

Xue Yang, Ph.D.

U.S. Permanent Resident

Associate Professor

Department of Mechanical and Industrial Engineering, Texas A&M University-Kingsville

Office: 361-593-3486; Email: Xue.Yang@tamuk.edu

EDUCATION

Ph.D.	Purdue University	December 2013	Nuclear Engineering
M.Eng.	Tsinghua University	July 2007	Nuclear Science and Technology
B.Eng.	Tsinghua University	July 2005	Engineering Physics Minor: Computer Science

EMPLOYMENT HISTORY

Academic

2020-present	Associate Professor, Department of Mechanical and Industrial Engineering Texas A&M University-Kingsville, Kingsville, TX
2014-2020	Assistant Professor, Department of Mechanical and Industrial Engineering Texas A&M University-Kingsville, Kingsville, TX
2014-2014	High-Performance Computer Application Scientist Montana Tech, the University of Montana, Butte, MT
2014-2014	Postdoctoral Researcher, School of Nuclear Engineering Purdue University, West Lafayette, IN
2007-2013	Graduate Research Assistant, School of Nuclear Engineering Purdue University, West Lafayette, IN

Industry

2022-present	Neutronics Consultant, Last Energy, Atlanta, GA
2021-2022	Principal Nuclear Engineer, Last Energy, Atlanta, GA (full-time during sabbatical leave)

LIST OF COURSES TAUGHT

Texas A&M University-Kingsville

MEEN 5314	Finite Element Methods in Engineering
MEEN 5313	Numerical Methods in Mechanical Engineering
MEEN 5306	Thesis
MEEN 5305	Graduate Project
MEEN 5303	Special Topics in Nuclear Engineering
MEEN 4395	Thermal Hydraulics of Nuclear Reactors
MEEN 4396	Fundamentals of Nuclear Engineering
MEEN 4397	Introduction to Nuclear Power Reactors
MEEN 4336	Special Topics in Nuclear Engineering
MEEN 3398	Computer Applications in Nuclear Engineering
MEEN 3348	Heat Transfer
MEEN 3347	Thermodynamics
MEEN 2355	Statics and Dynamics
MEEN 1320	Elementary Numerical Method and Engineering Problem Solving
MEEN 1310	Engineering Graphics I

SELECTED PUBLICATIONS

Refereed Journal Articles

- Yang, Xue.** “MATLAB PDE Toolbox for 2-D and 3-D Neutron Diffusion Simulations.” *Nuclear Engineering and Design* 381 (2021): 111324.
<https://doi.org/10.1016/j.nucengdes.2021.111324>
- Yang, Xue** and Roel Garcia. “Online Gamma-Ray Spectroscopy Acquisition.” *Annals of Nuclear Energy* 115 (2018): 105-115.
- Yang, Xue** and Wasio O. Oyeniyi. “Kinetic Monte Carlo Simulation of Hydrogen Diffusion in Tungsten.” *Fusion Engineering and Design* 114 (2017): 113-117.
- Yang, Xue,** Rajan Borse, and Nader Satvat. “MOCUM Code Verification and Sensibility Study Using C5G7 Benchmark.” *Annals of Nuclear Energy* 96 (2016): 242-248.
- Yang, Xue,** and Ahmed Hassanein. “Kinetic Monte Carlo simulation of hydrogen diffusion on tungsten reconstruct (001) surface.” *Fusion Engineering and Design* 89 (2014): 2545-2549.
- Yang, Xue,** and Ahmed Hassanein. “Atomic scale calculation of tungsten surface binding energy and beryllium induced tungsten sputtering simulation.” *Applied Surface Science* 293 (2014): 187-190.
- Yang, Xue,** and Ahmed Hassanein. "Molecular dynamics simulation of erosion and surface evolution of tungsten due to bombardment with deuterium and carbon in Tokamak fusion environments." *Nuclear Instruments & Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* 308 (2013): 80-87.
- Yang, Xue,** and Ahmed Hassanein. "Molecular dynamics simulation of deuterium trapping and bubble formation in tungsten." *Journal of Nuclear Materials* 434 (2013): 1-6.
- Hassan, Syed, Ahmed Hassanein, David Koltick, Nader Satvat, and **Xue Yang.** “Design and Simulation of Liquid Krypton as Gamma Ray Detector.” *IEEE Transactions on Nuclear Science* 60 (2013): 658-661.
- Yang, Xue,** and Nader Satvat. "MOCUM solutions to the 2-D hexagonal HTTR benchmark problems." *Annals of Nuclear Energy* 56 (2013): 102-108.
- Yang, Xue,** and Nader Satvat. "MOCUM: A two-dimensional method of characteristics code based on constructive solid geometry and unstructured meshing for general geometries." *Annals of Nuclear Energy* 46 (2012): 20-28.
- Xiao, Shanjie, **Xue Yang,** Manuel Szejnberg, and Tatjana Jevremovic. "Geant4 Based Monte Carlo Dose Calculation Engine for Radiation Therapy." *IEEE Transactions on Nuclear Science* 57, no. 2 (2010): 775-781.
- Yang, Xue,** and Tatjana Jevremovic. "Revisiting the Rosenbrock numerical solutions of the reactor point kinetics equation with numerous examples." *Nuclear Technology and Radiation Protection* 24, no. 1 (2009): 3-12.
- Yang, Xue,** Gong Shi, and Yong-ming Hu. “Reactor core homogenization in transport method.” *Chinese Journal of Nuclear Science and Engineering* 2 (2008).
- Yang, Xue,** Gong Shi, and Kan Wang. “Benchmark Validation of DRAGON Program Using WIMS-D Nuclear Data Library.” *Nuclear Power Engineering* 6 (2007).

Refereed conference proceedings

- Grandhi, Manikanta and **Xue Yang.** “CFD Investigation of Thermal Behavior of NBSR Thermal Shield Model Under Various Cooling Conditions.” In Proceedings of the 2021 ANS

- Winter Meeting and Technology Expo*, Washington, DC, November 30–December 3, 2021.
- Vadnerkar, Soumitra Mangesh and **Xue Yang**. “CFD Analysis of PRHR-Heat Exchanger Using Euler Multiphase Model.” In Proceedings of the *2020 ANS Annual Meeting*, Online Virtual Meeting, June 8-11, 2020.
- Grandhi, Manikanta and **Xue Yang**. “CFD Modeling of NBSR Thermal Shield.” In Proceedings of the *2020 ANS Annual Meeting*, Online Virtual Meeting, June 8-11, 2020.
- Ajirotutu, Abiodun and **Xue Yang**. “Application of MATLAB PDE Toolbox for the IAEA-3D PWR Benchmark.” In Proceedings of the *2020 ANS Annual Meeting*, Online Virtual Meeting, June 8-11, 2020.
- Yang, Xue**. “MATLAB PDE Toolbox for Neutron Diffusion Equation.” In Proceedings of the *2019 ANS Annual Meeting*, Minneapolis, MN, USA, June 9-13, 2019.
- Shah, Chintan, ChingHeng Shiau, **Xue Yang**, and Cheng Sun. “Quenching and Partitioning Heat Treatment of T91 Stainless Steel.” In Proceedings of the *2018 ANS Winter Meeting*, Orlando, FL, USA, November 11-15, 2018.
- Weiss, Abdullah, Moiz Butt, and **Xue Yang**. “Neutron Moderation Analysis for a Fusion-based Neutron Source.” In Proceedings of the *2018 ANS Annual Meeting*, Philadelphia, PA, USA, June 17-21, 2018.
- Weiss, Abdullah and **Xue Yang**. “Thermal Analysis of a Fuel Channel.” In Proceedings of the *2017 ANS Annual Meeting*, San Francisco, CA, USA, June 11-15, 2017.
- Leos, Richard Leos, Zeyun Wu, Robert E. Williams, **Xue Yang**. “Integrating Sudo-Kaminaga Correlation to the Safety Analysis Code PARET-ANL.” In Proceedings of the *2017 ANS Annual Meeting*, San Francisco, CA, USA, June 11-15, 2017.
- Al-Shalash, Aws, Abdullah Weiss, **Xue Yang**. “Tersoff Benchmarking of Be-C-H Interatomic Potential.” In Proceedings of the *2017 ANS Annual Meeting*, San Francisco, CA, USA, June 11-15, 2017.
- Kurwitz, Cable, Huseyin Bostanci, **Xue Yang**, John Poston, and Kenneth Peddicord. “Systems Engineering Initiative – Undergraduate Education Enhancement in a Regional Education Network.” *Third International Conference on Nuclear Knowledge Management – Challenges and Approaches*, Vienna, Austria, November 7–11, 2016.
- Makanjuola M. Adara and **Xue Yang**. “Solution of the C5G7 Benchmark using the MOCUM Transport Code with ANSYS Unstructured Meshes.” In Proceedings of the *2016 ANS Winter Meeting & Expo*, Las Vegas, NV, USA, November 6-10, 2016.
- Roel R. Garcia, Felicia Avila, and **Xue Yang**. “Remote Gamma Ray Spectrum Acquisition.” In Proceedings of the *2016 ANS Winter Meeting & Expo*, Las Vegas, NV, USA, November 6-10, 2016.
- Ayoola Oredeko, **Xue Yang**, and Zeyun Wu. “MOCUM Verification with a Heterogeneous MOX Whole Core C5G7 Benchmark Problem.” In Proceedings of the *2016 ANS Winter Meeting & Expo*, Las Vegas, NV, USA, November 6-10, 2016.
- Yang, Xue**, Rajan Borse, and Nader Satvat. “MOCUM Code Verification and Sensibility Study Using C5G7 Benchmark.” In *Proceedings of the 24th International Conference of Nuclear Engineering (ICONE24)*, Charlotte, NC, USA, June 26-30, 2016.
- Yang, Xue**, and Wasiu O. Oyeniyi. “Kinetic Monte Carlo Simulation of Hydrogen Diffusion in Tungsten.” In *Proceedings of the 24th International Conference of Nuclear Engineering (ICONE24)*, Charlotte, NC, USA, June 26-30, 2016.

- Kabiru Atiku and **Xue Yang**. "Investigation of the Effects of Hydrogen Atoms Concentration on the Tungsten Sigma 5 (310) Symmetric Tilt Grain Boundary." In *Proceedings of the 24th International Conference of Nuclear Engineering (ICONE24)*, Charlotte, NC, USA, June 26-30, 2016.
- Yang, Xue**, and Wasiu O. Oyeniya. "Kinetic Monte Carlo Simulation of Hydrogen Diffusion in Tungsten." In *Proceedings of the 2016 ANS Annual Meeting*, New Orleans, LA, USA, June 12-16, 2016.
- Kabiru Atiku and **Xue Yang**. "Investigation of the Effects of Hydrogen Atoms Concentration on the Tungsten Sigma 5 (310) Symmetric Tilt Grain Boundary." In *Proceedings of the 2016 ANS Annual Meeting*, New Orleans, LA, USA, June 12-16, 2016.
- Abdullah Weiss, Raymond Ayala, Samantha-Lee Villarreal, and **Xue Yang**. "iOS Heart Rate Monitor." In *Proceedings of the 2016 ANS Annual Meeting*, New Orleans, LA, USA, June 12-16, 2016.
- Hassan, Syed, **Xue Yang**, Nader Satvat, David Koltick, and Ahmed Hassanein. "Beta Decay Rate and Spectrum in Liquid Noble Gas Gamma-Ray Detector." Paper presented at *5th ARI-DNDO Conference*, Leesburg, VA, July 23 - 25 2012.
- Satvat, Nader, **Xue Yang**, Syed Hassan, Jeffrey Brooks, David Koltick, Michael Hosack, and Ahmed Hassanein. (2012). "Design and Simulation of Liquid Krypton Doped with Xenon as Detector for Gamma Radiation." Paper presented at *2012 IEEE Symposium on Radiation Measurements and Application, SORMA West 2012*, Oakland, CA, May 14-17, 2012.
- Yang, Xue** and Nader Satvat. "MOCUM: A two-dimensional method of characteristics code based on unstructured meshing for general geometries." Paper presented at *International Conference on the Physics of Reactors 2012, PHYSOR 2012: Advances in Reactor Physics*, v 1, p 502-516, Knoxville, TN, April 15-20, 2012.
- Fogal, Thomas, Shanjie Xiao, **Xue Yang**, Jens Krueger, and Tatjana Jevremovic. "Visualization as a Bridge between Chemical and Nuclear Engineering Simulations." Paper presented at *2010 AIChE Annual Meeting*. Salt Lake City, UT, November 7-12, 2010.
- Yang, Haori, **Xue Yang**, Shanjie Xiao, Nader Satvat, and Tatjana Jevremovic. "Detection of hidden materials using Nuclear Resonance Fluorescence technique: Simulation and measurements." Paper presented at *IEEE Nuclear Science Symposium and Medical Imaging Conference (2010 NSS/MIC)*, p 531-533, Knoxville, TN, October 30 – November 6, 2010.
- Yang, Xue**, and Tatjana Jevremovic. "Solving the Time-Dependent Transport Equation Using Time-dependent Method of Characteristics and Rosenbrock Method." Paper presented at *International Conference on Nuclear Engineering, Proceedings, ICONE, v 2, 2010, 18th International Conference on Nuclear Engineering, ICONE18*, Xi'an, Shaanxi, China. May 17-21, 2010.
- Yang, Xue**, and Tatjana Jevremovic. "Spatial and Time-Dependent Reactor Kinetics Methodology Based on the Method of Characteristics." Paper presented at *International Conference on the Physics of Reactors 2010, PHYSOR 2010*, Pittsburgh, Pennsylvania, May 9-14, 2010.
- Xiao, Shanjie, **Xue Yang**, Nader Satvat, and Tatjana Jevremovic. "Modeling reactors with AGENT: Verification, validation, efficiency analysis and 3D-Visuals on iPod." Paper presented at *Nuclear & Renewable Energy Conference (INREC), 2010 1st International*, pp. 1-6. IEEE, Amman, Jordan, March 21-24, 2010.

- Yang, Xue**, Shanjie Xiao, Dongok Choe, and Tatjana Jevremovic. "Neutronics Modeling of TRIGA Reactor at the University of Utah Using AGENT, KENO6 AND MCNP5 Codes." Paper presented at the *14th International Topical Meeting on Research Reactor Fuel Management (RRFM)*. Marrakech, Morocco, March 21-25, 2010.
- Choe, Dongko, **Xue Yang**, Shanjie Xiao, and Tatjana Jevremovic. "Feasibility Study of the Underwater Neutron Radiography Facility Using the University Of Utah 100KW TRIGA (UUTR) Reactor." Paper presented at the *14th International Topical Meeting on Research Reactor Fuel Management (RRFM)*. Marrakech, Morocco, March 21-25, 2010.
- Satvat, Nader, John Perry, **Xue Yang**, Shanjie Xiao, and Tatjana Jevremovic. "Development of educational undergraduate course modules for interactive reactor physics." Paper presented at *2009 ANS Annual Meeting and Embedded Topical Meeting: Nuclear and Emerging Technologies for Space, NETS 2009*, Atlanta, GA, June 14-19, 2009. *Transactions of the American Nuclear Society*, v 100, p 73-74, 2009.
- Yang, Xue**, and Tatjana Jevremovic. "Full Hexagonal Core Modeling with the Agent Code." Paper presented at *ANS Annual Meeting*, Anaheim, CA, June 8-12, 2008. *Transactions of the American Nuclear Society*, v 98, p 761-762, 2008.

RESEARCH AND SCHOLARLY ACTIVITIES

Funded Grants

- Department of Energy, "University Nuclear Leadership Program – Scholarship and Fellowship Support", up to \$3,000,000, PI, 06/22/2022-08/31/2033.
- Office of Naval Research, "South Texas Navy Pathway", \$692,086, PI, 08/01/2018-07/31/2022.
- Nuclear Regulatory Commission, "Scholarship of Excellence in Nuclear Engineering at TAMUK", \$200,000, PI, 07/01/2018-06/30/2022.
- Nuclear Regulatory Commission, "Texas A&M University-Kingsville Nuclear Doctoral Fellowship Program", \$400,000, PI, 06/30/2017-06/29/2022.
- Nuclear Regulatory Commission, "Texas A&M University-Kingsville Nuclear Education Scholarship Program", \$199,999, PI, 09/30/2015-09/29/2017.
- National Institute of Standards and Technology, "Texas A&M University-Kingsville Application for 2018 NIST SURF Program at Gaithersburg, MD", \$27,657, PI, 05/01/2018-09/30/2018.
- National Institute of Standards and Technology, "Texas A&M University-Kingsville Application for 2017 NIST SURF Program at Gaithersburg, MD", \$19,272, PI, 05/01/2017-09/30/2017.
- National Institute of Standards and Technology, "Texas A&M University-Kingsville Application for 2016 NIST SURF Program at Gaithersburg, MD", \$19,130, PI, 05/01/2016-09/30/2016.
- Nuclear Power Institute, "2020-2021 NPI-TAMUK Partnership", \$200,000, PI, 06/01/2020-08/30/2021.
- Nuclear Power Institute, "Molten Salt Reactor Internship", \$30,000, PI, 05/01/2018-08/30/2018.
- Nuclear Power Institute, "2018 TAMUK Systems Engineering Initiative for Multiphysics Reactor Modeling", \$50,000, PI, 11/01/2018-07/31/2019.
- Nuclear Power Institute, "2017 TAMUK Systems Engineering Initiative with National Laboratories", \$45,000, PI, 11/01/2017-07/31/2018.
- Nuclear Power Institute, "Unstructured Meshes Based MCNP6 Radiation Physics Calculations for Dosimetry Calculation", \$30,000, PI, 11/01/2016-07/31/2017.
- Nuclear Power Institute, "2016 ANS Conference", \$4,418, 04/01/2016-04/30/2016.
- Nuclear Power Institute, "Health Monitoring Mobile Application Development for TAMUK Systems Engineering Initiative Program", \$40,000, 11/01/2015-07/31/2016.
- Nuclear Power Institute, "Pre-proposal for Systems Engineering Initiative Program at Texas A&M University-Kingsville", \$5,000, 04/29/2015-06/30/2015
- Nuclear Power Institute, "Acquisition of Nuclear Experiment and Simulation Equipment to Enhance Nuclear Education at Texas A&M University-Kingsville", \$79,704, 11/01/2014-06/30/2015.

PROFESSIONAL GROWTH AND ACTIVITIES

Professional Member of American Nuclear Society

HONORS AND AWARDS

TAMUK College of Engineering Excellence in Research Award, May 16, 2019.

TAMUK Center for Teaching Effectiveness (CTE) Summer 2019 Faculty Travel Award.