

# Contents

## “Neutronics Sensitivity and Uncertainty Analysis”

Resonance Self-Shielding Effect in Uncertainty Quantification of Fission Reactor Neutronics Parameters <i>Go Chiba, Masashi Tsuji, and Tadashi Narabayashi</i>	281
Uncertainty Propagation Analysis for Yonggwang Nuclear Unit 4 by McCARD/Master Core Analysis System <i>Ho Jin Park, Dong Hyuk Lee, Hyung Jin Shim, and Chang Hyo Kim</i>	291
Propagation of Nuclear Data Uncertainties for PWR Core Analysis <i>O. Cabellos, E. Castro, C. Ahnert, and C. Holgado</i>	299
OECD/NEA Benchmark for Uncertainty Analysis in Modeling (UAM) for LWRs – Summary and Discussion of Neutronics Cases (Phase I) <i>Ryan N. Bratton, M. Avramova, and K. Ivanov</i>	313
Nuclear Data Uncertainty and Sensitivity Analysis with XSUSA for Fuel Assembly Depletion Calculations <i>W. Zwermann, A. Aures, L. Gallner, V. Hannstein, B. Krzykacz-Hausmann, K. Velkov, and J.S. Martinez</i>	343
Nuclear Data Uncertainty Propagation for a Typical PWR Fuel Assembly with Burnup <i>D. Rochman and C.M. Sciolla</i>	353

## Papers

### Thermal Hydraulics

Pump Design and Computational Fluid Dynamic Analysis for High Temperature Sulfuric Acid Transfer System <i>Jung-Sik Choi, Young-Joon Shin, Ki-Young Lee, Yong-Sup Yun, and Jae-Hyuk Choi</i>	363
---	-----

### Nuclear I&C

Prediction of the Reactor Vessel Water Level Using Fuzzy Neural Networks in Severe Accident Circumstances of NPPs <i>Soon Ho Park, Dae Seop Kim, Jae Hwan Kim, and Man Gyun Na</i>	373
Functional Verification of a Safety Class Controller for NPPs Using a UVM Register Model <i>Kyuchull Kim</i>	381

### Nuclear Fuel Cycle and Radioactive Waste Management

Optimization of Operation Parameters of 80-keV Electron Gun <i>Jeong Dong Kim, YongDeok Lee, and Heung Sik Kang</i>	387
Separation of CsCl from LiCl-CsCl Molten Salt by Cold Finger Melt Crystallization <i>Joshua R. Versey, Supathorn Phongikaroon, and Michael F. Simpson</i>	395

# Contents

---

## **Nuclear Fuel and Reactor Materials**

- The Investigation of Burnup Characteristics Using the Serpent Monte Carlo Code for a Sodium Cooled Fast Reactor  
*Mehmet E. Korkmaz and Osman Agar* ..... 407
- Effects of Tempering and PWHT on Microstructures and Mechanical Properties of SA508 GR.4N Steel  
*Ki-Hyoung Lee, Myung Jo Jhung, Min-Chul Kim, and Bong-Sang Lee* ..... 413
- In-pile Performance of HANA Cladding Tested in Halden Reactor  
*Hyun-Gil Kim, Jeong-Yong Park, Yong-Hwan Jeong, Yang-Hyun Koo, Jong-Sung Yoo, Yong-Kyoon Mok, Yoon-Ho Kim, and Jung-Min Suh* ..... 423

## **Nuclear Structural Analysis and Plant Management & Maintenance**

- Evaluation of pH Control Agents Influencing on Corrosion of Carbon Steel in Secondary Water Chemistry Condition of Pressurized Water Reactor  
*In Hyoung Rhee, Hyunjun Jung, and Daechul Cho* ..... 431
- Development of an Amphibious Robot for Visual Inspection of APR1400 NPP IRWST Strainer Assembly  
*You Hyun Jang and Jong Seog Kim* ..... 439

## **Human Resource Development and Energy Economics & Policy**

- Educational Effects of Radiation Work-Study Activities for Elementary, Middle, and High School Students  
*Eun Ok Han, Jae Rok Kim, and Yoon Seok Choi* ..... 447