

Original Articles

Reactor Physics

Adaptive group of ink drop spread: a computer code to unfold neutron noise sources in reactor cores
Seyed Abolfazl Hosseini and Iman Esmaili Paeen Afrakoti.....1369

APOLLO3 homogenization techniques for transport core calculations—application to the ASTRID CFV core
Jean-François Vidal, Pascal Archier, Bastien Faure, Valentin Jouault, Jean-Marc Palau, Vincent Pascal, Gérald Rimpault, Fabien Auffret, Laurent Graziano, Emiliano Masiello, and Simone Santandrea1379

Thermal Hydraulics

Development of a computer code for thermal-hydraulic design and analysis of helically coiled tube once-through steam generator
Yaoli Zhang, Duo Wang, Jianshu Lin, and Junwei Hao1388

Magnetohydrodynamic peristalsis of variable viscosity Jeffrey liquid with heat and mass transfer
S. Farooq, M. Awais, Moniza Naseem, T. Hayat, and B. Ahmad.....1396

Nuclear Safety

Two- and three-dimensional experiments for oxide pool in in-vessel retention of core melts
Su-Hyeon Kim, Hae-Kyun Park, and Bum-Jin Chung.....1405

A new approach to quantify safety benefits of disaster robots
Inn Seock Kim, Young Choi, and Kyung Min Jeong.....1414

Gas detonation cell width prediction model based on support vector regression
Jiyang Yu, Bingxu Hou, Alexander Lelyakin, Zhanjie Xu, and Thomas Jordan1423

The concept of the innovative power reactor
Sang Won Lee, Sun Heo, Hui Un Ha, and Han Gon Kim1431

Investigation of molten fuel coolant interaction phenomena using real time X-ray imaging of simulated woods metal-water system
Avinash Kumar Acharya, Anil Kumar Sharma, Ch.S.S.S. Avinash, Sanjay Kumar Das, Lydia Gnanadhas, B.K. Nashine, and P. Selvaraj.....1442

Nuclear Fuel Cycle and Radioactive Waste Management

A preliminary study of pilot-scale electrolytic reduction of UO_2 using a graphite anode
Sung-Wook Kim, Dong Hyun Heo, Sang Kwon Lee, Min Ku Jeon, Wooshin Park, Jin-Mok Hur, Sun-Seok Hong, Seung-Chul Oh, and Eun-Young Choi.....1451

Unsteady heat exchange at the dry spent nuclear fuel storage
Svitlana Alyokhina and Andrii Kostikov.....1457

Nuclear Fuel and Reactor Materials

High-temperature ultrasonic thickness monitoring for pipe thinning in a flow-accelerated corrosion proof test facility
Yong-Moo Cheong, Kyung-Mo Kim, and Dong-Jin Kim1463

Contents

The effect of neutron irradiation on hydride reorientation and mechanical property degradation of zirconium alloy cladding <i>Ki-Nam Jang and Kyu-Tae Kim</i>	1472
Radiation Application	
Beta particle energy spectra shift due to self-attenuation effects in environmental sources <i>Thomas Theakston Alton, Stephen David Monk, and David Cheneler</i>	1483
Large-volume and room-temperature gamma spectrometer for environmental radiation monitoring <i>Romain Coulon, Jonathan Dumazert, Tola Tith, Emmanuel Rohée, and Karim Boudergui</i>	1489
Radiation protection	
Implications of using a 50- μm -thick skin target layer in skin dose coefficient calculation for photons, protons, and helium ions <i>Yeon Soo Yeom, Thang Tat Nguyen, Chansoo Choi, Min Cheol Han, Hanjin Lee, Haegin Han, and Chan Hyeong Kim</i>	1495
Evaluation of the medical staff effective dose during boron neutron capture therapy using two high resolution voxel-based whole body phantoms <i>Mohadeseh Golshanian, Ali Akbar Rajabi, and Yaser Kasesaz</i>	1505
Nuclear Structural Analysis and Plant Management & Maintenance	
Dynamic characteristics assessment of reactor vessel internals with fluid-structure interaction <i>Sang Yun Je, Yoon-Suk Chang, and Sung-Sik Kang</i>	1513
Identification of nonregular indication according to change of grain size/surface geometry in nuclear power plant (NPP) reactor vessel (RV)-upper head alloy 690 penetration <i>Kyungcho Kim, Changkuen Kim, Hunhee Kim, Hak-Joon Kim, Jin-Gyum Kim, and Myungjo Jhung</i>	1524
Technical Notes	
Thermal Hydraulics	
Contribution of thermal-hydraulic validation tests to the standard design approval of SMART <i>Hyun-Sik Park, Tae-Soon Kwon, Sang-Ki Moon, Seok Cho, Dong-Jin Euh, and Sung-Jae Yi</i>	1537
Nuclear Safety	
Corium melt researches at VESTA test facility <i>Hwan Yeol Kim, Sang Mo An, Jaehoon Jung, Kwang Soon Ha, and Jin Ho Song</i>	1547
Nuclear I&C	
Markov chain-based mass estimation method for loose part monitoring system and its performance <i>Sung-Hwan Shin, Jin-Ho Park, Doo-Byung Yoon, Soon-Woo Han, and To Kang</i>	1555

Contents

Nuclear Fuel Cycle and Radioactive Waste Management

Effectiveness of the neutron-shield nanocomposites for a dual-purpose cask of Bushehr's Water-Water Energetic Reactor (VVER) 1000 nuclear-power-plant spent fuels

Mahdi Rezaeian, Jamshid Kamali, Seyed Javad Ahmadi, and Mohammad Amin Kiani1563

Radiation protection

Experimental investigation of effective atomic numbers for some binary alloys

Renu Sharma, J.K. Sharma, Taranjot Kaur, Tejbir Singh, Jeewan Sharma, and Parjit S. Singh.....1571