

CURRICULUM VITAE

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EDUCATION

Ph.D. in Nuclear Engineering, Oregon State University, Corvallis, OR, USA, 2000
M.S. in Physics, Yonsei University, Seoul, South Korea, 1986
B.S. in Physics, Yonsei University, Seoul, South Korea, 1984

PROFESSIONAL EXPERIENCE & ACHIEVEMENTS

- 07/11-present Senior R&D Staff, Oak Ridge National Laboratory
- Improvement of the CASL VERA MPACT for advanced reactor analysis (Molten-salt reactors, Magnox, BWR, Yellowstone energy reactor)
 - Leading the SCALE-XSProc maintenance and improvement for multigroup cross section processing for transport calculation
 - Development of the AMPX 1597-group library for advanced reactor (Sodium cooled fast reactors, fast and thermal Molten salt reactors) analysis and its verification and validation (NRC)
 - Development of the spatially dependent Embedded Self-Shielding method
 - Improvement of the SCALE code package for various advanced reactor (PWR, BWR, MSR, SFR, HTGR) analysis (NRC :: on going)
 - Improvement of the SCALE cross section processing procedure for fast reactor analysis (NRC :: on going)
 - Leading the improvement of methodologies, accuracy and performance for the CASL neutronics simulator MPACT :: Cross section library, resonance self-shielding methods, burnup and neutron/gamma transport/diffusion solver (on-going)
 - Development of multi-group cross section library for the CASL neutronics simulator MPACT :: 51-, 47- and 8-group MPACT libraries, and simplified burnup chain with 255 nuclides
 - Development of a 2-step reactor physics analysis procedure for liquid salt-cooled Advanced High Temperature Reactor
 - Development of MOC based resonance self-shielding methodology and eigenvalue calculation modules for doubly heterogeneous particulate TRISO fuels for the SCALE code package
 - Improvement of an accuracy of the SCALE6.2 multi-group procedure by using SCALE-CENTRM/NEWT(or KENO) :: Group structure optimization, 2D MOC slowing down capability with high order scattering, and new weighting function
 - Development of a new procedure and programs to generate resonance data (Intermediate resonance parameter, Bondarenko F-factors, subgroup data) in

AMPX :: LAMBDA, IRFFACTOR and SUBGR

- Development of a resonance treatment methodology called Embedded Self-Shielding Method (ESSM) based on intermediate resonance approximation
- Development of a new resonance self-shielding method with ESSM coupled with 0-D pointwise slowing down calculation for explicit resonance interference
- Development of a new transport lattice code SCALE-POLARIS :: ESSM Resonance self-shielding and MOC
- Development of an automatic program CGOP to optimize coarse energy group structure
- Feasibility study on the applicability of the SCALE code package to the PWR small modular reactors
- Uncertainty analysis for the PWR spent fuels in the storage pool by utilizing a random sampling method
- Enhancement of the computational efficiency and convergence stability of SCALE6.2-NEWT (>5 times speedup)
- Enhancement of the computational efficiency of Denovo-MOC (>4 times speedup)
- Assessment and testing of the ANL NEAMS neutronics code package PROTEUS
- Development of a new unresolved resonance treatment method for the SCALE code package

06/89-06/11

Researcher(1989), Senior Researcher(1992), Principal Researcher(2003), Korea Atomic Energy Research Institute

- Reactor physics analysis and design for the Korean PWRs (Westinghouse and ABB-CE type reactors)
 - Initial and reload cycle nuclear design
 - Incore fuel management: Long term fuel cycle, fuel and burnable poison optimization, low leakage loading pattern
 - Safety analysis
 - Uncertainty analysis for key nuclear parameters
- Development and licensing of the Korean small and modular reactor SMART
 - Development of reactor core design procedure
 - Uncertainty analysis for key nuclear parameters
 - Reactor core design and licensing
- Development of a neutron/gamma cross section library processing code system for the transport codes KARMA and DeCART
- Development and licensing of the transport lattice code KARMA for the nuclear design of the operating Korean PWRs
- Development of the whole core transport simulator DeCART for PWR and HTGR (High Temperature Gas Cooled Reactor)
- Development of a Monte Carlo-depletion code package MCDEP
- Analysis of various critical experiments
- Development of a dynamic control rod worth measurement procedure
- Development of 2-step reactor physics analysis code packages for PWR, VHTR and SCWR (Super Critical Water Reactor)
- Development of various reactor physics related methodologies such as neutron and gamma transport, resonance treatment, burnup, criticality spectrum, acceleration schemes and spatial discretizations
- Uncertainty evaluation for various reactor physics code packages for nuclear design of PWR and small modular reactors: reactivity, power distribution, reactivity coefficients, control rod worth
- Conceptual design of a research reactor with plate type fuels
- Analysis of TRISO particle based PWR deep burn core
- Professional experience on various neutronics code packages

- SIEMENS-KWU: FASER/MULTIMEDIUM/MEDIUM
 - STUDSVIK SCANDPOWER: CASMO, HELIOS
 - ABB-CE: DIT/ROCS
 - KAERI: KARMA/MASTER
 - OTHERS: SCALE, DRAGON, WIMS, MCNP
 - Development of a graphical radiation shielding procedure by utilizing the DORT code
- 03/10-12/10 Adjunct Lecturer at Department of Nuclear Engineering, Kyunghee University
- Advanced numerical methods for reactor physics (Graduate course)
 - Nuclear fuel cycle (Graduate course)
- 06/09-12/09 Research Consultant to Oak Ridge National Laboratory
- Library generation for the transport lattice codes using SCALE and AMPX
- 06/08-05/09 Visiting Researcher at Oak Ridge National Lab.
- Development of the unstructured partial and net current CMFD acceleration schemes for SCALE-NEWT
 - Implementation of B1 criticality spectrum calculation capability on SCALE-NEWT
 - Development of a multi-group library processing system for the transport code DeCART
- 01/97-05/00 Teaching and Research Assistant at Department of Nuclear Engineering, Oregon State University
- 04/94-03/95 Visiting Researcher, ABB-CE, Windsor, CT
- Generation of the DIT cross section library based on ENDF/B-VI
 - Uncertainty evaluation of the ABB-CE reactor physics code package for the CE-type reactors

LEADING PROJECTS

- 12/18~11/20 “Adaptation of High-Fidelity Multiphysics Core Simulators for Advanced Reactor Applications,” US-ROK I-NERI between ORNL and KAERI with University of Michigan, Seoul National University and ANL, PI since 07/2019 (CASL Leveraging, \$0.9M/3yr)
- 09/17~09/18 “Development of Spatially Dependent Embedded Self-Shielding Method” supported by Oak Ridge National Laboratory LDRD, PI (\$30K/2yr)
- 12/14~12/17 “Capability Enhancement and Validation of High-Fidelity Multi-Physics Reactor Simulators for Water-Cooled Power Reactor Applications,” I-NERI with MIT, University of Michigan, Seoul National University and Ulsan National Institute of Science and Technology, Co-PI, Lead of the Deterministic Core Simulator MPACT, (CASL Leveraging, \$1.2M/3yr)
- 02/14~02/15 “Development of a New Lattice Physics Methodology for Doubly Heterogeneous Particulate Fuels” supported by Oak Ridge National Laboratory LDRD, PI (\$190K/1yr)
- 12/13~09/14 “Improvement of the Unresolved Resonance Self-Shielding Method in the SCALE Code System” supported by Oak Ridge National Laboratory LDRD, PI (\$30K/1yr)
- 04/10~06/11 “Licensing Support and Improvement for Transport Lattice and In-core Management codes” supported by Korea Ministry of Knowledge Economy, PI (\$500K/3yr)
- 08/04~06/07 “Development of an advanced suite of the reactor physics analysis for the high temperature gas cooled reactor,” I-NERI with Argonne National Lab., PI (\$500K/3yr)
- 08/04~01/05 “The Numerical Nuclear Reactor for High-Fidelity Integrated Simulation of Neutronic, Thermal-Hydraulic, and Thermo-Mechanical Phenomena,” I-NERI with Argonne National Lab., PI (\$1.0M/3yr)

RESEARCH INTERESTS

- Computational transport and diffusion theory: deterministic and Monte Carlo methods, whole core and lattice transport code development, transport acceleration methods, double-heterogeneity treatment, numerical methods, stability analysis
- Computational reactor physics: analysis and design code development for advanced reactors including PWR, BWR, small modular reactor, high-temperature gas-cooled reactor, fast reactor and molten salt reactor, code verification and validation, uncertainty evaluation
- Modeling and Simulation: multi-physics code & simulation, high performance computing
- Nuclear data: cross section processing methods, resonance self-shielding methods, burnup library development, nuclear data evaluation
- In-core fuel management: depletion module development, burnup chain
- Advanced reactor development: small modular reactor, GEN-IV reactors (Pebble and prismatic high-temperature gas-cooled reactor, Molten Salt reactor, Sodium-cooled fast reactor)
- Sensitivity and Uncertainty quantification
- Nuclear Security
- Criticality and radiation shielding: methods and applications

DEVELOPED CODES

- KARMA : 2-Dimensional neutron/gamma transport lattice code for the commercial pressurized water reactors in Korea (1st author)
- KARMA_GRAF : Graphic program for KARMA (1st author)
- LIBERTE : 2-Dimensional transport lattice code with the capability of the general geometry treatment (1st author)
- DeCART : 3-Dimensional whole-core transport code (Co-author)
- MCDEP : Monte Carlo depletion code with a coupling of MCNP and a depletion module (1st author)
- GREDIT : Program to generate multi-group cross sections for the deterministic transport codes (1st author)
- MERIT : Program to generate resonance integral table and intermediate resonance parameters for a transport lattice code (1st author)
- SUBDATA : Program to generate subgroup data (1st author)
- LIBGEN : Program to generate a neutron/gamma library for LIBERTE/KARMA/DeCART (1st author)
- LIBFORM : Programs to convert or to modify the LIBERTE/KARMA/ DeCART library (1st author)
- GEOSHIELD : Program for the automatic particle transport calculation, graphics and output processing using DORT for radiation shielding (1st author)
- RILAMB/SUBGR/DECLIB : Multi-group library generation system by using SCALE and AMPX (1st author)
- SCALE Code Package : Contributed on CENTRM, NEWT and POLARIS, and responsible for SCALE-XSProc
- AMPX Code Package : Contributed on LAMBDA and IRFFACTOR which are based on RILAMB
- MPACT CASL Neutronics Simulator : Contributed on methodology, accuracy and performance
- CGOP : Program to automatically optimize coarse energy group structure (1st author)
- XSTools Code Package : Programs to generate the CASL VERA-CS cross section libraries (1st author)
- CapKappa : Program to generate recoverable capture energies for neutron flux normalization (1st author)
- LibSampler : Program to generate the perturbed MPACT MG libraries (1st author)

PUBLICATION

A. Journals

1. Kang Seog Kim et al., "Application of the Multi Enriched Fuel Rods for the 17x17 KOFA Fuel Assembly," Journal of the Korean Nuclear Society, 26, No.3, 337-344 (1994)
2. J. Y. Cho, H. G. Joo, Kang Seog Kim, S. Q. Zee, "Cell Based CMFD Formulation for Acceleration of Whole-core Method of Characteristics Calculation," Journal of the Korean Nuclear Society, 34, No.3, 250-258 (2002)
3. Kang Seog Kim et al., "Monte Carlo Resonance Treatment for the Deterministic Transport Lattice Codes," Journal of the Korean Nuclear Society, 35, No.6, 581-595 (2003)
4. K. Y. Kim, H. Y. Kim, Kang Seog Kim et al., "Shielding Analysis for the Reactor Pressure Vessel of SMART-P," Journal of Nuclear Science and Technology, Supp. 4, 82-85 (2003)
5. K. Y. Kim, H. Y. Kim, B. S. Koo, Kang Seog Kim et al., "Vessel Fluence Evaluation for a Design Improvement of the Flow Mixing Header of SMART-P," Journal of Radiation Protection Bulletin, A Special Issue, 14-16 (2005)
6. David P. Weber, Tanju Sofu, Won Sik Yang, Thomas J. Downar, Justin W. Thomas, Zhaopeng Zhong, Jin Young Cho, Kang Seog Kim, Tae Hyun Chun, Han Gyu Joo, Chang Hyo Kim, "High-Fidelity Light Water Reactor Analysis with the Numerical Nuclear Reactor," Nucl. Sci. Eng., Vol. 155, 395-408 (2007)
7. Kang Seog Kim et al., "Development of a Physics Analysis Procedure for the Prismatic Very High Temperature Gas Cooled Reactors," Ann. Nucl. Energ., 34, 849-860 (2007)
8. Jin-Young Cho, Kang Seog Kim, Chung-Chan Lee, Sung-Quun Zee, Han-Gyu Joo, "Axial SP_N and Radial MOC Coupled Whole Core Transport Calculation," J. Nucl. Sci. Tech., Vol. 44, No. 9 (2007)
9. Kyung-Hoon Lee, Kang Seog Kim, Jin-Young Cho, Jae-Seung Song, Jae-Man Noh, Chung-Chan Lee, "IAEA GT-MHR Benchmark Calculations by using the HELIOS/MASTER Physics Analysis Procedure and the MCNP Monte Carlo Code," Nucl. Eng. Design, 238, 2654-2667 (2008)
10. Jin-Young Cho, Kang Seog Kim et al., "Whole Core Transport Calculation Employing Hexagonal Modular Ray Tracing and CMFD Formulation," J. Nucl. Sci. Tech., 45, 740-751 (2008)
11. Kyo Youn Kim, Kang Seog Kim et al., "Verification for a GEOSHIELD application to the SMART Vessel Fluence by a Monte Carlo Simulation," J. Nucl. Sci. Tech., Supplement 5, 24-27 (2008)
12. Gyuhong Noh, Kang Seog Kim et al., "Ex-Core Detector Response Evaluation of the SMART Reactor by Using the DORT Code," J. Nucl. Sci. Tech., Supplement 5, 78-81 (2008)
13. Gyuhong Noh, Ha Yong Kim, Kang Seog Kim, Kyo Youn Kim, "Radiation Shielding Analysis for the Reactor Assembly of the SMART Reactor," J. Nucl. Sci. Tech., Supplement 5, 82-85 (2008)
14. Jae Man Noh, Kang Seog Kim, Yong Hee Kim, Hyun Chul Lee, "Development of a Computer Code System for the Analysis of Prism and Pebble Type VHTR cores," Ann. Nucl. Energ., 35, 1919-1928, (2008)
15. Ser Gi Hong, Kang Seog Kim, Jae Seung Song, "Fourier convergence analysis of the rebalance methods for discrete ordinates transport equations in eigenvalue problems," Nucl. Sci. Eng., 164, 33-52 (2010)
16. Kang Seog Kim, Ser Gi Hong, "A New Procedure to Generate Resonance Integral Table with an Explicit Resonance Interference for Transport Lattice Codes," Ann. Nucl. Energ., 38, 118-127 (2011)
17. Ser Gi Hong, Kang Seog Kim, "Iterative Resonance Treatment Methods Using Resonance Integral Table in Heterogeneous Transport Lattice Calculations," Ann. Nucl. Energ., 38, 32-43 (2011)
18. Kang Seog Kim, Mark L. DeHart, "Unstructured Partial and Net Current Based Coarse Mesh Finite Difference Acceleration Applied to Extended Step Characteristics Method in NEWT," Ann. Nucl. Energ., 38, 527-534 (2011)
19. Kang Seog Kim, Ser Gi Hong, "The Method of Characteristics Applied to Solving Slowing Down Equation to Estimate the Self-Shielded Resonance Cross Sections with an Explicit Geometrical Effect," Ann. Nucl. Energ., 38, 438-446 (2011)
20. Kang Seog Kim, Ser Gi Hong, "Gamma Transport and Diffusion Calculation Capability Coupled

- with Neutron Transport Simulation in KARMA 1.2,” *Ann. Nucl. Energ.*, 57, 59-67 (2013)
21. Yuxuan Liu, William Martin, Mark L. Williams, Kang Seog Kim, “A Full-Core Resonance Self-Shielding Method Using a Continuous-Energy Quasi-One-Dimensional Slowing-Down Solution that Accounts for Temperature-Dependent Fuel Subregions and Resonance Interference,” *Nucl. Sci. Eng.*, 180, 247-272 (2015)
 22. Brendan Kochunas, Benjamin Collins, Daniel Jabaay, Shane Stimpson, Aaron Graham, Kang Seog Kim, William Wieselquist, Kevin Clarno, Scott Palmtag, Thomas Downar, Jess Gehin, “VERA Core Simulator Methodology For PWR Cycle Depletion,” *Nucl. Sci. Eng.*, 185, 217-231 (2017)
 23. Ho Jin Park, Ser Gi Hong, Kang Seog Kim, Jae-Seung Song, “An Improved DeCART Library Generation Procedure with Explicit Resonance Interference Using Continuous Energy Monte Carlo Calculation,” *Ann. Nucl. Energ.*, 105, 95-105 (2017)
 24. Cole Gentry, Kang Seog Kim, G. Ivan Maldonado, “Two-Step Procedure for Liquid Salt Cooled Reactor Analysis,” *Nuclear Technology*, 204:3, 299-317 (2018)
 25. Kang Seog Kim, Mark L. Williams, Dorothea Wiarda, Kevin T. Clarno, “Development of the Multigroup Cross Section Library for the CASL Neutronics Simulator MPACT: Method and Procedure,” *Ann. Nucl. Energ.*, 133, 46-58 (2019)
 26. Kang Seog Kim, Cole A. Gentry, Andrew T. Godfrey, Yuxuan Liu, Scott Palmtag, “Development of the Multigroup Cross Section Library for the CASL Neutronics Simulator MPACT: Verification,” *Ann. Nucl. Energ.*, 132, 1-23 (2019)
 27. Kang Seog Kim, Mark L. Williams, “Spatially Dependent Embedded Self-Shielding Method for Nonuniform Temperature Distribution,” *Ann. Nucl. Energ.*, 132, 563-575 (2019)
 28. Kang Seog Kim, Mark L. Williams, Andrew Holcomb, Dorothea Wiarda, Byoung Kyu Jeon, Won Sik Yang, “The AMPX/SCALE Multigroup Cross Section Processing for Fast Reactor Analysis,” *Ann. Nucl. Energ.*, 132, 161-171 (2019).

B. American Nuclear Society Conference

1. U. Decher, A. Jonsson, S. J. Kim, Kang Seog Kim, “ENDF/B-VI Performance in PWR Applications,” *Trans. Am. Nucl. Soc.*, 73, 417 (1995)
2. Kang Seog Kim et al., “Diffusion Synthetic Acceleration for One-Cell Block Inversion in Slab Geometry,” *Trans. Am. Nucl. Soc.*, 75, 138 (1999)
3. Kang Seog Kim et al., “Coarse-Mesh Diffusion Synthetic Acceleration for in Slab Geometry,” *Trans. Am. Nucl. Soc.*, 76 (2000)
4. Kang Seog Kim et al., “Development of DENT 2D Code Based on the Characteristics Method,” *Trans. Am. Nucl. Soc.*, 86, 369 (2002)
5. J. Y. Cho, H. G. Joo, Kang Seog Kim, S. Q. Zee, M. H. Chang, “Three-Dimensional Heterogeneous Whole Core Transport Calculation Employing Planar MOC Solution,” *Trans. Am. Nucl. Soc.*, 87, 234 (2002)
6. J. Y. Cho, Kang Seog Kim et al., “Transient Capability for a MOC-Based Whole Core Transport Code DeCART,” *Trans. Am. Nucl. Soc.*, 90, 721 (2004)
7. H. C. Lee, Kang Seog Kim et al., “The Equivalent Cylinder Models for the Homogenization of Pebble Bed Reactor Cores,” *Trans. Am. Nucl. Soc.*, 93, 961 (2005)
8. Ser Gi Hong, Kang Seog Kim, Jae Seung Song, “A Resonance Integral Table-based Iteration Method for Resonance Treatment in Lattice Calculation,” *Trans. Am. Nucl. Soc.*, 102, 536 (2010)
9. Kang Seog Kim, Mark L. Williams, “Preliminary Assessment of Resonance Interference Treatment by Using 0-D Slowing Down Calculation in the Embedded Self-Shielding Method,” *Trans. Am. Nucl. Soc.*, 107, 1128-1131 (2012)
10. Matthew A. Jessee, William A. Wieselquist, Mark L. Williams, Kang Seog Kim, “VERA Benchmark Calculations Using the SCALE-Polaris Lattice Physics Code,” *Trans. Am. Nucl. Soc.*, 109, 1413-1415 (2013)
11. Yuxuan Liu, William Martin, Kang Seog Kim, Mark L. Williams, “Modeling Spatial Dependence of Resonance Self-Shielding Effects Including Resonance Interference and Temperature

- Distribution,” *Trans. Am. Nucl. Soc.*, 109, 800-803 (2013)
12. Kang Seog Kim, “Comparison between Spatially Dependent Embedded Self-Shielding and Subgroup Methods,” *Trans. Am. Nucl. Soc.*, 119, 1193-1196, Orlando, Florida, Nov. 11-15 (2018)
 13. Kang Seog Kim, Matthew A. Jessee, “Development of Perturbed MPACT Multigroup Libraries and the Perturbation Methodology for Subgroup Data,” (2019, accepted for 2019 ANS Winter)

C. International Conference

1. Kang Seog Kim et al., “Verification and Validation of CASMO-3/MASTER Design Code System,” *Proceedings of PHYSOR '96*, Mito, Japan (1996)
2. Kang Seog Kim et al., “Benchmark Calculations of DENT-2D Code For PWR Fuel Assemblies,” *Proceedings of PHYSOR 2002*, Seoul, Korea (2002)
3. H. G. Joo, J. Y. Cho, Kang Seog Kim, H. Y. Kim, M. H. Chang, “Whole Core Calculation with Subpin Level Thermal Feedback,” *Proceedings of AESJ 2003 Spring Mtg.*, Sasebo, Japan (2003)
4. K. Y. Kim, H. Y. Kim, Kang Seog Kim, C. C. Lee, M. H. Chang, S. Q. Zee, “Shielding Design Analyses for the SMART-P Reactor Assembly,” *Proceedings of ISORD-2*, Japan (2003)
5. H. G. Joo, J. Y. Cho, Kang Seog Kim et al., “Methods and Performance of a Three-Dimensional Whole-Core Transport Code DeCART,” *Proceedings of PHYSOR 2004*, Chicago, USA (2004)
6. Y. S. Cho, Kang Seog Kim et al., “Comparative Study on Different Phonon Frequency Spectra of Graphite in GCR,” *International Workshop on Nuclear Data Needs for Generation IV Nuclear Energy Systems*, Belgium (2005)
7. Kang Seog Kim et al., “Depletion Capability of the 3-Dimensional Whole Core Transport Code DeCART,” *M&C 2005*, Avignon, France, Sept. 12-15, 2005 (2005)
8. Kang Seog Kim et al., “Forced Structured Coarse Mesh Finite Difference Method for the Characteristics Method Applied to the Complex Geometry,” *M&C 2005*, Avignon, France, Sept. 12-15, 2005 (2005)
9. K. Y. Kim, B. S. Koo, H. Y. Kim, Kang Seog Kim, C. C. Lee, S. Q. Zee, “Radiation Shielding Analysis for Design Improvement of Side Shield Screen Assembly of SMART-P,” *Proceedings of ISORD-3*, China (2003)
10. D. P. Weber, T. Sofu, P. Pfeiffer, W. S. Yang, Kang Seog Kim et al., “The numerical Nuclear Reactor-A High Fidelity, Integrated Neutronic, Thermal-Hydraulic and Thermo-Mechanical Code,” *M&C 2005*, Avignon, France, Sept. 12-15, 2005 (2005)
11. H. G. Joo, B. S. Han, C. H. Kim, Kang Seog Kim, “Implementation of Subgroup Method in Direct Whole Core Transport Calculation Involving Nonuniform Temperature Distribution,” *M&C 2005*, Avignon, France, Sept. 12-15, 2005 (2005)
12. J. M. Noh, H. C. Lee, Kang Seog Kim, Y. H. Kim, “Development of a KAERI Computer Code System for the Analysis of VHTR Cores,” *Joint seminar on the Application and Development of Advanced Nuclear Reactor*, China (2005)
13. J. Y. Cho, Kang Seog Kim, C. C. Lee, “Error Quantification of the Axial Nodal Diffusion Kernel of the DeCART Code,” *Proceedings of PHYSOR 2006*, Vancouver, Canada (2006)
14. H. C. Lee, Kang Seog Kim et al., “Two-Step Procedure by using a 1-D Slab Spectral Geometry for a Pebble Bed Reactor Core Analysis,” *Proceedings of PHYSOR 2006*, Vancouver, Canada (2006)
15. Kang Seog Kim et al., “Development of Two-Step Procedure for the Prismatic VHTR Physics Analysis,” *Proceedings of PHYSOR 2006*, Vancouver, Canada (2006)
16. H. C. Lee, Kang Seog Kim et al., “IAEA GT-MHR Benchmark Calculations using the HELIOS/MASTER Code Package,” *Proceedings of PHYSOR 2006*, Vancouver, Canada (2006)
17. J. Y. Cho, Kang Seog Kim, C. C. Lee, H. G. Joo, “Sub-Plane Scheme for a Radial Transport and Axial Diffusion Code,” *ICAPP 2007*, Nice, France (2007)
18. Hyun Chul Lee, Qian Hong, Kang Seog Kim, Jae Man Noh, “Comparison of Two-Step Diffusion Solutions and Monte Carlo Solutions to the IAEA CRP-5 Pebble Box Benchmark Problem,” *ICAPP 2007*, Nice, France (2007)

19. Hyun Chul Lee, Kang Seog Kim, Jae Man Noh, "Comparison of Two-Step Diffusion Solutions and Monte Carlo Solutions to a Doubly Heterogeneous PBMR-400 Problem," M&C 2007, Monterey, CA, USA (2007)
20. L. Pogosbekyan, H. G. Joo, C. H. Kim, Kang Seog Kim, "Generation of Subgroup Weights Employing Shielded Cross Section Conservation Principle for Representative Pin Cells," M&C 2007, Monterey, CA, USA (2007)
21. Jin-Young Cho, Kang Seog Kim, Chung-Chan Lee, Han-Gyu Joo, "Whole Core Transport Calculation for the VHTR Hexagonal Core," ICENES 2007, Istanbul, Turkey (2007)
22. Kyo Youn Kim, Kang Seog Kim, Ha Yong Kim, Sung Quun Zee, "Fast Neutron Fluence Evaluation of the SMART Reactor Pressure Vessel by Using the GEOSHIELD code," 28th Annual CNS Conference & 31st CNS/CAN Student Conference, June 3-6, 2007 Saint John, New Brunswick, Canada (2007)
23. Leonid Pogosbekyan, Gwan Young Kim, Kang Seog Kim, Han Gyu Joo, "Resolution of double heterogeneity in direct transport calculation employing subgroup method and method of characteristics," PHYSOR 2008, Interlaken, Switzerland, Sept. 14-19 (2008)
24. Ser Gi Hong, Kang Seog Kim, Jae Seung Song, "On the Convergence of the Rebalance Methods for Transport Equation for Eigenvalue Problems," PHYSOR 2008, Interlaken, Switzerland, Sept. 14-19 (2008)
25. Kyung Hoon Lee, Kang Seog Kim, Ser Gi Hong, Jae Seung Song, "Benchmark Calculations for the CE Critical Experiments by KARMA 1.1 with ENDF/B-VI R8 and ENDF/B-VII R0," International Conference on Nuclear Data for Science and Technology 2010, Jeju, Korea, April 26-30 (2010)
26. Kyung Hoon Lee, Kang Seog Kim, Ser Gi Hong, Jae Seung Song, "KARMA 1.1 Benchmark Calculations for the Numerical Benchmark Problems and the Critical Experiments," International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering (M&C 2011), Rio de Janeiro, RJ, Brazil, May 8-12, 2011 (2011)
27. Kang Seog Kim, Mark L. Williams, "The Method of Characteristics For 2-D Multigroup and Pointwise Transport Calculation in SCALE/CENTRM," PHYSOR 2012, Knoxville, Tennessee, USA, April 15-20, 2012 (2012)
28. Mark L. Williams, Kang Seog Kim, "The Embedded Self-Shielding Method," PHYSOR 2012, Knoxville, Tennessee, USA, April 15-20, 2012 (2012)
29. Ser Gi Hong, Kang Seog Kim, "Gamma Library Generation for KARMA 1.2," PHYSOR 2012, Knoxville, Tennessee, USA, April 15-20, 2012 (2012)
30. Yuxuan Liu, William Martin, Kang Seog Kim, Mark Williams, "Modeling Resonance Interference by 0-D Slowing-Down Solution with Embedded Self-Shielding Method," M&C 2013, Sun Valley, Idaho, USA, May 5-9, 2013 (2013)
31. Yuxuan Liu, Benjamin Collins, Brendan Kochunas, William Martin, Kang Seog Kim, Mark Williams, "Resonance Self-Shielding Methodology In MPACT," M&C 2013, Sun Valley, Idaho, USA, May 5-9, 2013 (2013)
32. W. A. Wieselquist, K. S. Kim, G. Ilas and I. C. Gauld, "Comparison of Burnup Credit Uncertainty Quantification Methods," ANS NCSD 2013, Wilmington, NC, USA, September 29-October 3, 2013 (2013)
33. Matthew A. Jessee, William A. Wieselquist, Thomas M. Evans, Steven P. Hamilton, Joshua J. Jarrell, Kang Seog Kim, Jordan P. Lefebvre, Robert A. Lefebvre, Ugur Merturyrek, Adam B. Thompson, Mark L. Williams, "POLARIS: A New Two-Dimensional Lattice Physics Analysis Capability for The SCALE Code System," PHYSOR 2014, Kyoto, Japan, Sept. 28 – Oct. 3, 2014 (2014)
34. Kang Seog Kim, Mark L. Williams, Dorothea Wiarda, and Andrew T. Godfrey, "Development of a New 47-Group Library for the CASL Neutronics Simulators," M&C 2015, Nashville, TN, USA, April 19-23, 2015 (2015)
35. Shane Stimpson, Fausto Franceschini, Benjamin Collins, Andrew Godfrey, Kang Seog Kim, Aaron Graham, and Thomas Downar, "Improved Diffusion Coefficients for SPN Axial Solvers in the MPACT 2D/1D Method Applied to the AP1000[®] PWR Start Up Core Models," M&C 2015, Nashville, TN, USA, April 19-23, 2015 (2015)

36. Brendan Kochunas, Benjamin Collins, Daniel Jabaay, Shane Stimpson, Aaron Graham, Kang Seog Kim, William Wieselquist, Kevin Clarno, Scott Palmtag, Thomas Downar and Jess Gehin, "VERA Core Simulator Methodology for PWR Cycle Depletion," M&C 2015, Nashville, TN, USA, April 19-23, 2015 (2015)
37. Andrew Godfrey, Benjamin Collins, Kang Seog Kim, Jeffrey Power, Robert Salko, Shane Stimpson, William Wieselquist, Kevin Clarno, Jess Gehin, Scott Palmtag, Robert Montgomery, Rosemary Montgomery, Daniel Jabaay, Brendan Kochunas, Thomas Downar, Nathan Capps, Jeffrey Seker, "VERA Benchmarking Results for Watts Bar Nuclear Plant Unit 1 Cycles 1-12," PHYSOR 2016, Sun Valley, ID, USA, May 1-5, 2016 (2016)
38. Cole Gentry, Ivan Maldonado, Kang Seog Kim, "Development of Two-Step Reactor Physics Analysis Procedure for Advanced High Temperature Reactors," PHYSOR 2016, Sun Valley, ID, USA, May 1-5, 2016 (2016)
39. Kang Seog Kim, Jianwei Hu, Cole Gentry, "Embedded Self-Shielding Method Applied To Doubly Heterogeneous Fully Ceramic Micro-Encapsulated Fuels," PHYSOR 2016, Sun Valley, ID, USA, May 1-5, 2016 (2016)
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2. Kang Seog Kim, “Transport Lattice Code LIBERTE and Nuclear Design Code Package LIBERTE/MASTER,” KEPCO Nuclear Fuel Company Ltd., Dec. 15, 2003.
3. Kang Seog Kim, “Library Generation and Resonance Treatment Methods in LIBERTE and DeCART,” KAIST (Korea Advanced Institute of Science and Technology), Sept. 16, 2004.
4. Kang Seog Kim, “Nuclear Design Procedure for High Temperature Gas Cooled Reactors,” KEPCO Research Institute, Aug. 29, 2007.
5. Kang Seog Kim, “Multi-group Library Generation for Neutron Transport Lattice Codes,” KEPCO Nuclear Fuel Company Ltd., Nov. 17, 2009.
6. Kang Seog Kim, “KARMA 1.1 Methodology and How to use,” KHNP Nuclear Engineering & Technology Institute, Aug. 31, 2010.
7. Kang Seog Kim, “Methodologies for Transport Lattice Codes Based on KARMA and Multi-group Library Generation for Neutron Transport Lattice Codes,” Expert Conference on the Nuclear Reactor Physics Methods, Ulsan National Institute of Science and Technology, Feb. 22-23, 2011.
8. Kang Seog Kim et al., “The AMPX/SCALE Capability with the AMPX 1597-group Library for Advanced Reactor Analysis,” 2018 SCALE Users’ Group Workshop, Aug. 27-29, 2018.

STUDENT ADVISING AND MENTORING

1. Byoung Kyu Jeon, University of Michigan, Ph.D. Candidate, “SCALE MG Cross Section Processing for BWR and Fast Reactors using the AMPX 1597-group Library” (2018 Summer intern)
2. Byoung Kyu Jeon, Purdue University, Ph.D. Candidate, “Assessment of Multigroup Cross

- Section Processing of the AMPX/SCALE Code Packages for Fast Systems” (2017 Summer intern)
3. Cole Gentry, University of Tennessee, Ph.D., “Development of a Reactor Physics Analysis Procedure for the Plank-Based and Liquid Salt-Cooled Advanced High Temperature Reactor” (2015)
 4. Yuxuan Liu, University of Michigan, Ph.D., “Improved Deterministic Self-Shielding Method for Distributed Self-Shielding Effect and Resonance Interference” (2014)

HONORS AND AWARDS

- US-DOE National R&D 100 Awards (November 4, 2016)
“Virtual Environment for Reactor Applications” <https://www.ornl.gov/news/ornl-wins-seven-rd-100-awards>
- Oak Ridge National Laboratory Significant Event Award (October, 2016)
“The High-Fidelity Benchmark of the CASL Virtual Environment for Reactor Applications Against Data from the Full Operating History of TVA’s Watts Bar Nuclear Power Plant”
- Oak Ridge National Laboratory Significant Event Award (December, 2015)
“Significant Improvement in Computational Performance of the VERA Core Simulator to Meet Industry Objectives for Adoption”
- Oak Ridge National Laboratory Significant Event Award (April, 2013)
“Technical Advancements in Nuclear Data Processing that Provide Unprecedented Accuracy for CASL and NRC Reactor Physics Analysis”
- Best paper award at KNS 2011 Spring Meeting
“Implementation of the Gamma Transport Calculation Module in KARMA 1.2”
- Best paper award at KNS 2007 Spring Meeting
“Physics Analysis of a Prismatic VHTR with Asymmetric Control Rods by Using the HELIOS/MASTER Code Package”
- Best paper award at KNS 2006 Autumn Meeting
“A Two-Step Diffusion Solution to the Doubly Heterogeneous PBMR-400 Problem”
- Best paper award at KNS 2006 Spring Meeting
“Preservation of Fuel Characteristics in the RPT Method”
- Member of Alpha Nu Sigma (ANS Honor Society in Nuclear Engineering) (2000-)

PROFESIONAL ACTIVITIES

- American Nuclear Society: Member
Korean Nuclear Society: Member
Annals of Nuclear Energy: Reviewer
Nuclear Science and Engineering: Reviewer
Nuclear Engineering and Technology: Reviewer
Journal of Nuclear Science and Technology: Reviewer