

CURRICULUM VITAE

PERSONAL INFORMATION:

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EDUCATION:

2007.9 – 2012.6 Tsinghua University
 Beijing, China
 PhD in Nuclear Science and Engineering
 Thesis title: Research on the Reactor Physics Analysis Methods
 and Characteristics of the Supercritical Water-cooled Reactor

2003.9 – 2007.6 Tsinghua University
 Beijing, China
 Bachelor of Engineering in Nuclear Science and Technology



EMPLOYMENT HISTORY:

2016.12 – current Ulsan National Institute of Science and Technology, Ulsan, Korea
 Research Assistant Professor
 Monte Carlo method development, Multi-physics coupling analysis

2014.12 – 2016.12 Ulsan National Institute of Science and Technology, Ulsan, Korea
 Post-doctoral researcher
 Monte Carlo method development

2013.7 – 2014.11 Wuhan University, Hubei, China
 Instructor
 Teach courses for undergraduates: *Nuclear Power Plant Operation, Nuclear Reactor Theory, Nuclear Power Plant System and Equipment.*

2012.7 – 2013.6 East China Institute of Technology, Jiangxi, China
 Instructor
 Teach courses for undergraduates and graduates: *Monte Carlo Method, Reactor Physics Analysis, Nuclear Reactor Safety.*

PUBLICATIONS:

Peer reviewed journal articles:

- [1] Jiwon Choe, Sooyoung Choi, **Peng Zhang**, Jinsu Park, Wonkyeong Kim, Ho Cheol Shin, Hwan Soo Lee, Ji-Eun Jung, Deokjung Lee*, "Verification and Validation of STREAM/RAST-K for PWR Analysis," Nucl. Eng. Tech., Under review (2018)
- [2] Jinsu Park, **Peng Zhang**, Hyunsuk Lee, Sooyoung Choi, Jiankai Yu, and Deokjung Lee, "Performance Evaluation of CMFD on Inter-Cycle Correlation Reduction of Monte Carlo Simulation," Comput. Phys. Commun., Under review (2018)
- [3] Jiankai Yu, Hyunsuk Lee, Hanjoo Kim, **Peng Zhang**, and Deokjung Lee*, "Coupling of FRAPCON for Fuel Performance Analysis in the Monte Carlo code MCS", Comput. Phys. Commun., Under review (2018)
- [4] Jiankai Yu, Hyunsuk Lee, Hanjoo Kim, **Peng Zhang**, and Deokjung Lee*, "MCS Based Neutronics/Thermal-Hydraulics/Fuel-Performance Coupling with CTF and FRAPCON", Comput. Phys. Commun., Under review (2018)
- [5] Eun Jeong, Jinsu Park, Hyun Chul Lee, **Peng Zhang**, Jiankai Yu, Matthieu Lemaire, Sooyoung Choi, Deokjung Lee*,

"Verification of DeCART2D/CAPP Code System for VHTR Analysis with PMR-200 Benchmark," *Annals of Nuclear Energy*, Under review (2018)

[6] Tuan Quoc Tran, Sanggeol Jeong, Khang Nhat Hoang Nguyen, Hyunsuk Lee, Sooyoung Choi, **Peng Zhang**, Min Jae Lee, Jae-Yong Lim, Deokjung Lee*, "Validation of the MCNP6 code for SFR shielding design analysis". *Journal of Radiological Protection*, Under review (2018)

[7] **Peng Zhang**, Hyunsuk Lee, Chidong Kong, Jiwon Choe, Jiankai Yu, Farrokh Khoshahval, Deokjung Lee*, "Preconditioning for the Generalized Eigenvalue Problem of Monte Carlo Modified Power Method," *Comput. Methods Appl. Mech. Engrg.*, Under review (2018)

[8] Farrokh Khoshahval, Seongpil Yum, **Peng Zhang**, Jiwon Choe, Ho Cheol Shin, Deokjung Lee*, "Smart Sensing of the Axial Power and Offset in NPPs Using GMDH Method," *Ann. Nucl. Energy*, Under review (2018)

[9] Jiankai Yu, Hyunsuk Lee, Hanjoo Kim, **Peng Zhang**, Deokjung Lee*, "Preliminary Coupling of the Thermal Hydraulic Solvers in the Monte Carlo Code MCS for Practical LWR Analysis", *Ann. Nucl. Energy*, Accepted for Publication (2018)

[10] Farrokh Khoshahval, **Peng Zhang**, Matthieu Lemaire, Deokjung Lee*, Reply to the letter to the editor on "Vanadium, Rhodium, Silver and Cobalt Self-Powered Neutron Detector Calculations by RAST-K v2.0" by Farrokh Khoshahval, Minyong Park, Ho Cheol Shin, and Deokjung Lee* [*Ann. Nucl. Energy*, 111: 644-659], *Ann. Nucl. Energy*, 115: 635-636. (2018)

[11] **Peng Zhang**, Hyunsuk Lee, Deokjung Lee*, "On the Transfer Matrix of the Modified Power Method," *Comp. Phys. Comm.*, 222: 102-112. (2018)

[12] Eun Jeong, Jiwon Choe, **Peng Zhang**, Ho Cheol Shin, Deokjung Lee*, "New High Performance Light Water Reactor Core Concept with Mixed Cycle Length Operation," *Int. J. Energ. Res.*, 42: 53-67. (2018)

[13] Jaerim Jang, Wonkyeong Kim, Sanggeol Jeong, Eun Jeong, Jinsu Park, Matthieu Lemaire, Hyunsuk Lee, Yongmin Jo, **Peng Zhang**, Deokjung Lee*, "Validation of UNIST Monte Carlo Code MCS for Criticality Safety Analysis of PWR Spent Fuel Pool and Storage Cask," *Ann. Nucl. Energy*, 114: 495-509. (2018)

[14] Farrokh Khoshahval, Minyong Park, Ho Cheol Shin, **Peng Zhang** and Deokjung Lee*, "Vanadium, Rhodium, Silver and Cobalt Self-Powered Neutron Detector Calculations by RAST-K v2.0," *Ann. Nucl. Energy*, 111: 644-659. (2018)

[15] **Peng Zhang**, Hyunsuk Lee, Deokjung Lee*, "Extension of the Noise Propagation Matrix Method for Higher Mode Solutions," *J. Comput. Phys.*, 344: 440-450 (2017)

[16] Youqi Zheng, Deokjung Lee*, **Peng Zhang**, Eunki Lee, Ho-cheol Shin, "Comparisons of SN and Monte-Carlo Methods in PWR Ex-core Detector Response Simulation," *Annals of Nuclear Energy*, 101: 139-150 (2017)

[17] **Peng Zhang**, Hyunsuk Lee, Deokjung Lee*, "Calculation of Degenerated Eigenmodes with Modified Power Method," *Nucl. Eng. Tech.*, 49 (1): 17-28 (2017)

[18] Jinsu Park, Taewoo Tak, T. K. Kim, Jiwon Choe, Yongjin Jeong, **Peng Zhang**, Deokjung Lee*, "Design Study of Long-Life Small Modular Sodium-Cooled Fast Reactor," *Int. J. Energ. Res.*, 41 (1): 139-148 (2017)

[19] **Peng Zhang**, Hyunsuk Lee, and Deokjung Lee*, "Extension of Modified Power Method to Two-Dimensional Problems," *J. Comput. Phys.*, 320: 17-32 (2016)

[20] **Peng Zhang**, Hyunsuk Lee, and Deokjung Lee*, "A General Solution Strategy of Modified Power Method for Higher Mode Solutions," *J. Comput. Phys.*, 305: 387-402 (2016)

[21] **ZHANG Peng**, WANG Kan*, YU Ganglin, "A Simplified Supercritical Fast Reactor with Thorium Fuel," *Science and Technology of Nuclear Installations.*, Vol. 2014 (2014)

[22] **ZHANG Peng**, WANG Kan*, LI Man-cang, "Research on Homogenization via Monte Carlo Method and Its Application in Multi-group Monte Carlo Transport Calculation," *Nuclear Power Engineering*, 33 (4) (in Chinese) (2012)

Conference articles:

[1] Peng Zhang, Jiwon Choe, Sooyoung Choi, Deokjung*, "Burnup Adaptation Model in STREAM/RASTK Code System," KNS Spring Meeting, Jeju, Korea, May 16-18 (2018)

[2] Peng Zhang, Hyunsuk Lee, Yunki Jo, Deokjung Lee*, "Monte Carlo Adjoint Eigenmode Calculation with the Application of Modified Power Method," PHYSOR2018, Cancun, Mexico, April 22-26 (2018)

[3] Peng Zhang, Hyunsuk Lee, Deokjung Lee*, "Prediction on Underestimation of Statistical Uncertainty for Fission Source Tally in Monte Carlo Simulation Based on the Modified Power Method," RPHA17, Chengdu, Sichuan, China, August 24-25 (2017)

[4] Peng Zhang, Hyunsuk Lee, Deokjung Lee, "A New Accumulation Scheme for the Monte Carlo Implementation of the Modified Power Method," M&C2017, Jeju, Korea, April 16-20 (2017)

[5] Peng Zhang, Hyunsuk Lee, Deokjung Lee, "Monte Carlo Higher Modes Calculation based on the Extension of the Noise Propagation Matrix," M&C, Jeju, Korea, April 16-20 (2017)

[6] Peng ZHANG, Hyunsuk LEE, and Deokjung LEE, "Extension of NPMM for Higher Mode Solutions," KNS Fall Meeting, Gyeongju, Korea, October 26-28 (2016)

[7] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "Application of the Modified Power Method to 2D Core Simulation," KNS Spring Meeting, Jeju, Korea, May 12-13 (2016)

[8] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "Extension of Modified Power Method to Multi-Dimensional Monte Carlo Simulations," PHYSOR2016, Sun Valley, ID, USA, May 1-5 (2016)

[9] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "On the Characteristics of Transfer Matrix of Generalized Modified Power Method," PHYSOR2016, Sun Valley, ID, USA, May 1-5 (2016)

[10] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "A Monte Carlo Convergence Acceleration Technique based on the Modified Power Method," SMMS2015, Chiang Mai, Thailand, November 22-23 (2015)

[11] Peng Zhang, Hyunsuk Lee, Kyoong-Ho Cha, Sun-Kwan Hong, and Deokjung Lee*, "Application of Modified Power Method to 2D Problems," RPHA15, Jeju, Korea, September 16-18 (2015)

- [12] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "The Implementation of Modified Power Iteration Method in Monte Carlo," 2015 ANS Annual Meeting, San Antonio, TX, June 7-11 (2015)
- [13] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "Extension of Tom Booth's Modified Power Method for Higher Eigen Modes," KNS Spring Meeting, Jeju, Korea, May 6-8 (2015)
- [14] Peng Zhang, Hyunsuk Lee, and Deokjung Lee*, "Stabilization Technique of Modified Power Iteration for Monte Carlo Simulation of Neutron Transport Eigenvalue Problem," ANS MC2015, Nashville, TN, USA, April 19-23 (2015)
- [15] Sun Qian, Zhang Peng*, Li Zhiqiang, "Research on Leakage Correction Method for Multi-group Cross Sections Generated via Monte Carlo simulation," CORPHY2014, Chengdu, China, August 25-27 (2014) (in Chinese).
- [16] ZHANG Peng, WANG Kan*, YU Ganglin, "Utilization of Different Fuel in Supercritical Fast Reactor," the 6th International Symposium on Supercritical Water-Cooled Reactors (ISSCWR6), Shenzhen, Guangdong, China (2013)
- [17] ZHANG Peng, WANG Kan*, YU Ganglin, "Utilization of Different Fuels in SCWR," the 3rd China-Canada Joint Workshop on Supercritical Water-Cooled Reactors (CCSC2012), Xi'an, China (2012)
- [18] ZHANG Peng, WANG Kan*, YU Ganglin, "A multi-group Monte Carlo core analysis method and its application in SCWR design," PHYSOR 2012, Knoxville, TN, USA, April 15-20 (2012)
- [19] ZHANG Peng, GONG Helin, WANG Kan*, "Preliminary Study on Neutronics Characteristics of Thorium-based Supercritical Water-cooled Fast Reactor," the 5th Int. Sym. SCWR (ISSCWR-5), Vancouver, British Columbia, Canada, March 13-16 (2011)
- [20] ZHANG Peng, WANG Kan*, YU Ganglin, "SCWR Assembly Designs with Peripheral Moderator Channels," PHYSOR 2010, Pittsburgh, Pennsylvania, USA, May 9-14 (2010)
- [21] ZHANG Peng, WANG Kan*, "Comparisons of Thermal SCWR Assembly Designs by In- or Inter-Assembly Moderation," the 2nd Canada-China Joint Workshop on Supercritical Water-Cooled Reactors (CCSC-2010), Toronto, Ontario, Canada, April 25-28 (2010)