaile Li, Sufen Li, Xingfu Cai, and Yonggang Huo104056

A comparative study on machine learning models for estimating cathode material compositions in black powders using prompt gamma-ray spectra
Yohan Lee, Byoungil Jeon, and Soobin Lim104069

Estimation of self-absorption correction factors for gamma-ray spectrometry of radioactive waste using MCNP
Kyungmin Kim, Kyunghun Jung, Won-Hyuk Jang, Yu-Jeong Choi, Jong Soo Nam, Tack-Jin Kim, and Gyuseong Cho104064

Simulation of a time and spatial sensitive plastic scintillator detector
Shuaike Lv, Changsheng Dai, Dongdong Hu, Tiancheng Zhong, Weifeng Wu, and Xinjian Wang104080

CNST: Cross-Network Semantic Transfer for low-dose CT denoising with attention encoding
Shan Liao, Li Yang, Jing Zhang, Sangang Li, and Yi Cheng104073

Recent research progress on cosmic ray muon imaging technology
Gangling Hou, Mingjie Yang, Yutong Zhou, Min He, Jierong Hu, Mingzhong Zhang, and Runkun Hou104091





Contents

First demonstration of single event effects induced by secondary heavy ion beams at RAON Minsik Kwag, Dong Geon Kim, Cheolmin Ham, Kwang-Bok Lee, Seong Jae Pyeun, Mijung Kim, Jae Cheon Kim, Changwook Son, CheongSoo Lee, Donghyun Kwak, Eunhee Kim, Geonhee Oh, Sangjin Lee, Guen-Young Park, Taehyo Kim, Woojun Lee, and Kyoungho Tshoo.....	104105
Simulation study on event positioning algorithm of fast neutron imaging detector based on scintillating fiber and SiPM array Weikun Chen, Guoqiang Zhong, Bing Hong, and Jian Liu.....	104101
Enhanced radioisotope identification via dual-spectrum analysis using scintillation detectors Aydin Ghalehasadi, Saleh Ashrafi, Narjes Amiri, and Okhtay Jahanbakhsh	104107

Radiation protection

In situ fabrication and characterization of Al-Si/Al ₂ O ₃ composites via powder metallurgy for Neutron shielding applications Mustafa Varol, Bünyamin Aygün, Mehmet Karakan, Said Eray, M.I. Sayyed, Abdulhalik Karabulut, and Emre Kilinc	104058
Anticipating radioactive waste: A forecast for the Philippines' upcoming nuclear energy John Wilkin F. Lim, Ray Matthew A. Bunquin, Angelo A. Panlaqui, and Ronald E. Piquero	104076
Research on internal exposure and assessment from food intake using a whole body counter and self- administered questionnaires Jieun Lee, HyoJin Kim, HeeJin Jang, Yong UK. Kye, Wol Soon Jo, Joo Yeon Song, Jeung Kee Kim, Mi Hee Jo, Chang Geun Lee, and Yeong-Rok Kang	104071
The random ray method for challenging deep-penetration shielding problems: A rigorous comparison with multigroup Monte Carlo Shuai Qin, Jiacheng Li, Shihong Li, Xiangchun Tian, and Qian Zhang.....	104083
Boosting the gamma/neutron attenuation of borate glass system using rare earth metal oxides Z.A. Alrowaili, Alaa Hammoud, Jamila S. Alzahrani, I.O. Olarinoye, B. Alshahrani, Awatif Alshamari, and M.S. Al-Buriah i	104084
Establishment of screening levels for thyroid contamination assessment in adults following a nuclear accident Kihoon Kim, Seokwon Yoon, Hyungwoo Nam, Minsu Cho, and Minseok Park	104103
Analysis of tritium levels in drinking water around Korean nuclear power plants and a proposal for radioactivity standards in drinking water Na Young Lee and Tae Young Kong	104106

Reactor Physics

Applicability of the first-order adjoint-weighted perturbation method for estimating beta-effective sensitivity to nuclear data Sung Hoon Choi.....	104055
Neutron flux and gamma dose rate measurements in RMC's SLOWPOKE-2 reactor N. Hartery, I. Skachkov, S. Nguyen, P. Samuleev, F. Guerout, E. Corcoran, and J. Spencer	104057
Research on depletion chain simplification method based on pseudo-decay nuclides Bin Zhang, Xingmin Tang, Lianjie Wang, Xiaojing Liu, Kai Huang, and Tengfei Zhang.....	104066





Contents

Extension of the formula between reactivity and concentrations of fissile and non-fissile nuclide in the fuel salt for thermal neutron spectrum molten salt reactors <i>Changqing Yu, Guifeng Zhu, Jintong Cao, Yang Zou, Rui Yan, and Xiaohan Yu</i>	104068
Analysis of neutronic and hydrogen production potential of a triso-coated CANDU nuclear-fueled hybrid reactor with thermochemical cycles <i>Medine Özkaya</i>	104054
Optimization of spent fuel reduction and reactivity control using LEU+ fuel and hybrid burnable absorbers in innovative small modular reactors <i>Jinsun Kim, Se Yeon Hwang, Tae Sik Jung, and Jooil Yoon</i>	104059
Enhancing CMFD acceleration in MOC-based direct transport code <i>Fathurrahman Setiawan, Siarhei Dzianisau, and Deokjung Lee</i>	104074
Neutronic performance analysis of U–Mn fuel and MgO–BeO tube material in the dual fluid reactor <i>Semra Daydas and Ali Tiftikci</i>	104079
Enhanced fidelity of Monte Carlo coupled multi-physics simulations in the MCS code <i>Muhammad Imron and Deokjung Lee</i>	104077
Technical analysis for optimum hydrogen production using nuclear–renewable hybrid energy system <i>Faiza Sohail, Wahab Mubashir, Inamul Haq, Muhammad Zubair, Ali Mansoor, and Haseeb ur Rehman</i>	104094

Thermal Hydraulics

Investigation of hydraulic performance and internal flow in a lead-bismuth coolant pump for nuclear reactors <i>Wentao Wang, Congxin Yang, Yanlei Guo, Tianzhi Lyu, and Sen Zhao</i>	104095
Two-way coupling of subchannel T/H code CUPID-RV with neutronics and fuel performance codes for multi-physics simulations of pin-wise PWR core analysis <i>Yeong Hun Lee, Kyuseok Shim, Youho Lee, Jae Ryong Lee, and Hyoung Kyu Cho</i>	104092

Corrigendum

Corrigendum to “Probabilistic model chain methodology for evaluating radiological consequences of accidents in high-temperature gas-cooled reactor” [Nucl. Eng. technol. 57 (11) (2025) 103779] <i>Piotr Kopka, Michał Spirzewski, and Piotr Darnowski</i>	104191
---	--------

