
ANDREW THOMAS NELSON

CONTACT INFORMATION

Oak Ridge National Laboratory
Reactor and Nuclear Systems Division
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Department of Energy Clearances (Q and SCI)

PROFESSIONAL PROFILE

Dr. Nelson is the Section Head for Nuclear Fuel Development within the Nuclear Energy and Fuel Cycle Division at Oak Ridge National Laboratory. 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 one hundred peer-reviewed publications, conference proceedings 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

2021	UT-Battelle / ORNL Commercialization Award for licensure of intellectual property
2014, 2017	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
2007, 2008	University of Wisconsin Alpha Nu Sigma honoree (given to top 10% of Nuclear Engineering students determined by GPA)

**PROFESSIONAL
EXPERIENCE**

Oak Ridge National Laboratory

*Section Head and Distinguished Staff Scientist,
Fuel Development Section 2020-Present*

- Responsible for determining ORNL strategic direction in nuclear fuel development
- Lead five groups (>70 students, postdocs, technicians, engineers, and scientists) in diverse areas of practice comprising irradiation engineering, nuclear sensor and rad-hard electronics, advanced nuclear fuels, particle fuel development, and post irradiation examination
- Manage Office of Nuclear Energy's Advanced Fuels Campaign activities at ORNL
- Lead national and international presentations of ongoing work as well as publication of work in peer-reviewed publications

*Group Leader and Senior Research Scientist,
Nuclear Fuel and Materials Group 2018-2020*

- Signature authority for security and safety of a large ORNL group (>50 students, postdocs, technicians, engineers, and scientists)
- Responsible for performance metrics and staff assessments
- 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
- 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

**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 = 26
(GOOGLE
SCHOLAR, JAN
2022)**

[89] A.J. Terricabras, L. Wang, A.M. Raftery **A.T. Nelson**, S.L. Zinkle, "Properties and microstructure evolution of silicon nitride and zirconium nitride following Ni ion irradiation," *Journal of Nuclear Materials* **563** (2022) 153643.

[88] N.R. Brown, R. Hernandez, A.T. Nelson, "High volume packing fraction TRISO-based fuel in light water reactors," *Progress in Nuclear Energy* **146** (2022) 104151

[87] C.L. Cramer, ... "Additive manufacturing of ceramic materials for energy applications: Road map and opportunities," *Journal of the European Ceramic Society* (2022).

[86] B. Gong, D. Zhao, A. Broussard, J Harp, A.T. Nelson, J. Lian, "High-temperature compressive creep tests of U₃Si₂ with Spark Plasma Sintering: Experiments and Finite Element Modeling," *Journal of Nuclear Materials* (2022) 153568.

[85] Y. Yan, B. Garrison, **A. T. Nelson**, D. Lutz, "Correlations of the Steam Oxidation Rate Constant of BWR Alloy Zircaloy-2 at 800-1400C," *Oxidation of Metals* **97** (2022) 227-239.

- [84] C.P. Massey, N. Bibhanshu, M.N. Gussev, C.J. Havrilak, **A.T. Nelson**, "Deformation and fracture characteristics of zirconium plate produced via ultrasonic additive manufacturing," *Journal of Materials Research* (2021).
- [83] C.L. Cramer, J.K. Wilt, Q.A. Campbell, L. Han, T. Saito, **A.T. Nelson**, "Accuracy of stereolithography printed alumina with digital light processing," *Open Ceramics* **8** (2021) 100194.
- [82] C.P. Massey, C.J. Havrilak, M.N. Gussev, K.A. Terrani, **A.T. Nelson**, "Ultrasonic additive manufacturing of zirconium: Pilot results," *Materials Letters* **302** (2021) 130330.
- [81] G. Vasudevamurthy, **A. T. Nelson**, "Uranium carbide properties for advanced fuel modeling – a review," *Journal of Nuclear Materials* (2021) 153145.
- [80] A. Migdisov, H. Nisbet, N. Li, J.T. White, **A. Nelson**, R. Roback, "Instability of U_3Si_2 in pressurized water media at elevated temperatures," *Communications Chemistry* **4** (2021) 1-6.
- [79] A.E. Lupercio, E. Moshkelgosha, E.C. Winters, C. Doyle, M. Mamivand, **A.T. Nelson**, B.J. Jaques, "Ball-on-ring test validation for equibiaxial flexural strength testing of engineered ceramics," *International Journal of Ceramic Engineering and Science* **3** (2021) 128-139.
- [78] C. Silva, R.W. Hunt, **A.T. Nelson** "Microstructural and crystallographic effects of sol-gel synthesized Ti-doped UO_2 sintered under reducing conditions," *Journal of Nuclear Materials* **552** (2021) 153003.
- [77] K.A. Terrani, B.C. Jolly, M.P. Trammel, G. Vasudevamurthy, D. Schappel, B Ade, GW Helmreich, Hsin Wang, A Marquiz Rossy, B.R Betzler, **A.T. Nelson**, "Architecture and properties of TCR fuel form," *Journal of Nuclear Materials* **547** (2021) 152781.
- [76] K.S. Mao, C.P. Massey, M.N. Gussev, Y. Yamamoto, **A.T. Nelson**, K.G. Field, P.D. Edmundson, "Irradiation-induced amorphization of Fe-Y-based second phase particles in accident-tolerant FeCrAl alloys," *Materialia* **15** (2021) 101016
- [75] A. Mohamad, T. Yao, B. Gong, J. Harp, **A.T. Nelson**, J. Lian, "Aluminum-doped U_3Si_2 composite fuels with enhanced oxidation resistance," *Journal of Alloys and Compounds* **853** (2021) 157319.
- [74] E. Kardoulaki, D.M. Frazer, J.T. White, U. Carvajal, **A.T. Nelson**, D.D. Byler, T.A. Saleh, B. Gong, J. Lian, K.J. McClellan, "Fabrication and thermophysical properties of UO_2 - UB_2 and UO_2 - UB_4 ," *Journal of Nuclear Materials* **544** (2021) 152690.

[73] A.M. Raftery, R.L. Seibert, D.R. Brown, M.P. Trammell, **A.T. Nelson**, K.A. Terrani “Fabrication of UN-Mo CERMET nuclear fuel using advanced manufacturing techniques,” *Nuclear Technology* **207** (2021) 815-824.

[72] J.P. Gorton, D. Schappel, **A.T. Nelson**, and N.R. Brown, “Impact of uranium oxide (UO₂) fuel with molybdenum (Mo) inserts on pressurized water reactor performance and safety,” *Journal of Nuclear Materials* **542** (2020) 152492.

[71] N. Capps, D. Schappel, A. Nelson, “Initial development of an RIA envelope for dispersed nuclear fuel,” *Annals of Nuclear Energy* **148** (2020) 107719.

[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* **539** (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* **539** (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 (Pu_{0.3}U_{0.7})O_{2-x}.” *Journal of Nuclear Materials* **535** (2020) 152188.

[64] B. Gong, T. Yao, P. Lei, J. Harp, A.T. Nelson, and J. Lian, “U₃Si₂ and UO₂ composites densified by spark plasma sintering for accident-tolerant fuels.” *Journal of Nuclear Materials* **534** (2020) 152147.

[63] L. Feng, S.C. Finkeldei, B. Heuser, S.J. Dillon, and **A.T. Nelson**, “Grain boundary and lattice fracture toughness of UO₂ measured using small-scale mechanics.” *JOM* **72** (2020) 2075-2081.

- [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. Boukhalifa, P. Yang, E.R. Batista, A. A. Migdisov, R.C. Roback, A. Navrotsky, H. Xu, "Enthalpies of formation and phase stability relations of USi , U_3Si_5 and U_3Si_2 ." *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 UO_2 -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 CeO_2 ." *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 U_3Si_2 : 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**, “ U_3Si_2 behavior in H_2O 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, “ U_3Si_2 behavior in H_2O 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 U_3Si_2 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 UO_2 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/ U_3Si_2 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 U_3Si_2 ." *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.
- [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: $(C_5Me_4R)_2UBr_2$, $(C_5Me_4R)_2U(O-2,6-Pr_2C_6H_3)(Br)$, and $[K(THF)][(C_5Me_4R)_2UBr_2]$ (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, ¹³C{¹H} and ¹¹⁹Sn{¹H} 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 U₃Si₂ 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 UO₂," *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 U₃Si₅ 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 CeO₂ in comparison to UO₂ and PuO₂," *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 (CeO₂-MgAl₂O₄-CeMgAl₁₁O₁₉ and four-phase (3Y-TZP-Al₂O₃-MgAl₂O₄-LaPO₄) 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 U₃Si 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 UO₂ 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 (NiFe₂O₄).” *Journal of the American Ceramic Society* **97** (2014) 1599-1565.
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