



## *Biography*

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### **John C. Wagner, Ph.D.**


*Director, Idaho National Laboratory*

Dr. John C. Wagner is the director of Idaho National Laboratory and president of Battelle Energy Alliance LLC. He is responsible for management and integration of a large, multipurpose laboratory that has a mission focused on nuclear energy, national and homeland security, and energy and environment science and technology. He manages this U.S. Department of Energy (DOE) national laboratory of approximately 6,000 scientists, engineers and support staff members in multiple nuclear and nonnuclear experimental facilities, with an annual budget of more than \$2 billion.

Wagner began serving as INL director in 2020. He has more than 25 years of experience performing research, and managing and leading research and development projects, programs and organizations. Wagner initially joined INL as chief scientist at the Materials and Fuels Complex in 2016 and served as associate laboratory director for Nuclear Science and Technology beginning in 2017.

Wagner earned a bachelor's in nuclear engineering from the Missouri University of Science and Technology in 1992, and master's and doctorate degrees from the Pennsylvania State University in 1994 and 1997, respectively. Following graduate school, Wagner joined Holtec International as a principal engineer, performing criticality safety analyses and licensing activities for spent fuel storage pools and storage and transportation casks. Wagner joined Oak Ridge National Laboratory as a research and development staff member in 1999, performing research in the areas of hybrid (Monte Carlo/deterministic) radiation transport methods, burnup credit criticality safety, and spent nuclear fuel characterization and safety.

While at Oak Ridge, Wagner held various technical leadership positions, including technical lead for postclosure criticality in support of DOE Office of Civilian Radioactive Waste Management's Lead Laboratory for Repository Systems, Radiation Transport Methods Deputy Focus Area lead for the Consortium for Advanced Simulation of Light Water Reactors, and national

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technical director of the DOE Office of Nuclear Energy's Nuclear Fuels Storage and Transportation Planning Project. Wagner held various management positions, including group leader for the Criticality and Shielding Methods and Applications, Radiation Transport, and Used Fuel Systems groups.

In 2014, Wagner became director of the Reactor and Nuclear Systems Division, with responsibility for management direction and leadership to focus and integrate the division's seven research and development groups (Advanced Reactor Systems and Safety, Nuclear Data and Criticality Safety, Nuclear Security Modeling, Radiation Transport, Reactor Physics, Thermal Hydraulics and Irradiation Engineering, and Used Fuel Systems) and the Radiation Safety Information Computational Center.

Wagner is a Fellow of the American Nuclear Society and the American Association for the Advancement of Science and recipient of the 2013 E.O. Lawrence Award. He has authored or co-authored more than 170 refereed journal and conference articles, technical reports, and conference summaries. He was the original developer of the A3MCNP and ADVANTG codes and led the development of the CADIS and Forward-Weighted CADIS hybrid transport methods.

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# John C. Wagner, Ph.D.

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## SUMMARY

- *Accomplished, outcome-focused senior leader with more than 20 years of national laboratory (majority) and industry experience in nuclear science and technology research and development.*
- *Demonstrated abilities to create and articulate inspiring vision, develop and execute strategy, establish and lead a senior leadership team, and deliver outstanding performance.*
- *Experience leading successful technical organizations of varying size, developing and executing vision and strategy, building collaborative relationships, establishing and leading successful multi-organization teams, supporting policy decisions, communicating with stakeholders, sponsors, and staff, and recruiting, retaining and inspiring high-quality scientific and managerial staff.*
- *Experience performing, managing, and leading successful research and development projects for a variety of sponsors, including conceptualizing, developing, and leading large, complex projects.*
- *Outstanding communicator motivated to make a difference and passionate about inclusive diversity and developing people.*
- *Recognized expertise in the design and safety of nuclear systems, with specialized knowledge in hybrid radiation transport methods and the management and disposition of used/spent nuclear fuel (SNF).*
- *Authored or co-authored more than 170 refereed journal and conference articles, technical reports, and conference summaries.*
- *Recipient of the 2013 E. O. Lawrence Award and Fellow of the American Nuclear Society and American Association for the Advancement of Science.*

## EDUCATION

*Pennsylvania State University*

**Doctor of Philosophy in Nuclear Engineering**, December 1997

Dissertation title: *Acceleration of Monte Carlo Shielding Calculations with an Automated Variance Reduction Technique and Parallel Processing*

**Master of Science in Nuclear Engineering**, December 1994

Thesis title: *Monte Carlo Transport Calculations and Analysis for Reactor Pressure Vessel Neutron Fluence*

*Missouri University of Science & Technology (formerly University of Missouri-Rolla)*

**Bachelor of Science in Nuclear Engineering**, May 1992

## WORK EXPERIENCE

*Idaho National Laboratory (INL)*

*12/20–Present* **Laboratory Director and President of Battelle Energy Alliance (BEA), LLC**

Responsible for leading a diverse, complex, and technical U.S. Department of Energy (DOE) national laboratory that strives for excellence and leads the nation in nuclear energy, critical infrastructure protection and energy system research and development. Responsible for more than 6,000 scientists, engineers and support staff in multiple nuclear and nonnuclear experimental facilities, with an annual budget of more than \$1.8 billion.

*10/17–12/20* **Associate Laboratory Director**

Nuclear Science & Technology (NS&T) Directorate [497 staff & postdocs, \$422M in FY20 budget authority]  
Supervisor: Dr. Mark Peters, Laboratory Director

Direct line responsibility for management, strategic direction, and leadership of the NS&T Directorate, and coordination responsibility for the nuclear energy portfolio, which involves >1500 staff and \$1B budget authority. Responsible for building and strengthening partnerships; providing inspirational and strategic leadership; delivering outstanding programmatic, financial, and operational performance; developing people and culture; building the reputation of the laboratory; and collaborating with the laboratory director, deputy directors, and peers to define and advance a unified science and technology strategy for the laboratory.

Accomplishments include: achieved PEMP scores of A (FY18), A+ (FY19) and A (FY20); transformed leadership team and transforming culture; developed, communicated, and implemented inspirational vision and NS&T

## WORK EXPERIENCE (continued)

Strategic Plan; increased staff by >45%; increased budget authority by >40%; increased internal investments by >100%; improved strategic university partnerships; implemented focused efforts to improve diversity, talent development, and recognition; increased successes in strategic industry partnerships; improved coordination across the laboratory; improved leadership and coordination among key nuclear energy stakeholders; and coordinated with others to establish the National Reactor Innovation Center (NRIC) at INL.

01/17–09/17

### **Director, Domestic Programs**

Nuclear Science & Technology (NS&T) Directorate

Supervisor: Dr. Kemal O. Pasamehmetoglu, NS&T Associate Laboratory Director

Oversight and coordination responsibility for major DOE-NE programs, including Advanced Reactor Technologies, Consortium for Advanced Simulation of LWRs, Fuel Cycle R&D, Nuclear Energy Advanced Modeling and Simulation, Nuclear Energy University Programs, Nuclear Energy Enabling Technologies, Nuclear Science User Facility, and Used Fuel, as well as the Naval Reactors Program, TREAT Conversion Program, and domestic nuclear industry programs. Line management responsibility for the program managers and their leadership staff, as well responsibility for overall integration of these programs. Technical Integration Office Director for the DOE-NE Light Water Reactor Sustainability (LWRS) Program, responsible for strategic and technical leadership and management (FY17 budget of ~\$33M) – initiated transition of program focus from subsequent license renewal to reducing operating costs. LWRS is a multi-laboratory program that collaborates closely with industry, the Nuclear Regulatory Commission (NRC), international organizations, and universities to provide technical foundations for managing the long-term safe and economical operation of current nuclear power plants, utilizing the unique capabilities of the national laboratory system.

02/16–01/17

### **Chief Scientist**

Materials and Fuels Complex (MFC)

Supervisor: Mr. Ronald A. Crone, MFC Associate Laboratory Director

Primary role in the transformation of MFC to a more effective nuclear energy R&D organization by providing technical leadership in the modernization of the research capabilities, recruitment and development of world-class engineers and scientists, and fostering a research culture and standards that result in a profound impact on the deployment of advanced nuclear technologies. Provided technical and strategic direction in the development of nuclear fuels, radiation-tolerant materials, fuel recycling, and focused basic research. Worked to improve coordination among experimental and modeling and simulation activities to increase R&D efficiencies and outcomes, advance understanding, and enable the development and demonstration of more predictive modeling and simulation capabilities. Collaborated with MFC leadership to define and execute strategic R&D priorities for MFC and INL, and supported MFC, INL, and DOE-NE strategic planning.

### *Oak Ridge National Laboratory (ORNL)*

06/99 – 01/16

Positions of increasing responsibility leading and managing R&D organizational units, developing R&D programs, and executing nuclear R&D projects.

09/14 – 01/16

### **Division Director**

Reactor and Nuclear Systems Division (RNSD) [130 staff and postdocs, \$59M FY15 budget authority]

Supervisor: Dr. Alan S. Icenhour, Nuclear Science and Engineering Directorate (NSED), ALD

Responsible for management direction and leadership to focus and integrate the seven RNSD R&D groups (Advanced Reactor Systems and Safety, Nuclear Data and Criticality Safety, Nuclear Security Modeling, Radiation Transport, Reactor Physics, Thermal Hydraulics and Irradiation Engineering, and Used Fuel Systems) and the Radiation Safety Information Computational Center towards science and technology goals consistent with the programmatic missions of NSED and ORNL. Fostered considerable growth in programs, staffing, and scientific output, while improving organizational operations and expanding organizational relationships across the laboratory complex. Directed and/or supervised direct point-of-contact program management interface to sponsoring organizations, including DOE-NE, the National Nuclear Security Administration (NNSA) Defense Programs, and NRC. Collaborated with management peers to assist the NSED ALD in defining and implementing strategic programmatic R&D missions for NSED and ORNL.

01/13–10/14

### **Group Leader**

Used Fuel Systems, RNSD

Supervisor: Dr. Cecil V. Parks, RNSD Director

Created and led the Used Fuel Systems group; managed and integrated SNF activities across groups inside and outside RNSD. Primary sponsors were DOE-NE and NRC. Served as the National Technical Director for the DOE-NE Nuclear Fuels Storage and Transportation Planning Project (NFST), with an FY14 budget of \$32M (including carryover). The NFST mission is to lay the groundwork for implementing interim storage, including associated transportation, per the Administration's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*. NFST is a multi-organizational team with staff members from five national laboratories, technical support contractors, industry contractors, and DOE.

## WORK EXPERIENCE (continued)

### 10/10–01/13 **Group Leader**

Design, Safety and Simulation Integration, RNSD

Supervisor: Dr. Cecil V. Parks, RNSD Director

Managed a group of predominantly senior staff members, coordinating and integrating nuclear modeling and simulation (M&S) across groups inside and outside RNSD. Responsibilities included directing/leading/managing R&D efforts for projects and staff, program development, staffing, managing group and project budgets, and providing technical leadership and direction. Specific examples of projects/activities (sponsors) include:

- Revolutionary Radiation Transport for Next-Generation Predictive Multi-Physics Modeling and Simulation, principal investigator (PI) (ORNL Laboratory Directed Research and Development);
- Consortium for Advanced Simulation of Light Water Reactors, Deputy Lead for Radiation Transport Methods Focus Area; Hybrid (Stochastic/Deterministic) Methods/Code Development, PI (DOE-NE);
- Fuel Cycle Technologies, Used Fuel Disposition, Laboratory Lead for Engineering Analysis (DOE-NE);
- Spent Fuel Criticality Analysis, PI (NRC/Office of Nuclear Regulatory Research [RES]); and
- Fuel Rod Failure Consequence Assessment, PI (NRC/RES).

### 05/09–10/10 **Technical Integrator (TI)**

Nuclear Modeling, Design, and Safety; Nuclear Science and Technology Division (NSTD)

Supervisor: Dr. Cecil V. Parks, NSTD Acting Director

Managed, coordinated, and integrated research in eight R&D groups, and integrated with other groups inside and outside of NSTD. Directed and managed R&D efforts for projects and staff, program development, and staffing. Managed TI and project budgets and provided overall technical leadership and direction. Served as PI for technical projects involving criticality safety, burnup credit for transportation and storage, SNF characterization, radiation transport code application and development, and radiation protection and shielding analyses.

### 10/03–05/09 **Group Leader**

Radiation Transport and Criticality Group, NSTD

Supervisor: Dr. James E. Rushton, NSTD Director

Managed 25 staff members and postdocs performing a variety of projects involving the development and application of software for analysis, safety, and design of nuclear systems. Responsibilities included increasing ORNL's talent and reputation in radiation transport, directing/managing R&D efforts for projects and staff, program development, recruiting and staffing, managing group and project budgets, and providing overall technical leadership and direction. Served as PI for technical projects involving criticality safety, burnup credit for transportation and storage, SNF characterization, radiation transport code application and development, and radiation protection and shielding analyses. Specific examples of projects (sponsors) include:

- Yucca Mountain Project (YMP) Postclosure Criticality (DOE/Office of Civilian Radioactive Waste Management [OCRWM] Lead Laboratory for Repository Systems);
- SCALE Software Development & Technical Assistance for Transportation and Storage Licensing (NRC);
- Pressurized Water Reactor (PWR) Facility Dose Modeling & Nuclear Vulnerability Analyses (Defense Threat Reduction Agency [DTRA]);
- Development of New Hybrid Radiation Transport Method for Global Variance Reduction (DTRA);
- Develop Technical Basis to ISG-8 Guidance to Include Fission Product Burnup Credit (NRC/RES);
- Review of Burnup Credit License Applications (NRC/Spent Fuel Storage and Transportation [SFST]);
- Burnup Credit Data Assessment and Evaluation (DOE OCRWM Office of Logistics Management);
- DOE SNF Data Assessment and Analysis (DOE OCRWM Office of Logistics Management);
- Moderator Intrusion Consequence Analyses for Commercial Spent Fuel Transport (NRC/SFST); and
- Advanced Variance Reduction for PWR Ex-Vessel Detector Response Calculations (Duke).

### 01/07–11/07 **Project Manager (Lead, Postclosure Criticality Safety for YMP)**

Nuclear Systems Design, Analysis, and Safety (NSADS) Group, NSTD

Supervisor: Dr. Cecil V. Parks, NSADS Manager

Assigned to the DOE OCRWM Lead Laboratory for Repository Systems as Lead for Postclosure Criticality Safety at YMP. Developed, planned, and implemented a five-year multimillion-dollar experimental program to establish the technical data needed to justify full burnup credit in the postclosure criticality safety evaluation. Managed the YMP postclosure criticality department staff and work activities, and interfaced with the customer (DOE OCRWM), regulator and other relevant stakeholders. Re-established the quality assurance (QA) program at ORNL, achieving "qualified" status for performing QA work supporting OCRWM.

### 06/99–10/03 **Research & Development Staff**

Nuclear Analysis Methods & Applications (NAMA) Group, NSTD

Supervisor: Dr. Cecil V. Parks, NAMA Group Leader

Performed a variety of projects involving criticality safety, radiation shielding, SNF characterization, and radiation therapy, with focus on burnup credit for SNF storage, transport, and disposal and variance reduction for Monte Carlo

## WORK EXPERIENCE (continued)

simulations. Worked with a variety of codes in the SCALE package, as well as Monte Carlo N-Particle (MCNP), DOORS, and HELIOS. Examples of major completed projects include:

- Automated variance reduction for Monte Carlo fixed-source and criticality calculations based on 3-D discrete ordinates adjoint functions. Developed a new code (ADVANTG – Automated Deterministic Variance reducTion Generator) for automated generation of consistent, deterministic-based weight window and source biasing parameters for the MCNP/MCNPX code. Computational speed-ups between ~100 and 100,000 times, as compared to unbiased cases, have been achieved for several relevant fixed-source applications, including nuclear well-logging tools and PWR thermal ex-core detectors.
- Burnup credit for commercial SNF to support existing NRC regulatory guidance for storage and transportation, and to provide technical basis and recommendations for expansion of burnup credit (NRC ISG-8, Rev. 2). Notable activities included (1) development of a computational benchmark for the assessment of reactivity margins in a burnup credit cask; (2) studies of reactivity margins associated with fission products, depletion conditions, cooling time, spatial burnup distributions, isotopic validation approaches, burnable poison rods, integral burnable absorbers, control rods, and axial power shaping rods; and (3) support of the NRC Phenomenon Identification & Ranking Table process for burnup credit.

### Holtec International, **Principal Engineer**

Supervisors: Mr. Michael McNamara/Dr. K. P. Singh

07/97–06/99

Accomplishments and responsibilities included:

- Criticality safety analyses for dry SNF storage
  - Performed criticality safety analyses using MCNP and KENO for the HI-STAR 100 SNF storage/ transport system and the HI-STORM 100 storage system in accordance with 10CFR71 and 10CFR72.
  - Led the development of criticality chapters for the HI-STAR 100 topical safety analysis report (TSAR) and safety analysis report (SAR) and the HI-STORM 100 TSAR.
  - Worked with NRC reviewers to resolve all criticality questions for their issuance of the Safety Evaluation Reports and Certifications of Compliance for the HI-STAR 100 storage and transport system.
  - Assisted in the preparation of proposals, including development of new basket design.
- Criticality safety analyses for wet SNF storage
  - Performed criticality safety analyses using MCNP, KENO, and CASMO to support re-racking spent fuel pools for maximum capacity in accordance with 10CFR50. Responsibilities included preparation of the criticality safety-related chapter (Chapter 4) of the License Amendment Reports, resolution of comments and questions from clients, and resolution of questions by NRC reviewers as needed.
  - Performed criticality safety analyses for specific purposes other than re-racking, including expansion of storage capacity, qualification of new fuel types for storage in existing racks, and analysis/qualification of damaged fuel for storage.
  - Assisted in the preparation of proposals, including development of proposed rack design(s).
- Shielding analyses for dry SNF storage
  - Provided consultation and technical review for shielding analyses using SAS2H, ORIGEN-S, and MCNP for the HI-STAR 100 SNF storage/transport system and the HI-STORM 100 storage system.

### Pennsylvania State University, **Graduate Research Assistant**

Advisor: Prof. Alireza Haghghat, Nuclear Engineering Department

08/92–07/97

Completed projects included the following:

- Performed code development for automated variance reduction of Monte Carlo (MCNP) calculations using 3-D discrete ordinate adjoint functions, resulting in a new code, A<sup>3</sup>MCNP, which is capable of (1) automatic generation of input files for 3-D S<sub>N</sub> TORT calculations, including mesh generation and cross-section processing and (2) automatic and effective calculation and utilization of variance reduction parameters.
- Adapted MCNP for parallel processing with the Message Passing Interface (MPI).
- Performed Monte Carlo calculations and analyses of reactor pressure vessel neutron fluence for Three Mile Island Unit 1 (TMI-1), including detailed comparisons to measured data and deterministic (DORT) results.
- Co-organized and co-instructed the International Workshop/Training Course on Transport Methodologies and Uncertainty Estimation for PWR Pressure Vessel Fluence and BWR Shield/Shroud Dose Calculations (June 19–23, 1995), the Second International Training Course/Workshop on Methodologies for Particle Transport Simulation and Their Application to Reactor Dosimetry/Shielding (June 2–7, 1996), and the Third International Training Course/Workshop on Methodologies for Particle Transport Simulation and Their Application to Reactor Dosimetry/Shielding (May 19–23, 1997).
- Conducted Monte Carlo design/optimization studies for the Penn State Breazeale Reactor (PSBR) D<sub>2</sub>O tank and collimator to improve imaging capabilities at the PSBR.

## WORK EXPERIENCE (continued)

- Characterized the neutron and gamma radiation environments at the Army Pulse Radiation Facility (APRF) with the Monte Carlo method, including comparisons to measured data.

### Holtec International, Consultant

Contacts: Dr. Stanley E. Turner and Everett L. Redmond II

09/96–03/97 Performed technical review of criticality (MCNP & KENO) and shielding (SAS2H, ORIGEN-S & MCNP) calculations associated with the NRC license submittal for the HI-STAR 100 and the HI-STORM 100 SNF storage/transport systems and shielding analysis for the Private Fuel Storage Facility.

### Los Alamos National Laboratory, Graduate Research Assistant

Radiation Transport Group (X-6/XTM), Applied Theoretical Physics Division

Supervisor: Dr. John S. Hendricks

05/94–07/94 Improved and enhanced the CRSRD computer code, which translates multigroup cross sections into a format suitable to MCNP. Assumed the major portion of the responsibility for coordinating and teaching the MCNP Multigroup/Adjoint Course (LANL, June 6–7, 1994).

Supervisor: Dr. John S. Hendricks

05/93–08/93 Investigated the usage and validity of the general-purpose Monte Carlo transport code MCNP for multigroup/adjoint calculations. (Published as LA-12704, *MCNP: Multigroup/Adjoint Capabilities*.)

Supervisor: Dr. Gregg W. McKinney

06/92–08/92 Investigated the suitability of the general-purpose Monte Carlo transport code MCNP for criticality safety calculations. Compared MCNP and KENO results for benchmarking purposes. (Published as LA-12415, *MCNP: Criticality Safety Benchmark Problems*.)

### Oak Ridge National Laboratory, Summer Research Participant

Research Reactors Division

Supervisors: Dr. David H. Cook and B. Lamar Lepard

06/91–08/91 Two major projects included (1) safety evaluation of the proposed High Flux Isotope Reactor (HFIR) fire protection system and (2) determination of hydrogen accumulation in pony motor battery rooms.

## CITIZENSHIP / SECURITY CLEARANCE

	US Citizen
2/99–12/02	DOE L-level security clearance
12/02–Present	DOE Q-level, SCI security clearance

## HONORS

- Fellow of the American Association for the Advancement of Science, AAAS (2023)
- **Honoris Causa Doctor of Engineering**, Missouri University of Science & Technology (2022)
- Delivered spring 2021 Commencement address, Missouri University of Science & Technology
- Inducted into Academy of Mines and Metallurgy, Missouri University of Science and Technology (2018)
- Oppenheimer Science and Energy Leadership Program, Department of Energy (2017-2018)
- **Department of Energy Special Recognition Award**. *“This award recognized your more than 2 years of service on this first of a kind project within the Office of Nuclear Energy. Your personal dedication in standing up the project, recruiting an outstanding team, and laying out plans for accomplishing work ... is a model for all National Technical Directors to emulate.”* (2014)
- **Nuclear Engineering Outstanding Engineering Alumnus**, The Pennsylvania State University College of Engineering’s Highest Honor (2014)
- **Ernest Orlando Lawrence Award** in Computer, Information, and Knowledge Sciences category, *“For groundbreaking theory and development of consistent, accurate, and efficient Monte Carlo computational solutions of the Boltzmann transport equation over the complete domain, and for its broad application to complex real world radiation transport problems.”* (<https://science.osti.gov/lawrence/Award-Laureates/2010s/Wagner>)
- **Fellow of the American Nuclear Society** (2012)
- Distinguished Alumni Award *“for significant professional achievement and continued support of the Nuclear Engineering Program,”* Missouri University of Science and Technology (2010)
- Appreciation Award *“For serving on the Nuclear Engineering Development Board and providing sustained guidance and support to the Nuclear Engineering,”* Missouri University of Science and Technology (2010)
- Certificate of Accomplishment for contributions to the completion of the YMP License Application (2008)

## HONORS (continued)

- NSTD Scientific and Technical Award for accelerated completion of the event response for the Nuclear Vulnerability Project (2006)
- NSTD Scientific and Technical Award for support of the DOE Integrated Transportation Operation Project (2006)
- **Outstanding Accomplishment in Science & Technology Award for Early Career Engineering Accomplishment**, UT-Battelle Awards Night, for excellence in engineering research (2002)
- Best Paper Award from the Radiation Protection & Shielding Division: “one of the best papers at the ICRS 11/RPSD 2008 Topical Meeting”
- Best Paper Award from the Nuclear Criticality Safety Division (American Nuclear Society [ANS] Winter Meeting, November 2000)
- Best Benchmarking Paper Award from the Mathematics & Computations Division (ANS May 1995)
- Best Paper Award in Reactor Physics, 1993 ANS Student Conference (Rensselaer Polytechnic Institute)
- Institute of Nuclear Power Operations (INPO) Fellowship (1992–1993); Power Engineering Scholarship (1991)

## ACTIVITIES

- Co-chair, Leadership in Nuclear Energy (LINE) Commission (line.idaho.gov, 2020-present)
- Board of Trustees Member, Missouri University of Science & Technology (2021-2024)
- Board of Directors Member, Nuclear Energy Institute (2021-2024)
- Executive Board of Directors Member, Regional Economic Development for Eastern Idaho (REDI) (2021-2022)
- Board of Directors Member, Idaho Business for Education (IBE) (2021-present)
- Numerous invited presentations at conferences, workshops, and universities.
- Organizer and Session Chair for numerous technical sessions at national and international conferences.
- General Chair, ANS Mathematics & Computational Topical Meeting (M&C2019)
- Academic Dean, Modeling-Experimentation-Validation (MeV) Summer School (2017); Mentor (2015, 2016)
- Technical Program Committee Co-chair, International Conference on Mathematics & Computational Methods Applied to Nuclear Science & Engineering (M&C2017)
- Member, North Carolina State University Nuclear Engineering Department Advisory Council (2016–2021)
- Member, Pennsylvania State University Nuclear Power Advisory Board (2009–2018)
- Member, Missouri University of Science & Technology Nuclear Engineering Development Board (2008–present)
- Participation in inaugural ORNL Developing Leadership Potential program (completed 12/2007)
- Contributing member to the American National Standards Institute (ANSI)/ANS-19.10-2009, “Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals”
- Member, Organisation for Economic Co-operation and Development / Nuclear Energy Agency (OECD/NEA) Working Party on Nuclear Criticality Safety (WPNCS) Expert Groups on Burnup Credit Criticality Safety and Source Convergence for Criticality Analyses (2003–2010)
- Reviewer for *Nuclear Technology*; *Nuclear Science & Engineering*; *Annals of Nuclear Energy*; *Engineering*
- Guest Editor, *Nuclear Technology*, Vol. 174, May 2011
- Editorial Board, *Energies* (2020–present)
- Member, ANS (1991-present)
- Member, Institute of Nuclear Materials Management, INMM (2021-present)
- Member, American Association for the Advancement of Science, AAAS (2018-present)
- Member, Alpha Nu Sigma Nuclear Engineering Honor Society
- Elected Executive Committee Member, Mathematics & Computation Division, ANS (2001–2004; 2012–2015)
- Elected Chair, Radiation Protection & Shielding Division, ANS (2007); Vice Chair (2006), Treasurer (2003–2005)
- Elected Board Member, ANS Oak Ridge/Knoxville Local Section (2001–2004); Program Chair (2001–2003)

## PATENTS

- Ventilated Overpack Apparatus and Method for Storing Spent Nuclear Fuel, Patent No. US 6,519,307 B1, February 11, 2003.
- Storage, transportation and disposal system for used nuclear fuel assemblies, Patent No. US 9,543,048 B2, January 10, 2017, Patent No. US 9,666,318 B2, May 30, 2017, Patent No. US 9,704,605 B2, July 11, 2017.

**PUBLICATIONS** (178, *h-index* = 32, *Google scholar*:  
<https://scholar.google.com/citations?user=us1JyMQAAAAJ&hl=en>)



## **PUBLICATIONS (continued)**

### **Ph.D. Dissertation (1)**

J. C. WAGNER, “Acceleration of Monte Carlo Shielding Calculations with an Automated Variance Reduction Technique and Parallel Processing,” *Ph.D. Dissertation*, The Pennsylvania State University, Nuclear Engineering (December 1997).

### **M.S. Thesis (1)**

J. C. WAGNER, “Monte Carlo Transport Calculations and Analysis for Reactor Pressure Vessel Neutron Fluence,” *M.S. Thesis*, The Pennsylvania State University, Nuclear Engineering (December 1994).

### **Journal Articles (29)**

J. C. WAGNER, A. HAGHIGHAT, and B. G. PETROVIC, “Monte Carlo Transport Calculations and Analysis for Reactor Pressure Vessel Neutron Fluence,” *Nucl. Technol.*, **114**, 373–398 (1996).

J. C. WAGNER and A. HAGHIGHAT, “Automatic Variance Reduction of Monte Carlo Shielding Calculations Using the Discrete Ordinates Adjoint Function,” *Nucl. Sci. Eng.*, **128**, 186–208 (1998).

J. C. WAGNER and C. V. PARKS, “Critical Review of the Practice of Equating the Reactivity of Spent Fuel to Fresh Fuel in Burnup Credit Criticality Safety Analyses for PWR Spent Fuel Pool Storage,” *Nucl. Technol.*, **136(1)**, 130–140, October 2001.

J. C. WAGNER and C. E. SANDERS, “Investigation of the Effect of Fixed Absorbers on the Reactivity of PWR Spent Nuclear Fuel for Burnup Credit,” *Nucl. Technol.*, **139(2)**, 91–126, August 2002.

A. HAGHIGHAT and J. C. WAGNER, “Monte Carlo Variance Reduction with Deterministic Importance Functions,” *Progress in Nuclear Energy*, **42(1)**, 25–53, January 2003 [invited paper, 5<sup>th</sup> most downloaded PNE paper in 2003].

H. P. SMITH and J. C. WAGNER, “A Case Study in Manual and Automated Monte Carlo Variance Reduction with a Deep Penetration Reactor Shielding Problem,” *Nucl. Sci. Eng.*, **149**, 23–37 (2005) [invited paper].

C. V. PARKS, J. C. WAGNER, D. E. MUELLER, and I. C. GAULD, “Full Burnup Credit in Transport and Storage Casks—Benefits and Implementation,” *Radwaste Solutions*, **14(2)**, 32–41, March/April 2007.

H. AKKURT, J. C. WAGNER, and K. ECKERMAN, “Hand-Held Instruments for Landmine Detection: View from Radiation Dosimetry,” *Nuclear Instruments and Methods in Physics Research A*, **579**, 391–394, 2007.

Y. K. M. PENG et al., “Remote Handling and Plasma Conditions to Enable Fusion Nuclear Science R&D Using a Component Testing Facility,” *Fusion Sci. and Technol.*, **56:2**, 957–964, August 2009.

G. RADULESCU, D. E. MUELLER, and J. C. WAGNER, “Sensitivity and Uncertainty Analysis of Commercial Reactor Criticals for Burnup Credit,” *Nucl. Technol.*, **167(2)**, 268–287, August 2009.

J. C. WAGNER, D. E. PELOW and T. M. EVANS, “Automated Variance Reduction Applied to Nuclear Well-Logging Problems,” *Nucl. Technol.*, **168**, 799–809 (2009).

D. E. PELOW, T. M. EVANS and J. C. WAGNER, “Simultaneous Optimization of Tallies in Difficult Shielding Problems,” *Nucl. Technol.*, **168**, 785–792 (2009).

J. C. WAGNER, “Foreword: Special Issue on the SCALE Nuclear Analysis Code System,” *Nucl. Technol.*, **174**, 125, May 2011.

A. M. IBRAHIM, S. W. MOSHER, T. M. EVANS, D. E. PELOW, M. E. SAWAN, P. P. H. WILSON, and J. C. WAGNER, “ITER Neutronics Modeling Using Hybrid Monte Carlo/SN and CAD-based Monte Carlo Methods,” *Nucl. Technol.*, **175**, 251–258, July 2011.

## PUBLICATIONS (continued)

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