Taek Kyum Kim, PhD
Principal Nuclear Engineer
Department Manager, Nuclear Systems Analysis
Nuclear Engineering Division
Argonne National Laboratory
tkkim@anl.gov
630-252-3213

Dr. Taek K. Kim is the Manager for Nuclear Systems Analysis Group in the Nuclear Science and Engineering (NSE) Division at Argonne. He is a principal nuclear engineer and has worked at Argonne since 2001. He is responsible for technical leadership and programmatic guidance of a variety of activities on reactor physics, neutronics and fuel methods and simulations, advanced reactor concept development, and nuclear fuel cycle analyses. At Argonne, Dr. Kim has contributed to advanced reactor design and analysis projects mostly focusing on fast reactors, high temperature reactors, supercritical water reactors, and water-based reactors under U.S. Department of Energy, Office of Nuclear Energy (DOE-NE) programs. He has participated in various international projects focusing on the design and analysis of sodium-cooled fast reactors within bilateral collaborations between the U.S. and Japan, China, France, Korea, and International organizations. Dr. Kim is also a major contributor to the systems analysis and integration activities of DOE-NE. During his career, he has developed LWR fuel reload optimization methods, and computation codes for fast reactor analysis.

Professional Experience

- 2001 – Present Argonne National Laboratory
  - Dean of 2018 Modeling, Experiments, and Validations (MeV) Summer School
  - Manager (2015 – present), Nuclear Systems Analysis Department/Group
  - Manager (2011 – 2014), Reactor and Fuel Cycle Analysis Section
- 2012 – 2014 U.S. National Fuel Cycle Data Package (FCDP) development team leader
- 2002 – 2008 Program and executive committee members of ANS Reactor Physics Division
- 2000 – 2001 Purdue university (visiting scientist)

Education

- BS Feb. 1986, Nuclear Engineering, Seoul National University
- MS Feb. 1990, Nuclear Engineering, Seoul National University
- PhD Aug. 1995, Nuclear Engineering, Seoul National University

Research Experience

- Leading R&Ds on reactor physics, advanced reactor development, neutronics methods, and nuclear fuel cycle analysis in Nuclear Engineering Division, Argonne National Laboratory
  - Developed 100 MWe Advanced Fast Reactor (AFR-100) core concepts as a reference reactor of U.S. DOE non-water small modular reactor
  - Developed Advanced Burner Reactor (ABR) and Advanced Burner Reactor (ABTR) under Global Nuclear Energy Partnership (GNEP) program
  - Performed core design study of liquid-salt-cooled high temperature reactor
  - Performed fuel cycle performance analysis of plutonium and transuranics transmutation in LWRs
  - Performed core design and analysis of GEN-IV reactors (Supercritical Water Rector, Very High Temperature Reactor)
- Leading international projects on the sodium-cooled fast reactor (SFR) design and analysis through bilateral collaborations between U.S. and Japan, China, France, Korea, and International organizations (OECD, IAEA)
- Member of U.S. Nuclear fuel cycle evaluation and screening support team and led national Fuel Cycle Data Packages (FCDP) under Fuel Cycle Options campaign of U.S. DOE Nuclear Energy Office
- Chaired international SFR benchmark task force under the OECD/NEA Working Party on Scientific Issues on Reactor System (WPRS) (2011-2014)

Colloquiums

- Thorium Fuel Performance in Advanced Light Water Reactor Assemblies, School of Nuclear Engineering, Purdue University (April, 2001)
- Sodium-cooled Fast Reactor – Past and Future, Nuclear Engineering, University of Michigan (Oct. 2014)

Awards

- Pacesetter Award for excellence in achievement and performance on U.S. DOE Advanced Accelerator Application Program, Argonne National Laboratory, September 2002
- Best paper/presentation awards in ANS annual meetings in 2010, 2013, and PHYSOR 2008

Service at Laboratory/National/International Committees

- U.S. Representative to OECD/NEA Working Party on Scientific Issues on Reactor System (WPRS) (2017 – present)
- Executive Committee Member (elected position) of Reactor Physics Division (RPD) of American Nuclear Society (2005-2008)
- Invited editor on "Gen-IV Reactors" for Encyclopedia of Sustainability Science and Technology, Springer Science and Business Media, LLC
- Served as track leader or special session organizer
  - Technical track leader of ICAPP 2014, 2016, 2018 and PHYSOR 2014
  - Technical Committee Member and session organizer of PHYSOR-2010, 2006, 2004, 2002
  - Special session organizer for ANS Annual meeting - 2005, 2004
- Member of American Nuclear Society since 2001

Publications (selective)

- T. A. Taiwo, T. K. Kim, and R. A. Wigeland, "Thorium Fuel Cycle Option Screening in the United States," *Nuclear Technology*, Vol. 194 (2016).
- F. Ganda, T. K. Kim, et al, "Economic Analysis of Complex Nuclear Fuel Cycles with NE-COST," *Nuclear Technology* Vol. 193 (2016).
- N. Stauff, T. K. Kim, and T. A. Taiwo, "Variation in Nuclear Waste Management Performance of Various Cycle Options," *Journal of Nuclear Science and Technology* Vol. 52 (2015).
- T. Tak, D. Lee, and T. K. Kim, and S. G. Hong, "Design of Ultra long-cycle Fast Reactor Employing Breed-and-Burn Strategy," *Nuclear Technology* Vol. 183 (2013).
- N. Stauff, T. K. Kim, et al, "Evaluation of Medium 1000 MWth Sodium-cooled Fast Reactor Neutronics OECD Benchmarks," *PHYSOR 2014, International Conference on the Role of Reactor Physics toward a Sustainable Future*, Kyoto, Japan, Sept. 2014.
- C. Grandy, T. K. Kim, et al, "Advanced Fast Reactor – 100 – Design Overview," *Proc. of FR13 Fast Reactors and Related Fuel Cycles*, Paris, France Mar. 4 – 7 (2013).
- T. K. Kim, T. A. Taiwo, E. A. Hoffman, E. Wigeland, "Systematic Comparison of Fuel Cycle Options using Mass Flow Data in Fuel Cycle Data Packages," *12th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*, Prague, Czech Republic, Sept. 24-27 (2012).
- T. K. Kim, "GEN-IV Reactors," *Encyclopedia of Sustainability Science and Technology* (ISBN: 978-0-387-89469-0), pp4050-4070, Springer (2012).
- T. K. Kim, W. S. Yang, C. Grandy, R. N. Hill, "Core Design Studies for a 1000 MWth Advanced Burner Reactor," *Annals of Nuclear Energy*, 36, 331 (2009).
- T. A. Taiwo, T. K. Kim, J. A. Stillman, R. N. Hill, M. Salvatores, P. J. Finck, "Assessment of Heterogeneous PWR Assembly for Plutonium and Minor Actinides Recycle," *Nuclear Technology* 155, 34 (July 2006).
- G. Aliberti, T. K. Kim, et al, "Nuclear Data Sensitivity, Uncertainty and Target Accuracy Assessment for Future Nuclear Systems," *Annals of Nuclear Energy* 33, 700-733 (2006).