

Adam J. Carroll

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EDUCATION University of Arizona Tucson, AZ
2002-2006 **BS in Mechanical Engineering**

EXPERIENCE
2007-Present **Oak Ridge National Laboratory**

Since 2011, Principal Investigator of the Strategic Materials Security Program, received over \$25M from the Defense Logistics Agency – Strategic Materials and DOE Office of Energy Policy and Systems Analysis. Program centers on identifying and defining the supply chain risk for strategic and critical materials, rapidly assessing supply chain impacts from natural disasters and conflicts, plus collaboration on risk mitigation implementation.

- Delivered technical narrative for Congressionally mandated reports and responses to Presidential Executive Orders, informing key policy makers in strategic materials and specific supply chain vulnerabilities.
- Presented an overview of SMSP and SMART activities at numerous conferences, National Academy of Science, Yale University, the State Department, and multiple offices at the Department of Defense.
- Leading a team of three direct and three subcontracted personnel to support the program's mission.
- Established a rapid supply chain review process for natural disasters and conflicts. Process utilizes as part of DLA Strategic Materials response to the COVID-19 pandemic. At onset of pandemic, identified bismuth, indium, gallium, and specialty steel used in tires as primarily produced within the four first impacted nations (China, Japan, South Korea, and Italy). As the pandemic spread, a weekly report was produced highlighting the most impacted countries and States and their associated strategic material products.
- Develop and maintain the Strategic Materials Analysis & Reporting Topography (SMART) system. The SMART system is a supply chain mapping database tool designed to aggregate data from various sources (structured and unstructured datasets) to produce the most accurate representation of the global supply chain for the 160+ materials categorized as strategic and/or critical. Utilize SMART to identify and define supply chain risk, maps the material production capabilities and capabilities of 20k+ mines and facilities, and find sole source supplier and foreign ownership of key supply chains.
- Provided training and continuing support on the SMART system to Department of Defense and the United States Geological Survey personnel
- Assisted in development of procurement specifications for materials for addition to the National Defense Stockpile (NDS) and the certification (Certificate of Compliance) of materials upon entry into the NDS

Manager of the Target Test Facility (TTF) since 2015. The TTF is a full-scale mock-up of the Spallation Neutron Source (SNS) mercury loop and contains 1,400 liters of mercury. This facility was originally constructed in 2000 and aided in the mercury loop design refinement for the SNS. Since SNS became fully operational, the TTF has remained a valuable system for evaluating new target designs meant to mitigate cavitation erosion issues the SNS target is experiencing. The TTF Manager is responsible for oversight of all operation, system modification, and safety.

Local Emergency Squad Leader for the 7600 Complex starting 2016. Responsible for leading the Emergency Squad Members during exercises or actual event, resolving any issues learned during safety exercises, and maintain / update training for all squad members.

In 2019, took over the role of Laboratory Space Manager for the 7603 Highbay. Manage the Research Safety Summary (RSS) for the Highbay, oversee all project activities within the space. Advise and oversee development of RSS related to the Highbay. Participate in weekly scheduling with local stakeholders to coordinate project activities.

Previous experience included providing mechanical engineering support for the development and application of advanced remote handling systems, tooling, process systems, and facilities for hazardous environments; primarily for the Spallation Neutron Source (SNS), High Flux Isotope Reactor (HFIR), Facility for Rare Isotope Beams (FRIB) Defense National Stockpile Center (DNSC) Mercury Stockpile Stewardship Program (MSSP), and Mercury Intense Target (MERIT). Primary responsibilities included safety of personnel and equipment, design and analysis of equipment and systems, project oversight, documentation of results, and interaction with sponsors and suppliers.

2018 - Present American Nuclear Society – Robotics and Remote Systems Division Secretary

Vice-Chair for Robotics and Remote Systems Division of American Nuclear Society as of 2022, elected to Executive Committee in 2018. Deeply involved in coordinating the Robotics embedded topical for ANS Meeting.

AWARDS

Appalachian Regional Commission Certificate of Appreciation 2011-2019
Significant Achievement Award (SMSP, 2017)
Siemens Foundation Certificate of Recognition 2011
Significant Achievement Award (MERIT, 2007)
Boeing Scholar (2004)
Autodesk Visualization Award (2002)

SELECTED PUBLICATIONS

- Carroll, A. J. and E. Fountain. October 2020. *Conceptual Designs of High Flux Isotope Reactor Online Insertion and Removal of Vertical Experiment Facilities*. ORNL/TM-2020/1643, sponsor distributed only.
- Carroll, A. J., and K. Jones. December 2020. Abstract. SMART, *The Defense Logistics Agency Strategic Material Supply Chain Analysis Tool Utilization During COVID-19*. Submitted to the Defense Manufacturing Conference.
- McFarlane, J., A.J. Carroll, D. Pineault. March 2020. *Steel in Tires - Update*. ORNL/TM-2019/1422, sponsor distributed only.
- Carroll, A. J., and K. Jones. December 2019. Presentation. *An Update on SMART, The Defense Logistics Agency Strategic Material Supply Chain Tool*. Diminishing Manufacturing Sources and Material Shortages, Phoenix, Arizona.
- Carroll, A. J., and K. Jones. October 2019. Presentation. *Strategic Materials Analysis & Reporting Topography Overview to State Department*. State Department - Strategic Materials Working Group, Washington D.C.
- Carroll, A. J., A. Green, and B. Gabriel. February 2019. *Report on Sourcing of Tungsten and Tungsten Powders from Domestic Producers*. ORNL/TM-2019/1100, Submitted per House Report 115-404, to accompany H.R. 2810, the National Defense Authorization Act for FY18.
- Carroll, A. J., J. McFarlane, and C. Mattus. February 2019. *Report on Rare Earth Element – Bearing Waste Recycling*. ORNL/SPR-2018/1054. Submitted to accompany H.R. 5515 the National Defense Authorization Act for FY2019
- Carroll, A. J., and A. Donahoe. March 2018. Presentation. *Strategic Materials Analysis & Reporting Topography Overview for National Academy of Science*. The Condensed Matter and Materials Research Committee, National Academy of Science. Washington D.C.
- McFarlane, J., F. Peretz, A.J. Carroll, D. Pineault. March 2018. *Steel in Tires*. ORNL/TM-2018/791, sponsor distributed only.
- Carroll, A. J. November 2016. *Analysis of North American Supply Chain of Neodymium Iron Boron and Samarium Cobalt Magnets*. ORNL/TM-2016/674, sponsor distributed only.
- Nuss, P., T.E. Graedel, E. Alonso, A.J. Carroll. December 2016. *Mapping supply chain risk by network analysis of product platforms*. Sustainable Materials and Technologies 10 (2016) 14-22.
- Carroll, A. J. and D. DePaoli. September 2014. *Application of SMART for Determining Material Flow Risk*. Poster Session of the 4th Trilateral Conference on Critical Materials, Ames, Iowa.
- Carroll, A. J. June 2014. *Access and Maintenance Plan for the Strategic Materials Analysis & Reporting Topography System*. ORNL/TM-2014/179, sponsor distributed only.
- Carroll, A. J. September 2013. *Strategic Materials for Defense – Electronics*. ORNL/TM-2013/368, sponsor distributed only.
- McClintock, D. A., B. Riemer, P. D. Ferguson, A. J. Carroll, and M. J. Dayton. December 2012. *Initial observations of cavitation-induced erosion of liquid metal spallation target vessels at the Spallation Neutron Source*, 10th International Workshop of Spallation Materials Technology, Beijing, China.
- Carroll, A. J., et al. October 2012. *Strategic Materials Summaries 2012*, ORNL/TM-2012/363, sponsor distributed only.
- Carroll, A. J., et al. August 2011. *Remotely Operated Equipment for Post Irradiation Examination of the SNS Target Vessel*, American Nuclear Society Conference 2011, Knoxville, TN.
- Graves, V. B., P. T. Spampinato, A.J. Carroll, H. Kirk, K. McDonald, A. Fabich, I. Efthymiopolous, J. Lettry. May 2009. *Operation of a Free Hg Jet Delivery System in a High-Power Target Experiment*, Particle Accelerator Conference 2009, Vancouver, Canada.