
ANDREW THOMAS NELSON

CONTACT INFORMATION

Oak Ridge National Laboratory
Reactor and Nuclear Systems Division
P.O. Box 2008, MS 6159
Oak Ridge, TN 37831

865/241-7330
nelsonat@ornl.gov

Department of Energy Clearances (Q and SCI)

PROFESSIONAL PROFILE

Dr. Nelson is the Group Leader of the Nuclear Fuel and Materials Group within the Reactor and Nuclear Systems Division at Oak Ridge National Laboratory as well as the National Technical Lead for Light Water Reactor Fuels in the Office of Nuclear Energy's Advanced Fuels Campaign. He is responsible for executing both fundamental and applied actinide and nuclear materials research as supported by numerous DOE-NE and NNSA programs. He has published over seventy peer-reviewed publications and book chapters spanning nuclear materials, nuclear engineering, and high temperature material properties.

EDUCATION

University of Wisconsin-Madison

Ph.D. (2009) Nuclear Engineering and Engineering Physics
Dissertation: "Development of Solid State Bonding Processes for Spallation Neutron Targets"
Advisor: James Blanchard

M.S. (2004) Nuclear Engineering and Engineering Physics
Dissertation: "Evaluation of Nb-1Zr and Nb-1Zr-0.1C Alloy Design Parameters for use in Space Reactor Systems" *Advisor: James Blanchard*

B.S. (2003) Engineering Mechanics

HONORS AND AWARDS

- 2014 Los Alamos National Laboratory Distinguished Mentor
- 2012 DOE-NE Fuel Cycle R&D Excellence Award for contributions to advanced ceramic fuels research
- 2011 Los Alamos National Laboratory Distinguished Performance Award recognizing execution of academic radiological work
- 2010 Los Alamos National Laboratory LAAP Award for exceptional service to the LANSCE MK III target design and deployment
- 2008 University of Wisconsin Alpha Nu Sigma honoree (given to top 10% of Nuclear Engineering students determined by GPA)
- 2007 University of Wisconsin Alpha Nu Sigma honoree

**PROFESSIONAL
EXPERIENCE**

Oak Ridge National Laboratory

*Group Leader and Senior Research Scientist,
Nuclear Fuel and Materials Group 2018-Present*

- Signature authority for security and safety of a large ORNL group (>50 students, postdocs, technicians, engineers, and scientists)
- Responsible for annual performance metrics and assessments of above staff
- Program manager for DOE-NE and NNSA programs totaling approximately twenty million dollars annually
- Lead national and international presentations of ongoing work as well as publication of work in peer-reviewed publications
- Mentor students, postdocs, and junior staff in technical work and program development

Los Alamos National Laboratory

*Team Leader, Ceramic Nuclear Fuels
Engineered Materials Group (MST-7) 2015-2018*

- Supervise and mentor small team (~10) of graduate students, postdocs, technicians, engineers, and scientists
- Responsible for programmatic execution, operations, safety, and security of Fuels Research Laboratory
- Manage roughly 3.0 million dollars annually in combined programs under Office of Nuclear Energy and NNSA
- Lead national and international presentations of ongoing work as well as publication of work in peer-reviewed publications

Technical Staff

Engineered Materials Group (MST-7) 2011-2015

- Directed students and postdocs in academic work under a broad range of actinide materials research and evaluation of structural materials for nuclear applications
- Secured authorization for actinide research up through and including fabrication of highly-enriched uranium (HEU) test articles
- Supervised programmatic execution and delivery of multiple DOE-NE milestones each year

Postdoctoral Researcher

Structure-Property Relations Group (MST-8) 2009-2011

- Performed thermophysical measurements on ceramic nuclear fuel systems and surrogates (UO₂, CeO₂, (U-Ce)O₂, and ThO₂)
- Installed laser flash analysis (LFA) capability in Nuclear Fuels Laboratory at LANL for study of actinide materials
- Utilized LFA, dilatometry, differential scanning calorimetry (DSC), and thermogravimetric analysis (TGA) to characterize ceramic and metal samples
- Responsible for completion and delivery of DOE-NE milestones

**SUCCESSFUL
PROPOSALS
CO-AUTHORED**

Co-PI. "Understanding Actinide-Water Interactions in High P-T Environments" LANL Laboratory-Directed Research and Development. Funded October 2017, \$5400k total, 3 years. PI: H. Xu.

Co-PI. "Pellet Cracking during Fabrication of Pu-238 Oxide Fuel" LANL Laboratory-Directed Research and Development. Funded December 2016, \$300k total, 1 year. PI: A. Parkison.

Co-Investigator. "Understanding Ejecta, Transport, Break-up and Conversion Processes (U)" LANL Laboratory-Directed Research and Development. Funded October 2016, \$4800k total, 3 years. PI: W. Butler.

Co-Investigator. "Thermochemistry of High Density Accident Tolerant Fuels" DOE-NE Nuclear Energy University Programs. Funded October 2016, \$1060k total, 3 years. PI: T. Besmann.

Co-Investigator, "Multi-scale Kinetics of Self-Regulating Small Compact Reactors" LANL Laboratory-Directed Research and Development. Funded October 2014, \$5400k total, 3 years. PI: D. Rao.

Co-PI. "Determining the stress-strain response of irradiated metallic materials via spherical nanoindentation" DOE-NE Nuclear Enabling Technologies. Funded October 2013, \$1000k total, 3 years. PI: N. Mara.

Co-Investigator. "Nanocrystalline Multiphase Ceramic Concepts for Nuclear Fuels" DOE-NE Nuclear Energy University Programs. Funded October 2013, \$1060k total, 3 years. PI: M. Mecartney.

**PEER-
REVIEWED
PUBLICATIONS**

**H-INDEX = 20
(GOOGLE
SCHOLAR, JUNE
2020)**

[70] N. Capps, R. Sweet, B.D. Wirth, **A.T. Nelson**, and K. Terrani, "Development and demonstration of a methodology to evaluate high burnup fuel susceptibility to pulverization under a loss of coolant accident." *Nuclear Engineering and Design* **366** (2020) 110744.

[69] J.R. Burns, R. Hernandez, K.A. Terrani, **A.T. Nelson**, and N.R. Brown, "Reactor and fuel cycle performance of light water reactor fuel with ²³⁵U enrichments above 5%." *Annals of Nuclear Energy* **142** (2020) 107423.

[68] R.T. Sweet, Y. Yang, K.A. Terrani, B.D. Wirth, and **A.T. Nelson**, "Performance of U₃Si₂ in an LWR following a cladding breach during normal operation." *Journal of Nuclear Materials* (2020) 152263.

[67] K.A. Terrani, N.A. Capps, M.J. Kerr, C.A. Back, **A.T. Nelson**, B.D. Wirth, S.A. Hayes, and C.R. Stanek, "Accelerating nuclear fuel development and qualification: Modeling and simulation integrated with separate-effects testing." *Journal of Nuclear Materials* (2020) 152267.

[66] B. Gong, Y. Yao, P. Lei, J. Harp, **A.T. Nelson**, J. Lian, "Spark plasma sintering (SPS) densified U₃Si₂ pellets: Microstructure control and enhanced mechanical and oxidation properties." *Journal of Alloys and Compounds* **825** (2020) 154022.

- [65] S. Nakamichi, S. Hirooka, K. Kato, T. Sunaoshi, A.T. Nelson, K.J. McClellan, "Effect of O/M ratio on sintering behavior of $(\text{Pu}_{0.3}\text{U}_{0.7})\text{O}_{2-x}$." *Journal of Nuclear Materials* (2020) 152188.
- [64] B. Gong, T. Yao, P. Lei, J. Harp, A.T. Nelson, and J. Lian, " U_3Si_2 and UO_2 composites densified by spark plasma sintering for accident-tolerant fuels." *Journal of Nuclear Materials* (2020) 152147.
- [63] L. Feng, S.C. Finkeldei, B. Heuser, S.J. Dillon, and **A.T. Nelson**, "Grain boundary and lattice fracture toughness of UO_2 measured using small-scale mechanics." *JOM* (2020) 1-7.
- [62] R.D. Hunt, J.W. McMurray, G.W. Helmreich, B.D. Eckhart, A.L. McAlister, **A.T. Nelson**, "Production of 28 μm zirconium carbide kernels using the internal gelation process and microfluidics." *Journal of Nuclear Materials* **528** (2020) 151870.
- [61] C.M. Petrie, J.R. Burns, A.M. Raftery, **A.T. Nelson**, K.A. Terrani, "Separate effects irradiation testing of miniature fuel specimens." *Journal of Nuclear Materials* **526** (2019) 151783.
- [60] J.P. Gorton, B.S. Collins, **A.T. Nelson**, N.R. Brown, "Reactor performance and safety characteristics of ThN-UN fuel concepts in a PWR." *Nuclear Engineering and Design* **355** (2019) 110317.
- [59] S.S. Parker, J.T. White, P. Hosemann, **A.T. Nelson**, "Thermophysical properties of thorium mononitride from 298 to 1700 K." *Journal of Nuclear Materials* **526** (2019) 151760.
- [58] T.D. Morrison, E. Sooby Wood, P.F. Weck, E. Kim, S. Oh Woo, **A.T. Nelson**, and D.G. Nagel, "A comprehensive assessment of the low-temperature thermal properties and thermodynamic functions of CeO_2 ." *Journal of Chemical Physics* **151** (2019) 044202.
- [57] N. Li, S.S. Parker, T.A. Saleh, S.A. Maloy, and **A.T. Nelson**, "Intermediate temperature corrosion behaviour of Fe-12Cr-6Al-2Mo-0.2Si-0.03Y (C26M) at 300-600C." *Corrosion Science* **157** (2019) 274-283.
- [56] X. Guo, X. Lu, J.T. White, C.J. Benmore, **A.T. Nelson**, R.C. Roback, H. Xu, "Bulk moduli and high pressure crystal structure of U_3Si_2 ." *Journal of Nuclear Materials* **523** (2019) 135-142.
- [55] P.D Edmondson, Q.B. Smith, J.W. Werden, D. Skiff, C. Hobbs, J.T. White, J.T. Dunwoody, K.A. Terrani, and **A.T. Nelson**, "Scanning Transmission Electron Microscopy Characterization of the Native Surfaces Oxides in High Density Ceramic Fuels." *Microscopy and Microanalysis* **25**(S2) (2019) 1594-1595.

[54] C-K Chung, X. Guo, G. Wang, T.L. Wilson, J.T. White, **A.T. Nelson**, A. Shelyug, H. Boukhalfa, P. Yang, E.R. Batista, A. A. Migdisov, R.C. Roback, A. Navrotsky, H. Xu, “Enthalpies of formation and phase stability relations of USi, U₃Si₅ and U₃Si₂.” *Journal of Nuclear Materials* **523** (2019) 101-110.

[53] S.C. Finkeldei, J.O. Kiggans, R.D. Hunt, **A.T. Nelson**, K.A. Terrani, “Fabrication of UO₂-Mo composite fuel with enhanced thermal conductivity from sol-gel feedstock.” *Journal of Nuclear Materials* **520** (2019) 56-64.

[52] K. Suzuki, M. Kato, T. Sunaoshi, H. Uno, U. Carvajal-Nunez, **A. T. Nelson**, K. J. McClellan, “Thermal and mechanical properties of CeO₂.” *Journal of the American Ceramic Society* **102** (2019) 1994-2008.

[51] D.A. Lopes, T.L. Wilson, V. Kocovski, E.E. Moore, T.M. Besmann, E. Sooby Wood, J.T. White, **A.T. Nelson**, S.C. Middleburgh, and A. Claisse, “Experimental and computational assessment of U-Si-N ternary phases.” *Journal of Nuclear Materials* **516** (2019) 194-201.

[50] T. L. Wilson, E. E. Moore, D. A. Lopes, V. Kocovski, E.S. Wood, J.T. White, **A.T. Nelson**, J. W. McMurray, S. C. Middleburg, P. Xu and T.M. Besmann, “Uranium nitride-silicide advanced nuclear fuel: higher efficiency and greater safety.” *Advances in Applied Ceramics* **117** (2018) s76-s81.

[49] X. Guo, J.T. White, **A.T. Nelson**, A. Migdisov, R. Roback, and H. Xu, “Enthalpy of formation of U₃Si₂: A high temperature drop calorimetry study.” *Journal of Nuclear Materials* **507** (2018) 44-49.

[48] N. Li, S.S. Parker, E.S. Wood, and **A.T. Nelson**, “Oxide morphology of a FeCrAl alloy, Kanthal APMT, following extended aging in air at 300C-600C.” *Metallurgical and Materials Transactions A* **49** (2018) 2940-2950.

[47] A. Timofeev, A.A. Migdisov, A.E. Williams-Jones, R. Roback, **A.T. Nelson**, and H. Xu, “Uranium transport in acidic brines under reducing conditions.” *Nature Communications* **9** (2018) 1469.

[46] E. Sooby Wood, J.T. White, C.J. Grote, and **A.T. Nelson**, “U₃Si₂ behavior in H₂O environments: Part I, flowing steam and the effect of hydrogen.” *Journal of Nuclear Materials* **501** (2018) 404-412.

[45] R.O. Nelson, S.C. Vogel, J.F. Hunter, E.B. Watkins, A.S. Losko, A.S. Tremsin, N.P. Borges, T.E. Cutler, L.T. Dickman, M.A. Espy, D.C. Gautier, A.C. Madden, J. Majewski, M.W. Malone, D.R. Mayo, J.J. McClellan, D.S. Montgomery, S.M. Mosby, **A.T. Nelson**, K.J. Ramos, R.C. Schirato, K. Schroeder, S.A. Sevanto, A.L. Swift, L.K. Vo, T.E. Williamson, and N.M. Winch, “Neutron imaging at LANSCE – from cold to ultrafast.” *Journal of Imaging* **4** (2018) 45.

[44] **A.T. Nelson**, A. Migdisov, E. Sooby Wood, and C.J. Grote, "U₃Si₂ behavior in H₂O environments: Part II, pressurized water with controlled redox chemistry." *Journal of Nuclear Materials* **500** (2018) 81-91.

[43] K.A. Erickson, A.G. Lichtscheidl, M.J. Monreal, **A.T. Nelson**, B.L. Scott, D.E. Morris, and J.L. Kiplinger, "Exploiting the reactivity of actinide fluoride bonds for the synthesis and characterization of a new class of monometallic bis(azide) uranium complexes." *Journal of Organometallic Chemistry* **857** (2018) 180-186.

[42] B.D. Kagan, A.G. Lichtscheidl, K.A. Erickson, M.J. Monreal, B.L. Scott, **A.T. Nelson**, and J.L. Kiplinger. "Synthesis of Actinide Fluoride Complexes using Trimethyltin Fluoride as a Mild and Selective Fluorinating Reagent." *European Journal of Inorganic Chemistry* **11** (2018) 1247-1253.

[41] S.S. Parker, J.T. White, P. Hosemann, and **A.T. Nelson**. "Oxidation Kinetics of Ferritic Alloys in High-Temperature Steam Environments." *JOM* **70** (2018) 186-191.

[40] U. Carvajal-Nunez, M.S. Elbakhshwan, N.A. Mara, J.T. White, and **A.T. Nelson**. "Mechanical Properties of Uranium Silicides by Nanoindentation and Finite Elements Modeling." *JOM* **70** (2018) 203-208.

[39] U. Carvajal-Nunez, T.A. Saleh, J.T. White, B.A. Maiorov, and **A.T. Nelson**, "Determination of elastic properties of U₃Si₂ using resonant ultrasound spectroscopy." *Journal of Nuclear Materials* **498** (2018) 438-444.

[38] L. He, X.M. Bai, J. Pakarinen, B.J. Jaques, J. Gan, **A.T. Nelson**, A. El-Azab, T.R. Allen, "Bubble evolution in Kr-irradiated UO₂ during annealing." *Journal of Nuclear Materials* **496** (2017) 242-250.

[37] J.T. White, A.W. Travis, J.T. Dunwoody, and **A.T. Nelson**, "Fabrication and thermophysical property characterization of UN/U₃Si₂ composite fuel forms." *Journal of Nuclear Materials* **495** (2017) 463-474.

[36] E. Sooby Wood, J.T. White, and **A.T. Nelson**, "The effect of aluminum additions on the oxidation resistance of U₃Si₂." *Journal of Nuclear Materials* **489** (2017) 84-90.

[35] E. Sooby Wood, J.T. White, and **A.T. Nelson**, "Oxidation behavior of U-Si compounds in air from 25 to 1000C." *Journal of Nuclear Materials* **484** (2017) 245-257.

[34] A.J. Parkison, S.S. Parker, and **A.T. Nelson**. "Fabrication of ThN using a Carbothermic Reduction to Nitridation Process." *Journal of the American Ceramic Society* **99** (2016) 3909-3914.

[33] E. Sooby Wood, K.A. Terrani, and **A.T. Nelson**, "Sensitivity of measured steam oxidation kinetics to atmospheric control and impurities." *Journal of Nuclear Materials* **477** (2016) 228-233.

**PEER-
REVIEWED
PUBLICATIONS,
CONT.**

[32] M. Tang, **A.T. Nelson**, E.S. Wood, S.A. Maloy, and Y-B Jiang, "Grazing incidence X-ray diffraction and transmission electron microscopy studies on the oxide formation of molybdenum in a water vapor environment." *Scripta Materialia* **120** (2016) 49-53.

[31] M. Khafizov, J. Pakarinen, L. He, H.B. Henderson, M.V. Manuel, **A.T. Nelson**, B.J. Jaques, D.P. Butt, and D.H. Hurley, "Subsurface imaging of grain microstructure using picosecond ultrasonics." *Acta Materialia* **112** (2016) 209-215.

[30] A.J. Parkison and **A.T. Nelson**, "Deconvolution of Mass Gain and Mass Loss Mechanisms During Carbothermic Reduction to Nitridation of Zirconia." *Journal of the American Ceramic Society* **99** (2016) 1525-1533.

[29] E.S. Wood, S.S. Parker, **A.T. Nelson**, and S.A. Maloy. "MoSi₂ oxidation in 670–1498 K water vapor." *Journal of the American Ceramic Society* **99** (2016) 1412-1419.

[28] J.T. White, **A.T. Nelson**, J.T. Dunwoody, D.D. Byler, and K.J. McClellan. "Thermophysical properties of USi to 1673K," *Journal of Nuclear Materials* **471** (2016) 129-135.

[27] A.J. Parkison and **A.T. Nelson**. "Hydrogen measurement during steam oxidation using coupled thermogravimetric analysis and quadrupole mass spectrometry," *Measurement* **82** (2016) 391-402.

[26] A.G. Lichtscheidl, J.K. Pagano, B.L. Scott, **A.T. Nelson**, and J.L. Kiplinger. "Expanding the Chemistry of Actinide Metallocene Bromides. Synthesis, Properties and Molecular Structures of the Tetravalent and Trivalent Uranium Bromide Complexes: (C₅Me₄R)₂UBr₂, (C₅Me₄R)₂U(O-2,6-Pr₂C₆H₃)(Br), and [K(THF)][(C₅Me₄R)₂UBr₂] (R = Me, Et)," *Inorganics* **4** (2016) 1-17.

[25] M. Kato, Y. Ikusawa, T. Sunaoshi, **A.T. Nelson**, and K.J. McClellan. "Thermal expansion measurement of (U,Pu)O_{2-x} in oxygen partial pressure-controlled atmosphere." *Journal of Nuclear Materials* **469** (2016) 223-227.

[24] J.W. McMurray, S. Hirooka, T. Murakami, K. Suzuki, J.T. White, S.L. Voit, **A.T. Nelson**, B.W. Stone, T.M. Besmann, K.J. McClellan, and M. Kato. "Thermodynamic assessment of the oxygen rich U-Ce-O system," *Journal of Nuclear Materials* **467** (2015) 588-600.

[23] E.S. Sooby, **A.T. Nelson**, J.T. White, and P.M. McIntyre. "Measurements of the liquidus surface and solidus transitions of the NaCl-UCl₃ and NaCl-UCl₃-CeCl₃ phase diagrams," *Journal of Nuclear Materials* **466** (2015) 280-285.

[22] A.G. Lichtscheidl, M.T. Janicke, B.L. Scott, **A.T. Nelson**, and J.L. Kiplinger. "Synthesis, structures, and ^1H , $^{13}\text{C}\{^1\text{H}\}$ and $^{119}\text{Sn}\{^1\text{H}\}$ NMR chemical shifts of a family of trimethyltin alkoxide, amide, halide and cyclopentadienyl compounds." *Dalton Transactions* 44 (2015) 16156-16163.

[21] J.T. White, **A.T. Nelson**, J.T. Dunwoody, D.D. Byler, D.J. Safarik, and K.J. McClellan. "Thermophysical properties of U_3Si_2 to 1773K," *Journal of Nuclear Materials* **464** (2015) 275-280.

[20] L.F. He, B. Valderrama, A.-R. Hassan, J. Yu, M. Gupta, J. Pakarinen, H.B. Henderson, J. Gan, M.A. Kirk, **A.T. Nelson**, M.V. Manuel, A. El-Azab, and T.R. Allen. "Bubble formation and Kr distribution in Kr-irradiated UO_2 ," *Journal of Nuclear Materials* **456** (2015) 125-132.

[19] J.T. White, **A.T. Nelson**, D.D. Byler, D.J. Safarik, J.T. Dunwoody, and K.J. McClellan. "Thermophysical properties of U_3Si_5 to 1773K," *Journal of Nuclear Materials* **456** (2015) 442-448.

[18] **A.T. Nelson**, D.R. Rittman, J.T. White, J.T. Dunwoody, M. Kato, and K.J. McClellan. "Evaluation of the thermophysical properties of stoichiometric CeO_2 in comparison to UO_2 and PuO_2 ," *Journal of the American Ceramic Society* **97** (2014) 3652-3659.

[17] J.P. Angle, **A.T. Nelson**, D. Men, and M.K. Mecartney, "Thermal measurements and computational simulations of three-phase (CeO_2 - MgAl_2O_4 - $\text{CeMgAl}_{11}\text{O}_{19}$ and four-phase ($3\text{Y-TZP-Al}_2\text{O}_3$ - MgAl_2O_4 - LaPO_4) composites as surrogate inert matrix nuclear fuel." *Journal of Nuclear Materials* **454** (2014) 69-76.

[16] **A.T. Nelson**, J.T. White, D.D. Byler, J.T. Dunwoody, J.A. Valdez, and K.J. McClellan. "Overview of properties and performance of uranium-silicide compounds for light water reactor applications." *Transactions of the American Nuclear Society* **110** (2014) 987-989.

[15] J.T. White, **A.T. Nelson**, D.D. Byler, J.A. Valdez, and K.J. McClellan. "Thermophysical properties of U_3Si to 1150K," *Journal of Nuclear Materials* **452** (2014) 304-310.

[14] L.F. He, J. Pakarinen, M.A. Kirk, J. Gan, **A.T. Nelson**, X-M. Bai, A. El-Azab, and T.R. Allen. "Microstructure evolution in Xe-irradiated UO_2 at room temperature," *Nuclear Instruments and Methods in Physics Research B* **330** (2014) 55-60.

[13] **A.T. Nelson**, J.T. White, D.A. Andersson, J.A. Aguiar, K.J. McClellan, D.D. Byler, M.P. Short, and C.R. Stanek. "Thermal expansion, heat capacity, and thermal conductivity of nickel ferrite (NiFe_2O_4)." *Journal of the American Ceramic Society* **97** (2014) 1599-1565.

[12] **A.T. Nelson**, J.V. Crum, and M. Tang. "Thermophysical properties of multiphase borosilicate glass-ceramic waste forms." *Journal of the American Ceramic Society* **97** (2014) 1177-1186.

**PEER-
REVIEWED
PUBLICATIONS,
CONT.**

[11] **A.T. Nelson**, E.S. Sooby, Y.J. Kim, B. Cheng, and S.A. Maloy. "High temperature oxidation of molybdenum in water vapor environments." *Journal of Nuclear Materials* **448** (2014) 441-447.

[10] J. Pakarinen, M. Khafizov, L. He, C. Wetteland, J. Gan, **A.T. Nelson**, D. Hurley, A. El-Azab, and T.R. Allen. "Microstructure changes and thermal conductivity reduction in UO₂ following 3.9 MeV He²⁺ ion irradiation," *Journal of Nuclear Materials* **454** (2014) 283-289

[9] **A.T. Nelson**, M.M. Giachino, J.C. Nino, and K.J. McClellan. "Effect of composition on thermal conductivity of MgO-Nd₂Zr₂O₇ composites for inert matrix materials." *Journal of Nuclear Materials* **444** (2014) 385-392.

[8] J.T. White and **A.T. Nelson**. "Thermal conductivity of UO_{2+x} and U₄O_{9-y}," *Journal of Nuclear Materials* **443** (2013) 342-350.

[7] **A.T. Nelson**, J.A. O'Toole, R.A. Valienti, and S.A. Maloy. "Fabrication of a tantalum-clad tungsten target for LANSCE." *Journal of Nuclear Materials* **431** (2012), 172-184.

[6] **A.T. Nelson**, P. Hosemann, and S.A. Maloy. "Development and analysis of diffusion bonding techniques for LBE-cooled spallation targets." *Journal of Nuclear Materials* **431** (2012), 185-195.

[5] **A.T. Nelson**. "Thorium: Not a near-term commercial nuclear fuel." *Bulletin of Atomic Scientists* **68** (2012), 33-44.

[4] P. Hosemann, E. Stergar, **A.T. Nelson**, C. Vieh, and S.A. Maloy. "Nanostructured engineering alloys for nuclear application." *MRS Proceedings* **1298** (2011), 217-226.

[3] P. Hosemann, Y. Dai, E. Stergar, H. Leitner, **A.T. Nelson**, E. Olivas, and S.A. Maloy. "Large and small scale materials testing of HT-9 irradiated in the STIP irradiation program." *Experimental Mechanics* **51** (2011), 1095-1102.

[2] P. Hosemann, Y. Dai, E. Stergar, **A.T. Nelson**, and S.A. Maloy. "Small-scale testing of in-core fast reactor materials." *Journal of Nuclear Science and Technology* **48** (2011) 575-579.

[1] R.N. Klueh, and **A.T. Nelson**. "Ferritic/Martensitic steels for next-generation nuclear reactors." *Journal of Nuclear Materials*. 371 (2007), 37-52.

**BOOK
CHAPTERS**

[B] N.R Brown, **A.T. Nelson**, and K.A. Terrani "Accident tolerant fuels" in: *Comprehensive Nuclear Materials (2nd Edition)* Ed: R. Konings. Elsevier (2020) 11611.

[A] **A.T. Nelson** and P. Demkowicz, "Other power reactor fuels" in: *Advances in Nuclear Fuel Chemistry* Ed: M. Piro. Woodhead Publishing (2020) 215-247.