Oak Ridge, Tennessee
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Rosemary A. Montgomery, PE
Group Leader and Distinguished R&D Staff Member

Facilitating cross-cutting collaborations to produce world-leading used nuclear fuel management R&D and to enhance ORNL's science culture

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Career milestones

- Nuclear Executives of Tomorrow (NEXT) Cohort
- YWCA Science and Technology Honoree
- R&D 100 Award
- DOE Secretary's Honor Award
- Successful , ongoing collaborations across Divisions, Directorates, and Laboratories to achieve high quality products
- CASL Focus Area Lead Technology Deployment & Outreach
- Primary author, CASL Phase 2 proposal

Work Experience

Group Leader, Used Fuel and Nuclear Material Disposition and Distinguished Research Staff, Oak Ridge National Laboratory (2016 to present)

Staff planning, development, and oversight; team strategic planning; and internal/external collaborative partnership development.

Support for Section, Division, and Directorate strategic planning and readiness to support the development and deployment of nuclear energy technologies.

Conceptualization and development of ORNL strategic capabilities, lab spaces, and facilities.

Development of new and alternative processes to facilitate collaboration across multiple national laboratories and ORNL facilities.

As work package manager for the Sibling Pin project and ORNL lead for DOE Spent Fuel & Waste Science and Technology work scope:

- Specify and implement nondestructive and destructive examinations of spent nuclear fuel for the safe long-term interim storage, transport, consolidation, and eventual disposal of used fuel.
- Develop novel methods and applications for used fuel examinations.
- Compile and synthesize acquired test data.
- Collaborate across the national laboratory complex to advance the current understanding of nuclear fuel behavior.

Participation in industry initiatives supporting extended interim dry storage and transportation of used nuclear fuel for consolidation.

Support for the laboratory's diversity and inclusion initiatives through leadership of the >800-member women's employee resource group (ERG), including program development and administration, organizational development, and mentoring of other ERG leaders.

Career milestones

TVA Fleet fuel mechanical design/performance responsibility

Pivotal role in creating DOE's accident-tolerant fuel program through input to the Advanced Fuel Campaign

Formally trained in staff supervision

Collaboration on strategic planning activities

Development of regulatory submittals for US fuel fleet and customer interface on fuel performance

Framatome's US lead for fuel post-irradiation examinations

Successful sole proprietorship for 8 years providing expertise in packaging design

Design and regulatory interfaces on fresh fuel, low- and high-level waste packages

Work Experience

Sr. Program Manager, Tennessee Valley Authority (2009 to 2016)

Conducted technical reviews of proposed mechanical fuel design changes and related operational impacts, oversaw fabrication of nuclear fuel used at TVA reactors.

Served on industry teams and initiatives for fuel reliability (EPRI, INPO, Affinity, etc.) and conducted TVA training on fuel performance topics.

Served as TVA Principle Investigator for DOE's Consortium for Advanced Simulation of LWRs (CASL).

Chaired the Industry Advisory Committee to INL on advanced and accident tolerant nuclear fuel research topics.

AREVA NP Inc. (2005 to 2009)

Supervised Fuel Mechanics/Dynamics, providing planning, staffing, and oversight of the team supporting dynamic fuel response, including seismic, LOCA, and FIV; specified assembly and component testing; developed staff qualifications matrix and procedures for workflow.

As Principal Engineer, Fuel Mechanical & Structural Design, performed fuel rod mechanical analyses, fuel assembly structural analyses, assembly testing and evaluation, and developed and tested shipping containers.

As US Post-Irradiation Examination Coordinator, specified PIE for customer plants, coordinated exam planning and execution, evaluated data, and developed associated reports. Recommended development of new or improved poolside PIE techniques.

Consultant, Montgomery Engineering & Technical Services (1997 to 2005)

Performed packaging design, evaluation, testing, and SARP preparation for all types of radioactive materials, including fresh fuel assemblies, MOX, UF_6, spent fuel (onsite storage, transfer and transport), UO_2 powder and pellets, liquid uranyl nitrate, and low-level and high-level wastes.

Project Engineer, Chem-Nuclear Systems (1995 to 1997)

Thermal, radiation shielding, structural, and thermal analyses; licensing support and waste disposal evaluations for CNS packaging.

Education / Qualifications

- BS, Mechanical Engineering, University of South Carolina, 1995
- Licensed Professional Engineer, Mechanical, State of Tennessee (106908)
- DOE Q Clearance

Selected Publications and Media Releases

1. Muhammet Ayanoglu, Rose Montgomery, Jason Harp, Yadukrishnan Sasikumar, *Metallographic examinations and hydrogen measurements of high-burnup spent nuclear fuel cladding*, Journal of Nuclear Materials, Volume 589, 2024, 154833, https://doi.org/10.1016/j.jnucmat.2023.154833.
2. Montgomery, Rose, and Bevard, Bruce Balkcom. *Sister Rod Destructive Examinations (FY22)*. United States: N. p., 2023. Web. doi:10.2172/1976043.
3. P. Cantonwine, O. Martinez, and R. Montgomery, *Mechanical Response of High Burnup 17x17 PWR fuel Rods Under Bending*, TopFuel Water Reactor Fuel Conference, Raleigh, NC, August 2022.
4. EPRI panel member, *Phenomena Identification and Ranking Table (PIRT) Exercise for Used Fuel Cladding Performance* (3002018439), June 2020.
5. R. Montgomery, Robert N. Morris, "Measurement and Modeling of the Gas Permeability of High Burnup Pressurized Water Reactor Fuel Rods, *Journal of Nuclear Materials*, Vol. 523, 2019, pp. 206–215, ISSN 0022-3115, https://doi.org/10.1016/j.jnucmat.2019.05.041.
6. R. Montgomery, R. Morris, B. Bevard, and J. Scaglione, "Key Results from Detailed Nondestructive Examinations of 25 Pressurized Water Reactor High Burnup Spent Nuclear Fuel Rods," *Nuclear Science and Engineering*, 2019, DOI: 10.1080/00295639.2019.1573602.
7. R. Montgomery, "Non-Destructive Pressure Measurement Technique for Irradiated Nuclear Fuel Rods, TopFuel Water Reactor Fuel Conference," Prague Czech Republic, September 2018.
8. R. Montgomery, J. Scaglione, B. Williamson, and B. Wakeman. "Experience with Used Nuclear Fuel Reimmersion for Repackaging after Three Years in Dry Storage," ANS Winter Meeting and Technology Expo, November 2017.
9. R. Montgomery, "Enhanced Accident Tolerant LWR Fuels: Metrics Development," *Proceedings of the American Nuclear Society Top Fuel Conference*, September 2013
10. R. Montgomery, "Industry-Valued Design Objectives for Advanced LWR Fuels and Concept Screening Results," *Proceedings of the American Nuclear Society Top Fuel Conference*, September 2013.R. Montgomery, "M5® Cladding Behavior with Zinc Injection: Results Obtained at Sequoyah-2," International Conference on Water Chemistry of Nuclear Reactor Systems, 2008, Berlin.
11. Media release, https://electricenergyonline.com/article/energy/category/appointments/54/1037036/distinguished-researcher-joins-prestigious-group-for-women-leaders-in-nuclear-sector.html, (2023).
12. Media release, https://www.knoxnews.com/picture-gallery/news/local/2022/10/07/see-who-ywca-honored-37th-annual-tribute-women/8202574001/ (2022).
13. Media release, https://www.miragenews.com/ornl-receives-spent-fuel-canister-to-support-615906/, *ORNL receives spent fuel canister to support long-term storage studies* (2021).
14. Media release, https://www.eurekalert.org/news-releases/575543, *ORNL wins 7 R&D 100 Awards* (2016).

ORNL Inventions

- System of Aerosol Sampling During Mechanical Load (patent filed)
- Advanced Diagnostics and Evaluation Platform 2.0 (ADEPT 2.0)
- Tube Acoustic-based Pressure and Stress (TAPS) Measurement System (provisional patent)
- Spent Fuel Rod Heat Treatment Oven (SFRHTO)
- An Ultrasonic Waveguide for Improved Ultrasonic Thermometry (provisional patent)

Synergistic Activities

- Secretary/Treasurer, American Nuclear Society, Fuel Cycle & Waste Management Division, 2023 to present.
- Working group chair, American Nuclear Society Standard 57.5, Light Water Reactors Fuel Assembly Mechanical Design and Evaluation.
- Expert panelist, Electric Power Research Institute Light Water Reactor cladding performance.
- Subcommittee member, EPRI Extended Storage Collaboration Program, Fuel Assembly.
- Women in Nuclear, Nuclear Executives of Tomorrow 2023/24 Cohort.
- Women in Nuclear National Conference, Technical Program Chair and Organizing Committee.
- President, ORNL Women's Alliance Council, 2022 to 2023.
- Vice President, ORNL Women's Alliance Council, 2021 to 2022.
- President, ORNL Women in Nuclear Science and Global Security, 2020 to 2021.
- Chair, Industry Advisory Committee to INL Advanced Light Water Reactor Fuel Development Program, 2011 – 2016.