Committee on Energy and Commerce
U.S. House of Representatives
Witness Disclosure Requirement - "Truth in Testimony"
Required by House Rule XI, Clause 2(g)(5)

1. Your Name: **Todd Allen**		
2. Your Title: **Senior Fellow**		
3. The Entity(ies) You are Representing: **Third Way**		
4. Are you testifying on behalf of the Federal, or a State or local government entity?	**Yes**	**No** X

5. Please list any Federal grants or contracts, or contracts or payments originating with a foreign government, that you or the entity(ies) you represent have received on or after January 1, 2013. Only grants, contracts, or payments related to the subject matter of the hearing must be listed.

Third Way received a total of $100,000 from the contributions of Idaho National Laboratory, Argonne National Laboratory, and Oak Ridge National Laboratory passed through to vendors to support the January 2016 Advanced Nuclear Summit in Washington, DC.

The Idaho National Laboratory (INL) underwrites my salary at Third Way. INL is an FFRDC, operating under Contract No. DE-AC07-05ID14517.

6. Please attach your curriculum vitae to your completed disclosure form.

Signature: [redacted] **Date:** 27 APR 2016

Curriculum Vitae
Todd Allen

A. Professional Background

1. Education

Ph.D. in Nuclear Engineering, University of Michigan, May 1997

Masters of Science in Engineering (Nuclear Engineering), University of Michigan, May 1993

Masters of Science in Engineering (Information Management), George Washington University, June 1991

Bachelor of Science in Nuclear Engineering with Highest Honors, Northwestern University, June 1984

2. Professional Experience

January 2016 to Present Senior Fellow, Third Way

January 2013 December 2015 Deputy Laboratory Director-Science & Technology, Idaho National Laboratory

September 2003 – December 2012 Assistant Professor then Associate Professor then Professor, Dept. of Engineering Physics, University of Wisconsin-Madison

September 2003 – December 2012 Faculty Affiliate, Materials Science Program, University of Wisconsin-Madison

Januart 2008- December 2012 Assistant Professor then Associate Professor then Professor, Dept. of Material Science & Engineering, University of Wisconsin-Madison

Apr 2008-December 2012 Scientific Director, Advanced Test Reactor National Scientific User Facility

Jun 2010-December 2014 Director, Center for Material Science of Nuclear Fuel, a Department of Energy Energy Frontier Research Center

1997 -2003 Nuclear Engineer, Argonne National Laboratory

1991 - 1997 Research Assistant, Nuclear Engineering, University of Michigan

1989 - 2009 United States Naval Reserve

1989 - 1991 Master Instructor, Physics, United States Naval Academy

1985 -1989 USS Florida, SSBN 728 (G)

1984 -1985 Naval Nuclear Propulsion Training

3. Academic and Professional Honors

American Nuclear Society Material Science and Technology Division 2012 recipient of the

Outstanding Achievement Award for leadership and many contributions to the nuclear materials area

American Nuclear Society Material Science and Technology Division Special Achievement Award (with Lance Snead) (2010), For their pioneering efforts to in the creation of the Nuclear Fuels and Structural Materials for Next Generation Nuclear Reactors (NFSM) technical topical meeting

American Nuclear Society Young Engineer Award (2002)

Argonne National Laboratory Pacesetter Award for outstanding performance (2001)

American Nuclear Society Material Science and Technology Division Literary Award (Best Journal Article) (2000)

American Nuclear Society Material Science and Technology Division Literary Award (Best Journal Article) (1998)

American Nuclear Society Graduate Fellowship, five awards (1991-1995)

Tau Beta Pi Engineering Honors Society, inducted 1989

4. Professional Service

American Nuclear Society (ANS)
American Society of Mechanical Engineers (ASME)
American Society for Testing and Materials (ASTM)
Materials Research Society (MRS)
The Minerals, Metals, and Materials Society (TMS)
National Society of Corrosion Engineers (NACE)

B. Teaching

1. Summary of teaching activities

1.1 Courses Taught

Honors Seminar Phys 208 Spring 2004
Guest lecture on Current Issues Radiation Damage in Nuclear Reactor Materials
Materials Science Seminar MS&E 900 Spring 2004, Fall 2004, Fall 2005, Fall 2007
Guest lecture on Current Issues Seminar in Radiation Effects and Corrosion in Materials
Engineering Physics EP 468 Fall 2005, Fall 2006, Spring 2007
Lecture on Research Career Paths
Energy and the Environment: Resources, Technology, Sustainability NE602 Summer 2007,
Lecture on Materials in Energy Systems
MS&E 401 Fall 2008,
Lecture on Materials in Nuclear Energy Systems

1.2 Primary Instructor

Nuclear Reactor Design NEEP 412
Spring 2004
Radiation Damage NEEP 541
Fall 2004, course leader, taught 1 section
Fall 2005, course leader, taught 1 section
Fall 2007, course leader, taught 1 section
Fall 2009, course leader, taught 1 section
Nuclear Instrumentation NEEP 427
Spring 2005, course leader, taught 1 section
Fall 2004, course leader, taught 1 section
Fall 2005, course leader, taught 3 sections
Fall 2006, course leader, taught 4 sections
Fall 2007, course leader, taught 2 sections
Spring 2008, course leader, taught 2 sections
Nuclear Materials NEEP 423
Fall 2006, course leader, taught 1 section
Fall 2008, course leader, taught 1 section
Fall 2010, course leader, taught 1 section
Fall 2012, course leader, taught 1 section

Nuclear Materials Laboratory NEEP 424

Fall 2012, course leader, taught 1 section

Independent Study NEEP 699

Spring 2007, course leader, taught 1 section
Spring 2010, course leader, taught 1 section
Spring 2011, course leader, taught 2 sections
Fall 2011, course leader, taught 1 section
Spring 2012, course leader, taught 1 section
Summer 2012, course leader, taught 1 section
Fall 2012, course leader, taught 1 section

1.3 History of Courses Taught

Invited Instructor, 30th NATO-ASI Course: Radiation Effects in Solids, 17-29, July 2004, Dirac Auditorium, San Domenico, Erice, Sicily

Invited Instructor, FREDERIC JOLIOT & OTTO HAHN Summer School on Nuclear Reactors "Physics, Fuels and Systems" August 25 - September 3, 2004, Cadarache, France

Invited Instructor, MIT Materials Reliability in Nuclear Power Systems, June 26-July1 2005, June 24-28 2006 Boston, MA; June 18-22, 2007, Charlotte, NC, June 2008, Charlotte, NC 2009, Fontainbleau, France, 2010, Vail, Colorado, 2012.

Invited lecturer, ATR National Scientific User Facility User's Week, June 2008, June 2010.

Invited Lecturer, International Summer School on Materials Challenges for Advanced Nuclear Energy Systems, Peking University, Beijing China, August 2011.

1.4 Course Development

Professor Allen re-started NEEP 423, Nuclear Materials, a class that had gone dormant. In initiating the class, he totally revised the syllabus, updating the material and adding new sections on corrosion. Additionally, he standardized the lecture content for NEEP 427, Nuclear Instrumentation, establishing a standard lecture package for the numerous instructors that teach NEEP 427.

Professor Allen created a new nuclear materials laboratory, NE 424, to be first taught in the fall of 2012. This course is intended to be packaged with 4 existing courses to form a new certificate at the undergraduate level. The certificate was approved in 2011

Semester	**Course**	**Number of Students**	**Overall Instructor Rating** (Allen/NEEP Ave.)	**Question 22** (Allen/NEEP Ave.)	**NE Average Assigned Grade**
Spring 2004	NEEP 412 Design	2	3.00/3.26	3.50/3.85	4.0
Fall 2004	NEEP 541 Radiation Damage in Metals	20	3.05/3.30	3.59/4.04	3.10
Spring 2005	NEEP 427 Nuclear Instrumentation Laboratory	6	3.34/3.37	4.67/4.16	3.50
Fall 2005	NEEP 541 Radiation Damage in Metals	14	3.42/3.40	4.21/4.26	3.321
Fall 2005	NEEP 427 Nuclear Instrumentation Laboratory	20	2.93/3.40	3.29/4.26	3.325
Fall 2006	NEEP 423 Nuclear Materials	30	3.07/3.18	3.56/3.82	3.333
Fall 2006	NEEP 427 Nuclear Instrumentation Laboratory	34	3.01/3.18	3.5/3.82	3.412
Fall 2007	NEEP 541 Radiation Damage in Metals	23	3.20/3.39	3.78/4.23	3.18
Fall 2007	NEEP 427 Nuclear Instrumentation Laboratory	9	3.35/3.39	3.89/4.23	3.17
Spring 2008	NEEP 427 Nuclear Instrumentation Laboratory	9	3.32/3.45	4.00/4.28	2.93
Fall 2008	NEEP 423 Nuclear Materials	29	3.41/3.34	3.23/3.03	3.09
Fall 2009	NEEP 541 Radiation Damage in Metals	20	3.41/3.34	4.53/4.13	3.25
Fall 2010	NEEP 423 Nuclear Materials	28	3.42/3.39	3.37/2.98	3.09
Fall 2011	NEEP 541	21	3.56/3.26	4.48/3.92	3.22

	Radiation Damage in Metals				
Fall 2012	NEEP 423 Nuclear Materials	37			
Fall 2012	NEEP 424 Nuclear Materials Laboratory	5			

Overall Instructor Rating: Average of scores from question 1 to 21 on the evaluation form.
(1- Strongly disagree, 2- Disagree, 3- Agree, 4- Strongly Agree, 5- Does not apply)

Question 22: "Your rating of this instructor compared to all instructors you have had is:
5 = Top 20%; 4 = Next 20%; 3 = Middle 20%; 2 = Next 20%; 1 = Bottom 20%

EM or NE Ave. = average of all faculty evaluations for the semester in the degree program.

The Department of Engineering Physics uses the standard college form: Appendix K-6
The Engineering Physics department requires that every instructor, tenured or not, use the College of Engineering Course and Instructor Evaluation Questionnaire for every course. The students complete this evaluation anonymously at the end of the semester. The ChE and ME department use somewhat different questionnaires. The results are tabulated by UW Testing and Evaluation Service and returned to the department for analysis. The easiest way to summarize this wealth of data is to look at the response to question #10 [for ME and ChE] or #22 [for EMA, EP or NE courses and the remainder of the college].

C. Research

1. Annotated List of research publications

Summary of Publications while at the University of Wisconsin and Idaho National Laboratory

	2003	2004	2005	2006	2007	2008	2009
Refereed journals	0	0	9	17	9	11	10
Other Journals	0	0	0	0	0	2	2
Refereed Conference Proceedings	3	2	4	1	4	3	2
Conference Proceedings	0	1	8	11	10	9	9
National Laboratory Reports	2	2	1	0	0	0	0
Book Chapters	0	0	0	0	4	0	0
Total	5	5	22	29	27	25	23

	2010	2011	2012	2013	2014	2015	2016
Refereed journals	15	12	9	18	24	15	4
Other Journals		1					
Refereed Conference Proceedings	3	4	1	4			
Conference Proceedings	14	2	10	1			
National Laboratory Reports		1					
Book Chapters			3	1			
Total	32	20	23	24	24	15	4

Detailed Listing of Publications while at the University of Wisconsin

Papers Published in Refereed Journals

2005

1. Tsunemitsu Yoshitake, Ichiro Yamagata, Naoaki Akasaka, Yasuo Nakamura, Hanchung Tsai, Jim Cole, and Todd Allen, Behavior of Irradiated Type 316 Stainless Steels under Low-Strain-Rate Tensile Conditions, Journal of ASTM International, March 2005, Vol. 2, No. 3 Paper ID JAI12346

2.P. P. H. Wilson, T. R. Allen and L. A. El-Guebaly, "Synergies between Generation-IV and advanced fusion power plant research programs", Fusion Science and Technology, 47 (3), 445-449, (2005)

3. T. R. Allen, L. Tan, J. D. Tucker, J. Gan, G. Gupta, G. S. Was, S. Shutthanandan, and S. Thevuthasan, Radiation Resistance of Advanced Ferritic-Martensitic Steel HCM12A, Journal of ASTM International, September 2005, Vol. 2, No. 8 Paper ID JAI12382

4. T. R. Allen, J. Gan, J. I. Cole, G. S. Was, R. Dropek, and E. A. Kenik, "Swelling and Radiation-induced Segregation in Austentic Alloys," Journal of Nuclear Materials 342 (2005) 90-100.

5**.** L.Tan, T.R. Allen, An electron backscattered diffraction study of grain boundary-engineered INCOLOY alloy 800H, Metallurgical and Materials Transactions A 36(7) (2005) 1921-1925.

6. L.Tan and T.R. Allen, An electron backscattered diffraction study of grain boundary-engineered INCOLOY alloy 800H, Metallurgical and Materials Transactions A 36(7) (2005) 1921-1925.

7. T. R. Allen, J. Gan, J. I. Cole, S. Ukai, S. Shutthanandan and S. Thevuthasan, "The Stability of 9Cr-ODS Oxide Particles under Heavy Ion Irradiation," Nuclear Science and Engineering, 151 (2005) 305.

8. Yun Chen, Cesar Sequeira, Todd Allen, Changpin Chen, Electrocatalytic activities of hydrogen storage alloy as anode electrocatalyst of alkaline fuel cell, Journal of Alloys and Compounds 404–406 (2005) 661–664

9. James Cole, Todd Allen, Hanchung Tsai, Ichiro Yamagata, Naoaki Akasaka and Yasuo Nakamura, Low-Strain Rate Microstructural Deformation Behavior in 316 Stainless Steel Irradiated in EBR-II, Journal of ASTM International, December 2005, Vol. 3, No. 2 Paper ID JAI12400.

2006

1. T. R. Allen, J. I. Cole, C. L. Trybus, D. L. Porter, H. Tsai, F. Garner, E. A. Kenik, T. Yoshitake, Joji Ohta, The effect of dose rate on the response of austenitic stainless steels to neutron radiation, J. Nucl. Mater. 348 (2006) 148.

2. L. Tan , K. Sridharan, T.R. Allen, The Effect of Grain Boundary Engineering on the Oxidation Behavior of INCOLOY Alloy 800H in Supercritical Water, J. Nucl. Mater. 348 (2006) 263.

3. J. Gan, M. K. Meyer, R. C. Birtcher, and T. R. Allen, Microstructure Evolution in ZrC Irradiated with Kr ions, Journal of ASTM International, April 2006, Vol. 3, No. 4.

4. T. R. Allen, L. Tan, J. D. Tucker, J. Gan, G. Gupta, G. S. Was, and S. Shutthanandan, S. Thevuthasan, Pacific Northwest National Laboratory, Richland, WA, USA, Microstructural Development in Advanced Ferritic-Martensitic Steel HCM12A, J. Nucl. Mater. 351(1-3) (2006) 174-186.

5. J. Gan, J. I. Cole, T. R. Allen, University of Wisconsin, Madison, WI, USA, S. Shutthanandan, S. Thevuthasan, "Irradiated Microstructure of Alloy 800H," J. Nucl. Mater. 351(1-3) (2006) 223-227.

6. James I. Cole, Hanchung Tsai, Todd R. Allen, Tsunemitsu Yoshitake, Naoaki Akasaka, Ichiro Yamagata, and Yasuo Nakamura,"Strain-Rate Effects on Microstructural Deformation in Irradiated 316 SS, J. Nucl. Mater. 351(1-3) (2006) 316-323.

7. Kent E. Wardle, Todd Allen, and Ross Swaney, CFD Study of the Flow in an Annular Centrifugal Contactor, Separ. Sci. Technol. 41 (2006) 2225

8. Yun Chen, Kumar Sridharan, and Todd Allen , Corrosion Behavior of Ferritic-Martensitic Steel T91 in Supercritical Water, Corrosion Science, 48 (9) (2006), p. 2843.

9. L. Tan, Y. Yang, and T.R. Allen, Oxidation Behavior of Alloy HCM12A Exposed in Supercritical Water, Corrosion Science 48 (2006) 3123.

10. X. Ren , K. Sridharan, T. R. Allen , Corrosion of Ferritic-Martensitic Steel HT9 in Supercritical Water, J. Nucl. Mater. 358 (2006) 227.

11. Yun Chen, Kumar Sridharan, Todd R. Allen, Microstructural examination of oxide layers formed on an oxide dispersion strengthened ferritic steel exposed to supercritical water, J. Nucl. Mater. 359 (2006) 50.

12. L. Tan, Y. Yang, T.R. Allen. Porosity prediction in supercritical water exposed ferritic/martensitic steels HCM12A. Corrosion Science 48 (2006) 4234-4242.

13. K. Sridharan, S.P. Harrington, A.K. Johnson, J.R. Licht, M.H. Anderson, and T.R. Allen, "Oxidation of Plasma Surface Modified Zirconium Alloy in Pressurized High Temperature Water," Materials & Design 28, Issue (4) , (2007), p.1177.

14. F. A. Garner, B. M. Oliver, L. R. Greenwood, D. L. Porter and T. Allen ,"Measurement of Helium Generation in AISI 304 Reflector and Blanket Assemblies after Long-Term Irradiation in EBR-II." Journal of ASTM International, Vol. 4, No. 1, Paper ID JAI100342

15. E. Barringer, Z. Faiztompkins, H. Feinroth, T. R. Allen, M. Lance, H. Meyer, L. Walker, and E. Lara-Curzio, Corrosion of CVD Silicon Carbide in 500ºC Supercritical Water, J. Am. Ceram. Soc. 90 {1) (2007) 315-318.

16. J. Kameda, Y. Yokoyama, and T. R. Allen, Strain-controlling mechanical behavior in noncrystalline materials I: Onset of plastic deformation, Mat Sci Eng A, 448 (2007) 235

17. J. Kameda, Y. Yokoyama, and T. R. Allen, Strain-controlling mechanical behavior in noncrystalline materials II: Fracture behavior, Mat Sci Eng A, 448 (2007) 229

2007

1. T. R. Allen L. Tan, G. S. Was, and E. A. Kenik, Thermal and Radiation-induced Segregation in Model Ni-base Alloys, J. Nucl. Mater. 361 (2007) 174.

2. G. Gupta, P. Ampornrat, X. Ren, K. Sridharan, T. R. Allen,and G. S. Was, "The Role of Grain Boundary Engineering in the SCC behavior of F-M alloy HT-9 in Supercritical Water," Journal of Nuclear Materials, Vol. 361, 2007, pp. 160-173.

3. X. Ren , K. Sridharan, T. R. Allen, Corrosion behavior of Alloys 625 and 718 in Supercritical Water, Corrosion 63 (2007) 603.

4. G. S. Was, P. Ampornrat, G. Gupta, S. Teysseyre, E. A. West, T. R. Allen, K. Sridharan, L. Tan, Y. Chen, X. Ren, and C. Pister, Corrosion and Stress Corrosion Cracking in Supercritical Water, J. Nucl. Mater. 371 (2007) 176–201.

5. L. Tan, K. Sridharan, and T. R. Allen, "Grain Boundary Engineering of FCC and BCC Alloys," J. Nucl. Mater. 371 (2007) 161–170

6. L. Tan, M. T. Machut, K. Sridharan, and T. R. Allen, "Oxidation Behavior of HCM12A Exposed in Harsh Environments," J. Nucl. Mater. 371 (2007) 171–175.

7. Y. Chen, K. Sridharan, and T. R. Allen, "Corrosion of 9Cr oxide dispersion strengthened steel in supercritical water environment," J. Nucl. Mater. 371 (2007) 118–128

8. M. Machut, K. Sridharan, Ning Li, and T. R. Allen, "Modeling Corrosion Mechanisms of Steels for Lead-Alloy Cooled Reactors," J. Nucl. Mater. 371 (2007) 134–144.

9. T. R. Allen and D. C. Crawford , Lead-Cooled Fast Reactor Systems and the Fuels and Materials Challenges, Science and Technology of Nuclear Installations, Volume 2007 (2007), Article ID 97486, 11 pages

2008

1. K. E. Wardle, T. R. Allen, M. H. Anderson, R. E. Swaney. "Free Surface Flow in the Mixing Zone of an Annular Centrifugal Contactor," AICHE J. 54, 74-85 (2008).

2. L. Tan, T.R. Allen, J.D. Hunn, and J. H. Miller EBSD for microstructure and property characterization of the SiC-coating in TRISO fuel particles, J. Nuc. Mat. 372 (2008) 400–404

3. L. Tan, K. Sridharan, T.R. Allen, R.K. Nanstad, and D.A. McClintock, Microstructure Tailoring for Property Improvements by Grain Boundary Engineering, J. Nucl. Mat. 374 (2008) 270.

4. T. R. Allen, J. Gan, J. I. Cole, M. K. Miller, J. T. Busby, S. Shutthanandan and S. Thevuthasan, "Radiation Response of a 9 Cr Oxide Dispersion Strengthened ODS to Heavy Ion Irradiation," J. Nucl. Mater., 375 (2008) 26.

5. T. R. Allen, K. Sridharan, L. Tan, W. E. Windes, J. I. Cole, D. C. Crawford, and Gary S. Was, Materials Challenges for Generation IV Nuclear Energy Systems, Nuclear Technology, 162 (3) (2008) 342.

6. L. Tan, K. Sridharan, and T.R. Allen, Materials Science Forums, "Altering Corrosion Response via Grain Boundary Engineering" Vols. 595-598, pp. 409-418, 2008.

7. L. Tan, X. Ren, K. Sridharan, T.R. Allen, Effect of shot-peening on the oxidation of alloy 800H exposed to supercritical water and cyclic oxidation, Corrosion Science 50 (2008) 2040-2046.

8. Yong Yang, Clayton A. Dickerson, Hannah Swoboda, Brandon Miller, and Todd R. Allen, Microstructure and Mechanical Properties of Proton-Irradiated Zirconium Carbide, J. Nucl. Mater. 378 (2008)341.

9. T.R. Allen, J. I. Cole, E. A. Kenik, and G. S. Was The Effect of Displacement Rate on Radiation-induced Segregation in Austenitic Stainless Steels, J. Nucl. Mater., 376 (2008) 169.

10. L. Tan, X. Ren, K. Sridharan, T.R. Allen, Corrosion behavior of Ni-base alloys for advanced high temperature water-cooled nuclear plants, Corrosion Science, 50 (2008) 3056.

11. Luke C. Olson, James W. Ambrosek, Kumar Sridharan, Mark H. Anderson, Todd R. Allen, Materials Corrosion in Molten LiF–NaF–KF Salt, Journal of Fluorine Chemistry 130 (2009) 67–73.

2009

1. James Ambrosek, Mark Anderson, Kumar Sridharan, and Todd Allen, "Current Status of Knowledge of the Fluoride Salt (FLiNaK) Heat Transfer," Nuclear Technology 165 (2009) 166.

2. Kent E. Wardle, Todd R. Allen, and Ross Swaney, "CFD Simulation of the Separation Zone of an Annular Centrifugal Contactor, Separation Science and Technology, 44: 517–542, 2009.

3. Jian. Gan, Yong Yang, Clayton Dickerson, and Todd Allen, Proton Irradiation Study of GFR Candidate Ceramics, J. Nucl. Mater. 389 (2009) 317.

4. Yong Yang, Clayton A. Dickerson, Todd R. Allen, Radiation stability of ZrN under 2.6 MeV proton irradiation, J. Nucl. Mat., 92 (2) (2009) 200.

5. R.K. Nanstad, D.A. McClintock, D.T. Hoelzer, L. Tan, T.R. Allen High temperature irradiation effects in selected Generation IV structural alloys, J. Nucl. Mat., 92 (2) (2009) 331.

6. Kent E. Wardle, Todd R. Allen, and Mark H. Anderson, and Ross E. Swaney, Analysis of the Effect of Mixing Vane Geometry on the Flow in an Annular Centrifugal Contactor, AIChE Journal , Vol. 55, No. 9, September 2009 p. 2244

7. L. Tan and T.R. Allen, Localized corrosion of magnetite on ferritic-martensitic steels exposed to supercritical water, Corrosion Science, 51 (2009) 2503–2507

8. L. Tan, T.R. Allen, E. Barringer, Effect of microstructure on the corrosion of CVD-SiC exposed to supercritical water, Journal of Nuclear Materials, 394 (2009) 95–101.

9. L. Tan and T.R. Allen, Effect of thermomechanical treatment on the corrosion of AA5083, Corrosion Science 52 (2010) 548–554.

10. R.D. Kolasinski, M. Shimada, D.A. Buchenauer, R.A. Causey, T. Otsuka, W.M. Clift, J.M. Shea, T.R. Allen, P. Calderoni, J.P. Sharpe , Characterization of surface morphology and retention in tungsten materials exposed to high fluxes of deuterium ions in the tritium plasma experiment, *Physica Scripta* **T138**, (2009).

2010

1. J. Gan, D. D. Keiser, Jr., D. M. Wachs, A. B. Robinson, B. D. Miller, T. R. Allen, Transmission electron microscopy characterization of irradiated U–7Mo/Al–2Si dispersion fuel, J. Nucl. Mater. 396 (2010) 234–239.

2. L. Tan, X. Ren, T.R. Allen, Corrosion behavior of 9-12%Cr ferritic-martensitic steels in supercritical water, Corrosion Science 52 (2010) 1520–1528.

3. S.H. Nie, Y. Chen, X. Ren, K. Sridharan, and T.R. Allen , Corrosion of Alumina-forming Austenitic steel Fe-20Ni-14Cr-3Al-0.6Nb-0.1Ti in Supercritical Water, J. Nucl. Mater. 399 (2010) 231.

4. Yang, Y., Chen, Y., Sridharan, K., & Allen, T. R. (2010). Evolution of carbide precipitates in 2.25Cr-1Mo steel during long-term service in a power plant. Metallurgical and Materials Transactions A-Physical Metallurgy and Materials Science, 41A(6), 1441-1447. doi:10.1007/s11661-010-0194-6

5. L. Tan, T.R. Allen, P. Demkowicz, High temperature interfacial reactions of TiC, ZrC, TiN, and ZrN with palladium, Solid State Ionics, 181 (2010) 1156–1163

6. Luke Olson, James Ambrosek, Guoping Cao, Kumar Sridharan, Mark Anderson, Todd Allen, Molten Salts for Nuclear Cogeneration", Ceramics Transactions, vol. 222, p.145, 2010.

7. J. D. Tucker, R. Najafabadi, T. R. Allen and D. Morgan, Ab initio-based diffusion theory and tracer diffusion in Ni-Cr and Ni-Fe alloys, Journal of Nuclear Materials 405 (2010) 216–234.

8. X. Ren, K. Sridharan, and T.R. Allen, Effect of Grain Refinement on Corrosion of Ferritic-Martensitic Steels in Supercritical Water Environment"; Materials and Corrosion, Materials and Corrosion 61(9) (2010) 748.

9. Kent E. Wardle · Todd R. Allen · Mark H. Anderson · Ross E. Swaney Experimental Study of the Hydraulic Operation of an Annular Centrifugal Contactor with Various Mixing Vane Configurations, AICHE Journal 56(8) (2010) 1960.

10. J. Gan, D. Keiser, B. Miller, M. Kirk, J. Rest, T. Allen, D. Wachs, Kr Ion Irradiation Study of the Depleted-Uranium Alloys, Journal of Nuclear Materials 407 (2010) 48–54.

11. A.G. Certain, K.G. Field, T.R. Allen, K. Sridharan, M. K. Miller, J. Bentley and J. T. Busby, "Response of nanoclusters in a 9Cr ODS steel to 1 dpa, 525 °C proton irradiation" Journal of Nuclear Materials., 407 (1) (2010) 1-70

12. L. Tan, T.R. Allen, Y. Yang, Corrosion Behavior of Incoloy Alloy 800H in Supercritical Water, Corrosion Science 53 (2011) 703–711.

13. T. Allen, J. Busby, M. Meyer, and D. Petti, Materials challenges for nuclear systems. Materials Today, 13(12), 14-23.

14. Luke Olson, Kumar Sridharan, Mark Anderson, Todd Allen, "Intergranular Corrosion of High Temperature Alloys in Molten Fluoride Salts", vol. 27, No. 2, pp. 145-149, (2010).

15. Youngki Yang, Tyler Gerczak, Dane Morgan, Izabela Szlufarska, Sungtae Kim, Todd Allen, Diffusion of Silver in Zirconium Carbide Inside Tristructural-Isotopic Nuclear Fuel, NEA Report No. 6896 Structural Materials for Innovative Nuclear Systems (SMINS-2) Workshop Proceedings Daejon, Republic of Korea 31 August-3 September 2010, p.89 (ISBN 978-92-64-99209-2).

2011

1. David Shrader, Sarah Khalil, Tyler Gerczak, Todd Allen, Andrew Heim, Izabela Szlufarska, Dane Morgan, "Ag Diffusion in Cubic Silicon Carbide," J. Nucl. Mater. 408 (3) (2011) 209-296.

2. L. Tan, L. Rakotojaona, T.R. Allen, R.K. Nanstad, J.T. Busby, Microstructure optimization of austenitic Alloy 800H (Fe–21Cr–32Ni), Materials Science and Engineering A 528 (2011) 2755–2761.

3. S. Choudhury, L. Barnard, J.D. Tucker, T.R. Allen, B.D. Wirth, M. Asta, D. Morgan, Ab-initio based modeling of diffusion in dilute bcc Fe–Ni and Fe–Cr alloys and implications for radiation induced segregation, Journal of Nuclear Materials 411 (2011) 1–14.

4. Gary S. Was, Janelle P. Wharry, Brian Frisbie, Brian D. Wirth, Dane Morgan, Julie D. Tucker, Todd R. Allen, Assessment of radiation-induced segregation mechanisms in austenitic and ferritic–martensitic alloys, Journal of Nuclear Materials 411 (2011) 41–50.

5. Luke Olson, Kumar Sridharan, Mark Anderson, Todd Allen, "Nickel-Plating for Active Metal Dissolution Resistance in Molten Fluoride Salts", J. Nucl. Mater. 411 (1-3) (2011) 51.

6. J. Gan, D.D. Keiser Jr., B.D. Miller, D.M. Wachs, T.R. Allen, M. Kirk, J. Rest, "Microstructure of RERTR DU-alloys irradiated with krypton ions up to 100 dpa", J. Nucl. Mater. 411 (1-3) (2011) 174.

7. D. Ludwig, L.C. Olson, K. Sridharan, M.H. Anderson, and T.R. Allen, High Temperature Electrochemistry of Molten Fluoride Salt for Measurement of Dissolved Chromium", Corrosion Engineering Science and Technology, 46 (4) 2011 360.

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Summary of Publications while at Argonne National Laboratory

	1997	1998	1999	2000	2001	2002	2003
Refereed journals			2	3		1	3
Other Journals			1				
Refereed Conference Proceedings		1	6	4	1	3	4
Conference Proceedings	1	1	2	2	4	4	6
National Laboratory Reports		2	0	0	2	2	0
Total	1	4	11	9	7	10	13

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1. B. S. Storey and T. R. Allen, in Symposium B: Proceedings of the 1997 MRS Fall Meeting: Symposium B Phase Transformations and Systems Driven Far From Equilibrium, (Mater. Res. Soc. Proc. 481, Pittsburgh, PA, 1998), p. 413.

1999

1. T. R. Allen and G. S. Was, "The Effect of Ordering on Radiation-Induced Segregation in Austenitic Iron- and Nickel-base Alloys", Effects of Radiation on Materials: 18th International Symposium, ASTM STP 1325, R. K. Nanstad, M. L. Hamilton, F. A. Garner, and A. S. Kumar, Eds., American Society for Testing and Materials, 1999, pp. 619-633.

2. T. R. Allen and J. I. Cole, and E. A. Kenik, “The Effect of Low Dose Rate Irradiation on the Grain Boundary Chemistry in 304 Stainless Steel,” in Proceedings of the MRS Fall Meeting Symposium N: Microstructure Processes in Irradiated Materials, (Mater. Res. Soc. Proc. 540, Warrendale, PA, 1999), p.507.

3. T. R. Allen, J. I. Cole, H. Tsai, S. Ukai, S. Mizuta, and T. Yoshitake, The Effect of Low Dose Rate Irradiation on the Swelling of 12% Cold-Worked 316 Stainless Steel, Proceedings of the Ninth International Symposium on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, , S. Bruemmer, P. Ford, G,. Was Eds., Newport Beach, CA, TMS, Warrendale, PA, (August 1999), p.1035.

4. G. S. Was, T. R. Allen, J. T. Busby, J. Gan, D. Damcott, D. Carter, M. Atzmon, and E. A. Kenik, “Microchemistry of Proton-Irradiated Austenitic Alloys under conditions Relevant to LWR Core Components,” in Proceedings of the MRS Fall Meeting Symposium N: Microstructure Processes in Irradiated Materials, (Mater. Res. Soc. Proc. 540, Warrendale, PA, 1999), p.421.

5. J. I. Cole and T. R. Allen, “The Effect of Low Dose-Rate Irradiation on The Microstructure of 304 Stainless Steel,” in Proceedings of the MRS Fall Meeting Symposium N: Microstructure Processes in Irradiated Materials, (Mater. Res. Soc. Proc. 540, Warrendale, PA, 1999), p.433.

6. G.M. Bond, B. H. Sencer, F.A. Garner, M.L. Hamilton, T.R. Allen and D.L. Porter., "Void swelling of annealed 304 stainless steel at ~370-385°C and PWR-relevant displacement rates", Proceedings of the Ninth International Symposium on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, , S. Bruemmer, P. Ford, G,. Was Eds., Newport Beach, CA, TMS, Warrendale, PA, (August 1999), p.1045.

2000

1. T.R. Allen, J.T. Busby, J. Gan, E. A. Kenik, G.S. Was, “The Correlation Between Swelling and Radiation-Induced Segregation in Fe-Cr-Ni Alloys,” Effects of Radiation on Materials: 19th International Symposium, ASTM STP 1366, M. L. Hamilton, A. S. Kumar, S. T. Rosinski, and M. L. Grossbeck, Eds., American Society for Testing and Materials, West Conshohocken, PA, 2000, pp. 739-755.

2. T. R. Allen, J. I. Cole, J. Ohta, H. Kusanagi, and E. A. Kenik, “Radiation-Induced Segregation in 316 and 304 Stainless Steel Irradiated at Low Dose Rate," Proceedings of the MRS Fall Meeting: Microstructure Processes in Irradiated Materials-2000, Vol. 650 Materials Research Society, Warrendale, PA, p. R2.4.

3. T. R. Allen , J. I. Cole, N. L. Dietz, Y. Wang, G. S. Was, and E. A. Kenik, “The Effect of Bulk Composition on Swelling and Radiation-induced Segregation in Austenitic Alloys," Proceedings of the MRS Fall Meeting: Microstructure Processes in Irradiated Materials-2000, Vol. 650, Materials Research Society, Warrendale, PA, p. R3.12.

4. J. I. Cole, T. R. Allen, H. Kusanagi, K. Dohi, and J. Ohta "Microstructure and Post-irradiation annealing Behavior of 20% Cold-worked 316 Stainless Steel," Proceedings of the MRS Fall Meeting: Microstructure Processes in Irradiated Materials-2000, Vol. 650, Materials Research Society, Warrendale, PA, p. R3.12.

2001

1. J. I. Cole, T. R. Allen, G. S. Was, Y. Wang, and E. A. Kenik, The Effect of Bulk Composition on the Radiation-Induced Microstructures and Segregation Behavior in Model Austenitic Stainless Steel Alloys: A Proton Irradiation Study, Proceedings of the Tenth International Symposium on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, National Association of Corrosion Engineers, August 5-9, 2001, Lake Tahoe, NV.

2002

1. T. R. Allen, J. I. Cole, and E. A. Kenik, "Radiation-Induced Segregation and Void Swelling in 304 Stainless Steel," Effects of Radiation on Materials: 20th International Symposium, ASTM STP 1405, S. T. Rosinski, M. L. Grossbeck, T. R. Allen, and A. S. Kumar, Eds., American Society for Testing and Materials, West Conshohocken, PA, 2002, p.427.

2. J. I. Cole, T. R. Allen, H. Tsai, S. Ukai, S. Mizuta and T. Yoshitake, "Swelling and Microstructural Evolution in 316 Stainless Steel Hexagonal Ducts Following Long-Term Irradiation in EBR-II", Effects of Radiation on Materials: 20th International Symposium, ASTM STP 1405, S. T. Rosinski, M. L. Grossbeck, T. R. Allen, and A. S. Kumar, Eds., American Society for Testing and Materials, West Conshohocken, PA 2002, p. 413.

3. T.Yoshitake, T.Donomae, S.Mizuta, H.Tsai, Robert V. Strain, T.R.Allen, and J.I.Cole, "Tensile Properties of 12% Cold-Worked 316 Stainless Steel Irradiated at EBR-II Reactor with Lower Dose Rate Conditions to High Fluence," Effects of Radiation on Materials: 20th International Symposium, ASTM STP 1405, S. T. Rosinski, M. L. Grossbeck, T. R. Allen, and A. S. Kumar, Eds., American Society for Testing and Materials, West Conshohocken, PA 2002, p. 469.

2003

1. T. R. Allen, H. Tsai, R. S. Daum, D. L. Porter, and J. I. Cole, T. Yoshitake, N. Akasaka, T. Donomae, and S. Mizuta, J. Ohta, K. Dohi, and H. Kusanagi, Effects of Irradiation on the Swelling and Mechanical Properties of 316 Stainless Steel, 11th Int. Conf. Environmental Degradation of Materials in Nuclear Systems, Stevenson, WA, Aug. 10-14, 2003, p. 911.

2. T. R. Allen, H. Tsai, J. I. Cole, J. Ohta, K. Dohi, H. Kusanagi,., "Properties of 20% Cold-Worked 316 Stainless Steel Irradiated at Low Dose Rate," Effects of Radiation on

Materials, ASTM STP 1447, M. L. Grossbeck, T. R. Allen, R. G. Lott, and A. S. Kumar, Eds., ASTM International, West Conshohocken, PA, 2003, pp. 3-14.

3. R.B. Dropek, G. S. Was, J. Gan, J. I. Cole , T. R. Allen, and E. A. Kenik, Bulk Composition and Grain Boundary Engineering to Improve Stress Corrosion Cracking Behavior of Proton Irradiated Stainless Steels, 11th Int. Conf. Environmental Degradation of Materials in Nuclear Systems, Stevenson, WA, Aug. 10-14, 2003, p. 1132.

4. Cole, J. I., Allen T. R., Was, G. S., Dropek, R. B., and Kenik, E. A., "The Influence of Pre-irradiation Heat Treatments on Thermal Non-Equilibrium and Radiation-induced Segregation Behavior in Model Austenitic Stainless Steel Alloys," Effects of Radiation on Materials, ASTM STP 1447, M. L. Grossbeck, Ed., ASTM International, West Conshohocken, PA, 2003, pp. 540-552.

Papers Published in Conference Proceedings

1997

1. J.T. Busby, T.R. Allen, E.A. Kenik, and G.S. Was, "Beam-Broadening Effects in STEM/EDS Measurement of Radiation-Induced Segregation in High-Purity 304L Stainless Steel," presented at Microscopy and Microanalysis '97, Aug. 10-14, 1997, Cleveland, OH.

1998

1. T. R. Allen and B. G. Storey , "Simulating the effect of alpha decay in glass bonded zeolite," Proceedings of Spectrum '98, International Conference on Decommissioning and Decontamination and on Nuclear and Hazardos Waste Management, (American Nuclear Society, LaGrange Park, IL, 1998), p. 824..

1999

1. T. R. Allen and J. I. Cole, "Stress Relaxation in Irradiated Inconel X750 Springs," Transactions of the 1999 ANS Annual Meeting, American Nuclear Society, LaGrange Park, IL, pp. 218-219.

2. T.Yoshitake, S.Mizuta, S.Ukai, T.Allen, J.Cole, and H.Tsai, "Swelling behavior of 12% cold-worked 316 stainless steel irradiated at EBR-II reactor with lower damage rate condition," Proc. of 1999 Fall Meeting of the Atomic Energy Society of Japan (Oct.1999) p. 529.

2000

1. T. R. Allen, J. I. Cole, N.L. Dietz, Y. Wang, G. S. Was, and E. A. Kenik, "The Effect of Bulk Composition on Microstructural Changes in Austenitic Alloys," Transactions of the 2000 ANS Winter Meeting, American Nuclear Society, LaGrange Park, IL, p. 205.

2. T. R. Allen, D. C. Crawford, S. L. Hayes, "Fuels and Cladding for Advanced Reactors," Proceedings of the 23rd National Society of Black Physicists Annual Conference," March 15-18, 2000, p. 41-54.

2001

1. T. R. Allen and J. I. Cole, H. Tsai, T. Yoshitake, T. Donamae, N. Akasaka, Mechanical properties and microstructural development in irradiated 316 stainless steel, 16th International Conference on Structural Materials in Reactor Technology (SmiRT-16) Washington, DC August 12-17, 2001, Paper G11/6.

2. T. R. Allen, B. P. Singh, K. T. Gillen, D. J. Harris, R. A. Assink, D. S. Kupperman, S. Bakhtiari, and T. Wei, The Nuclear Energy Plant Optimization Program-Reactor Component Aging Studies, 16th International Conference on Structural Materials in Reactor Technology (SmiRT-16) Washington, DC August 12-17, 2001, paper D02/6

3. T. R. Allen, H. Tsai, J. I. Cole, J. Ohta, K. Dohi, and H. Kusanagi , "Mechanical Properties of 20% Cold-Worked 316 Stainless Steel Irradiated at Low Dose Rate," Proceedings of the 10th International Conference on Nuclear Engineering, American Society of Mechanical Engineering, paper 10-22189.

4. T. R. Allen and B. P. Singh, "The Nuclear Energy Plant Optimization Program," Transactions of the 2001 ANS Winter Meeting, American Nuclear Society, LaGrange Park, IL, p. 388.

2002

1. R. Daum, T. Allen, J. Cole, H. Tsai, D. Porter, and B. Wirth, Plastic Flow And Fracture Of Cold-Worked 316 Stainless Steel, 2002 American Nuclear Society Winter Meeting, American Nuclear Society, LaGrange Park, IL, pp. 301-302.

2. G. W. Morris, G. J. Toman, and T. R. Allen, The Nuclear Energy Plant Optimization Program, 2002 American Nuclear Society Winter Meeting, American Nuclear Society, LaGrange Park, IL, pp. 300-301.

3. M. J. Lineberry and T. R. Allen, The Sodium-Cooled Fast Reactor (SFR), Americas Nuclear Energy Symposium, October 16-18, 2002, Miami, FL, American Nuclear Society, La Grange Park, IL. Session 209 paper #2.

4. R.G. Bennett, J. R. Ryskamp, R. Versluis, H. Khalil, T. R. Allen, and G.-L. Fiorini, Generation IV systems, submitted to the Americas Nuclear Energy Symposium, October 16-18, 2002, Miami, FL, American Nuclear Society, La Grange Park, IL. Session 209 paper #1.

2003

1. T. R. Allen, J. I. Cole, J. Gan, G. S. Was, R. B. Dropek, and E. A. Kenik The Effect of Bulk Composition on Radiation Damage in Austenitic Alloys Proceedings of ICAPP '03, Cordoba, Spain, 2003, American Nuclear Society, paper 3083.

2. T. R. Allen and D. C. Crawford, Fuel And Materials Needs For Generation IV Nuclear Energy Systems, Proceedings of ICAPP '03, Cordoba, Spain, 2003, American Nuclear Society, paper 3237.

3. T.R. Allen, H. Tsai, and J. I. Cole, T. Yoshitake, N. Akasaka, T. Donomae, and S. Muzita, J. Ohta, K. Dohi, and H. Kusanagi, The Effect of Low Dose Rate Irradiation on the Tensile Properties of Austenitic Stainless Steels, Proceedings of the Second Eurasian Conference on Nuclear Science and its Application, Volume II, Institute of Nuclear Physics, Almaty, 2003, p.30.

4. J. I. Cole, T. R. Allen, J. Gan, G. S. Was, R. B. Dropek, and E. A. Kenik, Development of Radiation-Tolerant Austenitic Stainless Steels for Advanced Reactor Applications, Proceedings of Global 2003, New Orleans, LA, American Nuclear Society, November 2003, p. 1812.

5. H. Tsai, T. R. Allen, J. Cole, T. Yoshitake, and I. Yamagata, Deformation and Fracture of Irradiated Stainless Steels, 17th International Conference on Structural Mechanics in Reactor Technology (SMiRT 17), Prague, Czech Republic, August 17-22, 2003, Paper C04-6.

6. G. S. Was, J. T. Busby, T. R. Allen, and J. Gan, Assessment of Materials for Accelerator Applications using Proton Irradiation, Sixth International Meeting on Nuclear Applications of Accelerator Technology (AccApp '03), American Nuclear Society, LaGrange Park, IL, June 2003, p.864

Papers Published in National Laboratory Reports

1998

1. W. E. Ruther, G. O. Hayner, B. G. Carlson, E. R. Ebersole, and T. R. Allen, "The EBR-II Materials-Surveillance Program: Part IV. Results Of SURV-4 And SURV-6," ANL-98/3, January, 1998

2. W. E. Ruther, J. D. Staffon, B. G. Carlson, and T. R. Allen, "The EBR-II Materials-Surveillance Program: Part IV. Results Of SURV-5," ANL-98/4, January, 1998

2001

1. T.Yoshitake, N.Akasaka, T.Donomae, S.Miyakawa, H.Tsai, T.Allen and J.Cole, The Effect of Lower-Dose-Rate Conditions on Neutron Irradiation Behavior of 12% Cold-Worked Type 316 Stainless Steel, JNC Technical Review No. 10 2001.3.

2. J. F. Kotek,., T. R. Allen, H. F. McFarlane, H. P. Planchon, J. I. Sackett, H. S. Khalil., D. C. Wade, J. A. Lake, J. S. Herring, R. J. Egan, T. L. Sanders,, G. E. Michaels, D. J. Hill, E. D. Arthur, D. Christensen, W. G. Halsey, J. A. Blink, N. W. Brown, and C. Smith, Nuclear Energy: Power for the 21st Century, 6-Laboratory Report

2002

1. T. Allen, J. Cole, H. Tsai, R. Jensen, and K. Bunde, ANL/CRIEPI Collaborative Program for Evaluation of Irradiated EBR-II Stainless Steel, ANL-02/13, May 2002.

2. T. Allen, S. Bruemmer, J. Elmer, M. Kassner, A. Motta, R. Odette, R. Stoller, G. Was, W. Wolfer, and S. Zinkle, Higher Temperature Reactor Materials Workshop, ANL-02/12, June 2002

Summary of Publications while at the University of Michigan

	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Refereed journals		1	1	1	1	1	2
Refereed Conference Proceedings				1		5	2
Conference Proceedings	1						
National Laboratory Reports	1						
Total	2	1	1	2	1	6	4

Detailed Listing of Publications while at the University of Michigan

Papers Published in Refereed Journals

1993

1. G. S. Was and T. Allen, "Intercomparison of Microchemical Evolution under Various Types of Particle Irradiation," J. Nucl. Mater. 205 (1993) 332-338.

1994

1. G. S. Was and T. R. Allen, "Radiation-Induced Segregation in Multicomponent Alloys: Effect of Particle Type," Mater. Character. 32 (4) (1994) 239.

1995

1. D. L. Damcott, T. R. Allen, and G. S. Was, "Dependence of Radiation-Induced Segregation on Dose, Temperature, and Alloy Composition in Austenitic Alloys," J. Nucl. Mater. 225 (1995) 97-107.

1996

1. J. M. Cookson, G. S. Was, T. R. Allen, M. Atzmon, R.D. Carter, Jr., D.L. Damcott, and J. Gan), "Comment on 'The Effects of Preferential Sputtering Phenomenon on SSRT Test of AISI304 Stainless Steel' by W.J. Liu, C.H. Tsai & J.J. Kai," Scripta Mater., 34 (1996) 839-840.

1997

1. T. R. Allen, G. S. Was, and E. A. Kenik, "The Effect of Alloy Composition on Radiation-Induced Segregation in Fe-Cr-Ni Alloys," J. Nucl. Mater. 244 (1997) 278.

1998

1. T. R. Allen, J. T. Busby, G. S. Was, and E. A. Kenik, On the Mechanism of Radiation-Induced Segregation in Austenitic Fe-Cr-Ni Alloys, J. Nucl. Mater. 255 (1998) 44.

2. T. R. Allen and G. S. Was, "Modeling radiation-induced segregation in austenitic Fe-Cr-Ni alloys," Acta Met. 46 (1998) 3679-3692.

Papers Published in Refereed Conference Proceedings

1995

1. T. R. Allen and G. S. Was, “The Effect of Migration Energies on Reducing Overprediction in Radiation-Induced Segregation Models,” Proceedings of the 1994 MRS Fall Meeting: Symposium Y: Microstructure of Irradiated Materials., Eds. I. M. Robertson, L. E. Rehn, S. J. Zinkle, W. J. Phythian (Mater. Res. Soc. Proc. 373, Pittsburgh, PA, 1995) p. 101.

1997

1. T. R. Allen, D. L. Damcott, G. S. Was, and E. A. Kenik, “Radiation-Induced Grain Boundary Segregation in Proton Irradiated Austenitic Iron- and Nickel- Base Alloys,” in Proceedings of the Seventh International Symposium on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, August 1995, Breckenridge, Colorado (NACE International, Houston, TX, 1995) p. 997.

2. T. R. Allen. J. M. Cookson, D. L. Damcott, and G. S. Was, "Refinement of Radiation and Auger Electron Spectroscopy Techniques for Studying Radiation-Induced Segregation in High Purity 304 Stainless Steel," in Proceedings of the MRS Fall Meeting Symposium B: Microstructure of Irradiated Materials, (Mater. Res. Soc. Proc. 439, Pittsburgh, PA, 1997), p. 557.

3. T. R. Allen and G. S. Was, "Modeling of Radiation-Induced Segregation in Austenitic Fe-Cr-Ni Alloys," in Proceedings of the MRS Fall Meeting Symposium B: Microstructure of Irradiated Materials, (Mater. Res. Soc. Proc. 439, Pittsburgh, PA, 1997), p. 539.

4. J. Gan, T. R. Allen, and G. S. Was, “The Dependence of Proton Irradiated Microstructures on Dose, Temperature, and Composition of Austenitic Stainless Steels,” in Proceedings of the MRS Fall Meeting Symposium B: Microstructure of Irradiated Materials, (Mater. Res. Soc. Proc. 439, Pittsburgh, PA, 1997), p.445.

5. J.T. Busby, T.R. Allen, J. Gan, E.A. Kenik, and G.S. Was, "Microchemical and Microstructural Evolution in Proton-Irradiated Fe-Cr-Ni Alloys," in Proceedings of Eighth International Symposium on Environmental Degradation of Materials in Nuclear Power Systems - Water Reactors, Aug. 10-14, 1997, Amelia Island Fl.

1998

1. T.R. Allen, J.T. Busby, E. A. Kenik, G.S. Was, “Modeling the effect of irradiation and post-irradiation annealing on grain boundary composition in austenitic Fe-Cr-Ni alloys,”

Proceedings of the MRS Spring Meeting Symposium Z: Diffusion Mechanisms in Crystalline Materials, (Mater. Res. Soc. Proc. 527, Pittsburgh, PA, 1998), p. 291.

2. J.T. Busby, T.R. Allen, E.A. Kenik, and G.S. Was, "Dose Dependence of Radiation-Induced Segregation in Proton Irradiated Austenitic Alloys," in Proceedings of the MRS Fall Meeting Symposium B: Microstructure of Irradiated Materials, (Mater. Res. Soc. Proc. 439, Pittsburgh, PA, 1997), p. 563.

Papers Published in Conference Proceedings

1992

1. Michael G. Houts, Robert T. Perry, John J. Buksa, Todd R. Allen, Shawn T. Nisbett and David W. Way, "Radiation Transport Analysis of Nuclear Propulsion Systems for Space Exploration Initiative Missions," American Nuclear Society Proceedings of a Conference on Nuclear Technologies for Space Exploration, (Jackson Hole, Wyoming, August 16-19, 1992), Volume II, pp. 540, 548.

Papers Published in National Laboratory Reports

1992

1. M.G. Houts, R.T. Perry, T.R. Allen, and J.J. Buksa, "Nuclear Thermal Rocket Propelled Mars Missions: Astronaut Shielding Requirements," Paper IAF-92-0620 presented at the 43rd Congress of the International Astronautical Federation, (Washington, DC, August 28 - September 5, 1992), Los Alamos National Laboratory document LA-UR-92-2755.

2. Research students, thesis titles, current employment

2.1 Graduate Students

Masters of Science – Completed

Chris Putre, Nuclear Engineering, May 2006
"The Corrosion of Ferritic and Austenitic Steels in Coal Combustion Atmospheres of SCW Plants,"
Now-U.S. Navy

Hannah Yount, Nuclear Engineering, May 2006
"Hardness and Fracture Toughness of Heat Treated Advanced Ceramic Materials for use as Fuel Coating and Inert Matrix Materials in Advanced Reactors,"
Now-Knolls Atomic Power Laboratory

MacLean Machut, Nuclear Engineering, May 2007
"Corrosion Behavior of Steels for Lead-Alloy Cooled Fast Reactors and the Effects of Surface Modifications on Corrosion Performance,"
Now-AREVA

Dan Ludwig, Nuclear Engineering, July 2008
"Electrochemical Measurements in Molten Salts,"
Now-Dominion

Josh Shea, Nuclear Engineering, December 2008
"Development of Liners for Mitigating Fuel-Cladding Chemical Interaction,"
Now-Exelon

Tammy Malaney, Nuclear Engineering, Expected July 2009
"The Effect of Temperature and Atmosphere on Surface Emissivity,"

Jetsenia Toro Rojas, Material Science, December 2009
"Corrosion Resistance of Thermomechanical Treated AA5083,"

Amy Laspe, Nuclear Engineering, August 2010
"Corrosion Resistance of Thermomechanical Treated AA5083,"
Now-Sandia National Laboratory

Scott Weber, Nuclear Engineering, August 2010
"Emissivity changes in materials exposed to impure helium,"
Now-Sandia National Laboratory

Tony Schulte, Nuclear Engineering
"Radiation Damage in UO_2"

Liang Zhao, Nuclear Engineering
"Radiation Damage in UO_2"

Lucas Nelson, Nuclear Engineering
"Corrosion Resistant Coatings using Electrophoretic Deposition"

Mehran Mohammadian, Nuclear Engineering
"Electrochemistry of Molten Salts"

Jacob Jelinek, Nuclear Engineering

"Corrosion of in Supercritical Carbon Dioxide"
Amanda Lang, Nuclear Engineering
"Neutronics and Heat Transfer in Freeze Cast Fuel Forms"
Oday Albakri, Nuclear Engineering
"Corrosion in Supercritical Water"
Paul Roman, Nuclear Engineering,
"Corrosion of in Supercritical Carbon Dioxide,"
Ben Maier, Nuclear Engineering
"Cold Spray Coatings for Corrosion Resistance,"
Brandon Semerau, Nuclear Engineering
"Corrosion in Used Fuel Disposition Cannisters,"
Tom Eiden, Nuclear Engineering,
"Heat Transfer in Novel Fuels"
Jacob Sager, Nuclear Engineering
"Electrochemistry of Molten Salts"
Ben Maier, Nuclear Engineering
Using Cold Spray for Corrosion Protection
Adam Reinecke
Thermal Conductivity in CeSi
Kolton Urso
Corrosion of CeSi

PhD - Completed

Kent Wardle, Nuclear Engineering
"Computational And Experimental Analysis of the Flowin an Annular Centrifugal Contactor"
Now-Argonne National Laboratory
Xiaowei Ren, Materials Science Program
"Corrosion in Supercritical Water"
Julie Tucker, Nuclear Engineering
"Radiation-induced Segregation in Fe-Cr-Ni Alloys "
Now-Knolls Atomic Power Laboratory
Luke Olson, Nuclear Engineering
"Corrosion in Molten Fluoride Salt"
Now-Savannah River National Laboratory
Clay Dickerson, Materials Science Program
"Radiation Effects in TiC and TiN"
Now-Argonne National Laboratory
Brandon Miller, Nuclear Engineering
"Radiation Effects in U-Mo-Al Fuel"
James Ambrosek, Nuclear Engineering
"Corrosion in Molten Chloride Salt"
Alicia Certain, Material Science Program
"Radiation Damage in ODS Steel"
Kevin Field, Materials Science Program

"Radiation Damage in 9 Cr Ferritic-martensitic Steels"
Tyler Gerczak, Materials Science Program
"Diffusion in Complex Grain Boundary Networks."
Sarah Khalil, Material Science Program
"Radiation Damage in UO2."
Billy Nollet, Nuclear Engineering
"Advanced Electrochemical Sensors for Sodium Environments"
Laura Jamison, Materials Science Program
"Radiation Damage in Nanocrystalline SiC"
Guiqiu Zheng, Materials Science Program
"Corrosion in Molten Salt"
Mahima Gupta, Nuclear Engineering
"Radiation Damage in UO2."
Brian Kelleher, Nuclear Engineering
"Salt purification and REDOX in Molten Salts."

PhD - In Progress

Alex Mairov, Nuclear Engineering
"Interface Stability under Radiation."
Sam Briggs, Nuclear Engineering
"Radiation-induced segregation fundamentals."

Post Doctoral Associates

Dr. Luke Olson, Postdoctoral Research Associate Dept. of Engineering Physics, 07/09 – 10/10
Dr. Youngki Yang, Postdoctoral Research Associate Dept. of Engineering Physics, 06/09 – 08-12
Dr. Peng Xu, Postdoctoral Research Associate Dept. of Engineering Physics, 07/09 – 12/2010
Dr. Vahid Firouzdor, Postdoctoral Research Associate Dept. of Engineering Physics, 07/09 – present
Dr. Yina Huang, Postdoctoral Research Associate Dept. of Engineering Physics, 09/10 – May 2013
Dr. Clarissa Yablinsky, Postdoctoral Research Associate Dept. of Engineering Physics, 09/10 – May 2013
Dr. Lingfeng He, Postdoctoral Research Associate Dept. of Engineering Physics, 09/10 – present
Dr. Bin Leng, Postdoctoral Research Associate Dept. of Engineering Physics, 09/10 – present

Research Scientists

Dr. Guoping Cao, Postdoctoral Research Associate Dept. of Engineering Physics, 07/08 – present

Dr. Beata Tyburska-Pushel, Postdoctoral Research Associate Dept. of Engineering Physics, 09/10 – present
Dr. Yun Chen, 03/04-07/08
Dr. Lizhen Tan, 10/03-05/09
Dr. Yong Yang 1/06-10/10

Visiting Faculty and Scientists (sabbaticals)

Dr. Nie Shuhong, China Institute of Atomic Energy, 2009-2012
Dr. Janne Pakarinen, VTT Finland, 06/2012-2014

3. Summary of grants and contracts received or pending

Prof. Allen has been lead or co-PI on approximately $8M in external research funding. He routinely managed approximately $1,500,000 per year in research expenditures while at Wisconsin.

3.1 External Research Funding Awarded

Design of Radiation-Tolerant Structural Alloys for Gen IV Nuclear Energy Systems
PI: Allen
Department of Energy
Award # NERI 02-0110
Award Amount: $2,004,000 ($208,000 at Wisconsin)
Period Covered: 09/1/03 - 09/31/05
Collaborators: University of Michigan, Argonne National Laboratory, Pacific Northwest National Laboratory

Students Supported by the Grant Under Allen's Supervision: 1 PhD, 1 Postdoc
Key Duties Fulfilled by Allen: lead PI, wrote proposal, supervised all research conducted under the grant, oversaw all budgetary matters, primary point of contact with DOE, prepared annual reports, presented progress to funding authority
This grant was originally awarded to Allen while at Argonne National Laboratory. A portion of the grant was moved from Argonne to Wisconsin when Allen moved to Wisconsin. Allen remained the national lead for this project.

Developing and Evaluating Candidate Materials for Generation IV Supercritical Water
PI: Sridharan, UW Co-PI: Allen
Department of Energy
Award Amount: $141,000 at Wisconsin
Period Covered: 1/1/03 - 12/31/05

Students Supported by the Grant Under Allen's Supervision: 1 Postdoc

Key Duties Fulfilled by Allen: co-PI, , contributed to proposal writing, supervised research conducted

Generation IV Supercritical Water Reactor Candidate Alloy Corrosion Testing
PI: Allen, UW Co-PIs: Sridharan, Anderson
Department of Energy (via Idaho National Engineering and Environmental Laboratory)
Total Award Amount: $505,660 at Wisconsin
Period Covered: 02/1/04 - 10/31/08

Students Supported by the Grant Under Allen's Supervision: 1 PhD, 1 Postdoc
Key Duties Fulfilled by Allen: PI, wrote proposal, oversaw testing, provided results for monthly and quarterly report

Surface Treatment to Improve Corrosion Resistance in Lead-Alloy Coolants
PI: Allen, UW Co-PIs: Sridharan
Department of Energy
Total Award Amount: $298,380 at Wisconsin
Period Covered: 07/19/04 – 07/18/2007

Students Supported by the Grant Under Allen's Supervision: 1 MS
Key Duties Fulfilled by Allen: PI, wrote proposal, oversaw testing, provided results for reports

Evaluation of Alternate Materials for Coated Particle Fuels for Generation IV Gas-cooled Fast Reactor
PI:Blanchard, UW Co-PIs: Allen
Department of Energy (via Idaho National Engineering and Environmental Laboratory
Total Award Amount: $555,000 at Wisconsin
Period Covered: 03/1/04 – 09/30/2007

Students Supported by the Grant Under Allen's Supervision: 3 PhD
Key Duties Fulfilled by Allen: co-PI, wrote proposal, oversaw testing, provided results for quarterly report

DOE NE Advanced Fuel Cycle Initiative Fuel Development Working Group
PI:Allen, UW Co-PIs: None
Department of Energy (Los Alamos Laboratory)
Total Award Amount: $15,000 at Wisconsin
Period Covered: 04/2/04 – 08/31/2005

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, drafted national cladding development R&D plan

Candidate Materials Evaluation for the Supercritical Water-cooled Reactor
PI: Allen, UW Co-PIs: Sridharan
Department of Energy

Total Award Amount: $900,000, $406,250 at Wisconsin
Period Covered: 03/01/05 – 02/28/2008

Students Supported by the Grant Under Allen's Supervision: 2 PhD
Key Duties Fulfilled by Allen: PI, wrote proposal, oversaw testing, provided results for reports

Gas-Fast Reactor International Materials Coordination
PI:Allen, UW Co-PIs: None
Department of Energy (Idaho National Laboratory)
Total Award Amount: $70,000 at Wisconsin
Period Covered: 01/20/05 – 09/30/2006

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated collaborative R&D with CEA in France

World University Network Development Grant
PI: Allen, UW Co-PIs: None
World University Network
Total Award Amount: $2,000 at Wisconsin
Period Covered: 04/01/05 – 08/20/2006

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, Initiated research discussions with University of Manchester and University of Leeds.

Surface Modification of Fuel Cladding Materials with Integral Fuel Burnable Absorber Boron
PI: Sridharan, UW Co-PIs: Allen
Department of Energy
Total Award Amount: $236,062 at Wisconsin
Period Covered: 07/01/05 – 06/30/2008

Students Supported by the Grant Under Allen's Supervision: 1 postdoc, 1 BS
Key Duties Fulfilled by Allen: co-PI, oversaw testing, provided results for quarterly report.

AHTR Salt Chemistry and Properties
PI:Allen, UW Co-PIs: Sridharan
Department of Energy (Oak Ridge National Laboratory)
Total Award Amount: $103,000 at Wisconsin
Period Covered: 11/15/05 – 09/30/2007

Students Supported by the Grant Under Allen's Supervision: 1 PhD
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D

Void Swelling Characterization of Austenitic Stainless Steels Irradiated in the BOR-60 Reactor
PI:Allen, UW Co-PIs: None
Nuclear Regulatory Commission (Argonne National Laboratory)
Total Award Amount: $51,330 at Wisconsin
Period Covered: 01/13/06 – 10/31/2006

Students Supported by the Grant Under Allen's Supervision: 1 postdoc
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D

Ab initio Based Modeling of Radiation Effects in Multi-Component Alloys
PI:Morgan, UW Co-PIs: Allen
Department of Energy
Total Award Amount: $450,425 at Wisconsin
Period Covered: 03/13/06 – 03/12/2009

Students Supported by the Grant Under Allen's Supervision: 2 PhD
Key Duties Fulfilled by Allen: co-PI, wrote proposal, coordinated R&D and reporting

Radiation Stability of Candidate Materials for Advanced Fuel Cycles
PI: Allen, UW Co-PIs: Blanchard
Department of Energy
Total Award Amount: $592,236 at Wisconsin
Period Covered: 03/13/06 – 03/12/2009

Students Supported by the Grant Under Allen's Supervision: 2 PhD
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D and reporting

Assessment of Potential Candidate Structural Materials for the Gen IV GFR
PI: Allen, UW Co-PIs: None
Department of Energy (Argonne National Laboratory)
Total Award Amount: $10,000 at Wisconsin
Period Covered: 05/25/06 – 09/30/2006

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D and reporting

Effect of Grain Boundary Structures on Oxide Growth and Stability in Extreme Environments
PI: Allen, UW Co-PIs: None
National Association of Corrosion Engineers
Total Award Amount: $80,000 at Wisconsin
Period Covered: 07/01/06 – 06/30/2008

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D and reporting

Radiation Response of ODS Steels
PI:Allen, UW Co-PIs:
Department of Energy (Oak Ridge National Laboratory)
Total Award Amount: $55,000 at Wisconsin
Period Covered: 09/29/06 03/31/2008

Students Supported by the Grant Under Allen's Supervision: 1 PhD
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated R&D

Emissivity of Potential Candidate Materials for VHTR and other NGNP Reactor Pressure Vessels: Role of Oxidation and Surface Treatments
PI:Sridharan, UW Co-PIs: Allen
Department of Energy (Oak Ridge National Laboratory)
Total Award Amount: $625,643 at Wisconsin
Period Covered: 06/1/07 – 05/31/2010

Students Supported by the Grant Under Allen's Supervision: 3 undergraduates
Key Duties Fulfilled by Allen: co-PI, oversaw testing, provided results for quarterly report

Fisson Product Transport in TRISO-Coated Particle Fuels: Multi-Scale Modeling and Experiment
PI: Szlufarska, UW Co-PIs: Allen, Morgan
Department of Energy (Oak Ridge National Laboratory)
Total Award Amount: $740,729 at Wisconsin
Period Covered: 06/1/07 – 05/31/2010

Students Supported by the Grant Under Allen's Supervision: 1 graduate student
Key Duties Fulfilled by Allen: co-PI, oversaw testing, provided results for quarterly report

Liquid Salts as Media for Process Heat Transfer from VHTR: Forced Convective Channel Flow Thermal Hydraulics, Materials, and Coatings
PI: Sridharan, UW Co-PIs: Allen, Anderson, Corradini
Department of Energy (Oak Ridge National Laboratory)
Total Award Amount: $719,486 at Wisconsin
Period Covered: 06/1/07 – 05/31/2010

Students Supported by the Grant Under Allen's Supervision: 2 graduate
Key Duties Fulfilled by Allen: co-PI, oversaw testing, provided results for quarterly report

Supercritical Carbon Dioxide Corrosion Test
PI: Allen, UW Co-PIs: Anderson
Knolls Atomic Power Laboratory
Total Award Amount: $45,851 at Wisconsin
Period Covered: 08/27/07 – 05/1/2008

Students Supported by the Grant Under Allen's Supervision: 2 undergraduate
Key Duties Fulfilled by Allen: co-PI, oversaw project, provided results for required report

Consortium on Cladding and Structural Materials for Advanced Reactor Systems
PI: Allen, UW Co-PIs: Morgan
Department of Energy
Total Award Amount: $690,000
Period Covered: 09/30/07 – 09/29/2010

Students Supported by the Grant Under Allen's Supervision: 1 graduate
Key Duties Fulfilled by Allen: co-PI, oversaw project, provided results for required report

Cooperative Agreement for Research on the Advanced VHTR Gas-Cooled Reactor
PI: Allen, UW Co-PIs: Morgan, Szlufarska, Tan, Sridharan, Anderson
Nuclear Regulatory Commission
Total Award Amount: $890,055
Period Covered: 09/19/07 – 09/18/2010

Students Supported by the Grant Under Allen's Supervision: 1 graduate, 3 undergraduate
Key Duties Fulfilled by Allen: co-PI, oversaw project, provided results for required report

Research Support for Andy Nelson
PI: Allen, UW Co-PIs: None
Department of Energy
Total Award Amount: $20,641
Period Covered: 09/01/07 – 12/31/07

Students Supported by the Grant Under Allen's Supervision: 1 graduate
Key Duties Fulfilled by Allen: PI, oversaw project

Grain Boundary Engineering to Improve Corrosion Resistance of 5xxx Series AL-MG Alloys Exposed to Marine Environments
PI: Allen, UW Co-PIs: Tan
Office of Naval Research
Total Award Amount: $232,753
Period Covered: 1/01/08 – 12/31/11
Person Months Committed: 0.5 Month Summer

Students Supported by the Grant Under Allen's Supervision: 0
Key Duties Fulfilled by Allen: PI, oversaw project

Liners to Mitigate FCCI

PI: Allen, UW Co-PIs: None
Department of Energy
Total Award Amount: $80,000
Period Covered: 1/01/08 – 12/31/09
Person Months Committed: 0 Months

Students Supported by the Grant Under Allen's Supervision: 1 graduate
Key Duties Fulfilled by Allen: PI, oversaw project

GNEP Advanced Structural Materials: Alloy Assessment
PI: Allen, UW Co-PIs: None
Department of Energy
Total Award Amount: $45,000 Proposed
Period Covered: 11/01/07 – 09/30/08
Person Months Committed: 0.5 Month Summer

Advanced Cladding Development
PI: Allen, UW Co-PIs: None
Department of Energy
Total Award Amount: $140,523
Proposed
Period Covered: 06/25/08 – 09/25/08
Person Months Committed: None

NRC Faculty Development
PI: Kulcinski, UW Co-PIs: Allen, Wilson
Nuclear Regulatory Commission
Total Award Amount: $450,000
Proposed
Period Covered: 6/01/08 – 05/31/11
Person Months Committed: 0.5 Month Summer

INL Employee Leasing
PI: Allen, UW Co-PIs:
Idaho National Laboratory
Total Award Amount: $213,900
Period Covered: 4/01/08 – 03/30/10
Person Months Committed: 4 Month Academic

Radiation Effects in Nanocrystalline SiC
PI: Szlufarska UW Co-PIs: Allen, Morgan
Idaho National Laboratory
Total Award Amount: $331,133
Period Covered: 6/15/08 – 06/14/11
Person Months Committed: 0.85 Month Academic

Bulk Nanostructured FCC Steels with Enhanced Radiation Tolerance
PI: Texas A&M, UW Co-PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $210,000 to UW
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Assessment of Embrittlement of VHTR Structural Alloys in Impure Helium Environments
PI: Crone, UW Co-PIs: Allen, Sridharan
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $492,207
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Ab Initio Enhanced Calphad Modeling of Actinide Rich Nuclear Fuels
PI: Morgan, UW Co-PIs: Allen, Chang
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $496,642
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Development of Diffusion Barrier Coatings and Deposition Technologies for Mitigating Fuel Cladding Chemical Interactions (FCCI)
PI: Sridharan, UW Co-PIs: Allen, Yang
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $488,891
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Thermal Properties of LiCl-KCl Molten Salt for Nuclear Waste Separation
PI: Sridharan, UW Co-PIs: Allen, Anderson
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $497,908
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Modeling Fission Product Sorption in Graphite Structures
PI: Szlufarska, UW Co-PIs: Allen, Morgan
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $482,444
Proposed, Notified of Intent to Award

Period Covered: 7/1/09 - 6/30/2012
Person Months Committed: 0.25 Month Summer

Focused Curriculum on Materials for Nuclear Systems
PI: Allen, UW Co-PIs: Kou, Sridharan
Nuclear Regulatory Commission
Total Award Amount: $140,000
Proposed, Notified of Intent to Award
Period Covered: 7/1/09 - 6/30/2010
Person Months Committed: 0.1 Month Summer

Materials, Turbomachinery, and Heat Exchangers for Supercritical CO2 Systems
PI: Anderson, UW Co-PIs: Allen, Nellis, Corradini
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $533,354
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: No time commitment

Liquid Salt Heat Exchanger Technology for VHTR-Based Applications
PI: Anderson, UW Co-PIs: Sridharan, Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $495,958
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: No time commitment

Energy Frontier Research Center Support, Center for Materials Science of Nuclear Fuel
PI: INL, UW Co-PIs: Allen
Department of Energy, Battelle Energy Alliance, LLC
Total Award Amount: $750,000
Period Covered: 9/28/09 – 09/30/14
Person Months Committed: No time commitment

Bulk Nanostructured Austenitic Stainless Steels with Enhanced Radiation Tolerance
PI: Texas A&M, UW Co-PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $210,000 to UW
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.25 Month Summer

Corrosion in Supercritical Carbon Dioxide: Materials, Environmental Purity, Surface Treatments, and Flow Issues
PI: Sridharan, UW Co-PIs: Anderson, Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $651,447
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.10 Month Summer

Study of Interfacial Interactions using Thin Film Surface Modification: Radiation and Oxidation Effects in Materials
PI: Sridharan, UW Co-PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $538,032
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.10 Month Summer

Pulsed Magnetic Welding for Advanced Core and Cladding Steels
PI: Yang, UW Co-PIs: Allen, Kou
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $525,206
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.10 Month Summer

Freeze-Casting as a Novel Manufacturing Process for Fast Reactor Fuels
PI: Drexel University, UW Co-PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $229,898 to UW
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.25 Month Summer

Critical Experiments to Understand the Radiation Response of Materials for Fast Reactor Cladding and Duct Application
PI: University of Michigan, UW Co-PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $542,944 to UW
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.25 Month Summer

Understanding the Irradiation Behavior of Zirconium Carbide
PI: Pennsylvania State University, UW Co-PIs: Allen, Morgan, Szlufarska
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $486,348 to UW
Period Covered: 10/1/09 - 9/30/2012
Person Months Committed: 0.10 Month Summer

Determining the Factor of Improvement in Resistance of Stress Corrosion Crack Initiation of Alloy 690 over Alloy 600
PI: Allen
Electric Power Research Institute
Total Award Amount: $300,000
Period Covered: 4/1/10-3/31/14
Person Months Committed: 0.10 Month Summer

Cold Spray Coating Equipment for Improving Corrosion Performance of Aluminum Alloys
PI: Allen, UW Co-PIs: Sridharan
Department of Defense, Defense University Research Instrumentation Program (DURIP)
Total Award Amount: $397,580
Period Covered: 6/10/10-6/9/11
Person Months Committed: No time commitment; equipment only

Transmission Electron Microscopy Examination of Irradiated Stainless Steel Hex Blocks
PI: Allen
Nuclear Fuel Industries, Ltd.
Total Award Amount: $30,628
Period Covered: 8/1/10-7/31/11
Person Months Committed: No time commitment

Expansion of the University of Wisconsin Advanced Nuclear Technology Development Infrastructure
PI: Allen
Department of Energy-Idaho
Total Award Amount: $217,500
Period Covered: 8/1/09 - 12/31/10
Person Months Committed: No time commitment; equipment only

General Scientific Infrastructure Support
PI: Allen
Department of Energy-Idaho
Total Award Amount: $246,173
Period Covered: 9/1/10 - 8/31/11
Person Months Committed: No time commitment; equipment only

Irradiation Creep of Graphite
PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount:$32,002
Period Covered: 10/1/10 - 1/31/11
Person Months Committed: No time commitment

Diffusion of Silver through SiC to Determine Mechanisms of Fuel Performance in TRISO Fuel
PI: Allen
Department of Energy-Idaho
Total Proposed Amount: $25,000
Period Covered: 9/1/10 - 5/31/11
Person Months Committed: No time commitment

Characterization of Microstructure and Fracture Morphology of Irradiated Stainless Steel and Ni-Alloy Test Specimens
PI: Allen
Department of Energy-Argonne National Laboratory
Total Proposed Amount: $55,000
Period Covered: 10/1/10 - 9/30/11
Person Months Committed: 0.5 Month summer

Mitigating Corrosion of 5xxx Series Al-Mg Alloys in Marine Environments: Grain Boundary Engineering and Cold Spray Approaches
PI: Allen, UW Co-PI: Sridharan
Office of Naval Research
Total Proposed Amount: $292,140
Period Covered: 1/1/11 - 12/31/13
Person Months Committed: 0.25 Month Summer

Ag Transport through Non-Irradiated and Irradiated SiC
PI: Szlufarska, UW Co-PI: Morgan, Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $1,055,456
Period Covered: 8/22/11 - 9/30/14
Person Months Committed: 0.1 Month Summer

Collaborative Research: Determination of Ni-Fe-Cr Species Dependent Transport Through Control of Temperature, Irradiation, and Grain Size
PI: Morgan, UW Co-PI: Szlufarska, Allen
National Science Foundation
Total Award Amount: $370,000
Period Covered: 9/1/11 - 8/31/14
Person Months Committed: 0.13 Month Summer

Development of Advanced High Uranium Density Fuels for Light Water Reactors
PI: Allen
Department of Energy, Battelle Energy Alliance LLC
Total Award Amount: $1,070,675
Period Covered: 11/17/11 - 9/30/15
Person Months Committed: 0.1 Month Summer

Advanced Nuclear Technology Development Infrastructure
PI: Allen
Department of Energy-Idaho
Total Award Amount: $292,756
Period Covered: 12/8/11 - 12/7/12
Person Months Committed: No time commitment; equipment only

Role of Defects in Swelling and Creep of Irradiated SiC

PI: Szlufarska, Co-PI: Morgan, Voyles, Allen
Department of Energy-Idaho
Total Award Amount: $ 875,350
Period Covered: 09/1/12 - 8/31/15
Person Months Committed: No time commitment; equipment only

3.2 UW Funding

Brritingham Scholars Award
PI:Allen, UW Co-PIs:
Total Award Amount: $2500 at Wisconsin
Period Covered: 02/2007 – 03/2007

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated visiting scholars

Brritingham Scholars Award
PI:Allen, UW Co-PIs:
Total Award Amount: $2500 at Wisconsin
Period Covered: 09/2012 – 12/2012

Students Supported by the Grant Under Allen's Supervision: None
Key Duties Fulfilled by Allen: PI, wrote proposal, coordinated visiting scholars

D. Outreach/Extension

1. Contributions to specialized and interdisciplinary programs

Conferences

Invited Panelist for the DOE Workshop on Advanced Computational Materials Science: Application to Fusion and Generation-IV Fission Reactors, Washington, DC, March 2004.

Invited Panelist for the DOE BES Workshop on Basic Research Needs for Nuclear Energy, Washington, DC, July 2006.

Invited Speaker, MIT-Academic Centers of Excellence (ACE) workshop, March 2006

Invited Speaker, TMS 2007 Annual Meeting, TMS Symposium on Microstructural Processes in Irradiated Materials, Orlando, FL February 2007

Invited Keynote Speaker, OECD NEA, Workshop on Structural Materials for Innovative Nuclear Systems (SMINS), Karlsruhe Germany, June 2007.

Invited Panelist MRS Materials World Forum October 2011

Invited Panelist, Canadian Nuclear Association Annual Meeting, February 2013.

Invited Panelist, Aspen Institute Energy Forum, July 2013.

Invited Speaker, Global 2013, September 2013

Invited Speaker, Nuclear Energy Institute R&D Forum, February 2014

Invited Speaker, 69th Annual meeting of ORAU council of Sponsoring Institutions, March 2014

Invited Speaker, American Chemical Society, March, 2014

Invited Speaker, G&T CEO National Meeting, May, 2014

Invited Speaker, Nuclear Science Week, October 2014 Seattle

Invited Speaker, Idaho American Nuclear Society, January 2015 Idaho Falls

Invited Speaker, 9th Nuclear Plants Current Issues Symposium, Charlotte, NC

Invited Speaker, World Nuclear Association, London September 2015

Invited Speaker, 8th INMM/ESARDA Joint Workshop on Building International Capacity, Jackson, WY Oct 2015

Invited Speaker, UK Nuclear Energy Business Opportunities Conference, Cumbria, UK October 2015

National Laboratories

Invited Speaker, "Microchemical Changes in Austentic Stainless Steels," Knolls Atomic Power Laboratory, Schenectady, NY, August 11, 2004.

University Departmental Seminars

Mechanics and Materials Seminar, University of Wisconsin, March 2004.

The Pennsylvania State University, Department of Mechanical and Nuclear Engineering, Colloquium speaker, March 3, 2005. "Evaluation of Advanced Ferritic-Martensitic Steels for use in Generation IV Systems."

Massachusetts Institute of Technology Colloquium, September 29, 2005

Idaho State University Colloquium, February 2009

Pennsylvania State University Colloquium, March 2009

University of Pisstsburgh Colloquium, June 2009

Purdue University Colloquium, October 2009

Boise State University Colloquium, October 2009

Drexel University Colloquium, November 2009

University of Texas Arlington Colloquium, November 2009

Texas A&M University Colloquium, January 2010

University of Missouri Colloquium, February 2010

North Carolina State University Colloquium, March 2010

Ohio State University Colloquium, March 2010

Rensellear Polytechnique University Colloquium, March 2010

Worcester Polytechnique Institute Colloquium, September 2010

University of Florida Colloquium September 2011

Shanghai Institute of Nuclear Physics Colloquium December 2011

Tohoku University Colloquium May 2012

Nagaoka University Colloquium, Ocrober 2012

Oregon State University Colloquium, May 2014

Utah State Colloquium, September 2015

University of Utah Colloquium, December 2015

University of Michigan Colloquium, March 2016

Industry

Invited Speaker, First Annual Nuclear Fuel Cycle Monitor Global Nuclear Renaissance Summit (GNRS-I), Washington, DC December 4-7, 2006

Conference Organization and Session Chairship

Symposium Chair: "International Conference on Radiation Effects in Materials," American Society for Testing and Materials, Boston, MA, June 2004.

Symposium Organizer: "Materials for Supercritical Water Reactors," American Nuclear Society Annual Conference, June 2004.

Symposium Organizer: "Reactor Pressure Vessel Degradation," American Nuclear Society Annual Conference, June 2004.

Track Co-organizer: "Materials and Structural Issues," ICAPP 05, Seoul Korea May 15-19, 2005.

Assistant Technical Program Chair: "12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors," The Minerals, Metals, and Materials Society, 14-18 August 2005.

Organizing Committee Member, ICNRP '05, September 26-29, 2005, Almaty, Kazakhstan

General Chair, Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, June 4-8, 2006, San Diego, CA. June 10-12, 2008, Anaheim, CA

Track Leader: "Materials and Structural Issues," ICAPP 06, Reno, NV June 4-8, 2006.

Session Chair, Advanced Materials, Global 2005, Japan

Technical Program Chair: "13th International Conference on Environmental Degradation of Materials in Nuclear Power Systems," The Canadian Nuclear Society, 19-23 August 2007.

Session Chair, TMS 2007 Annual Meeting, TMS Symposium on Microstructural Processes in Irradiated Materials, Orlando, FL February 2007

Track Organizer, Fuels and Materials, Global 2007, Boise Idaho, September 2007.

General Chair, Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, June, 2008, Reno, Nevada

General Chair: "14th International Conference on Environmental Degradation of Materials in Nuclear Power Systems," The American Nuclear Society, August 2009.

General Chair, Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, June, 2010, San Diego, CA

General Chair OECD NEA NSC workshop on "Structural Materials for Innovative Nuclear Systems," Aug 2010, Daejon, Korea

Organizing Committee, NuMat 2010 Conference, Karlsruhe, Germany.

General Chair, Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, June, 2012, Chicago, IL

General Chair, Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, June, 2014, Reno, NV

General Chair, NuMat 2014 Conference, Clearwater Florida

2. Invited public lectures, scientific presentations, radio/television program participation

Judge: Badger State Science and Engineering Fair (Madison), University School of Milwaukee Science Fair (Milwaukee), Wisconsin Career Academy Science Fair (Milwaukee), Nicolet Science Fair (Milwaukee), 2004-2006

Participant: The 2nd Community Discussion on Science and International Studies: "Nuclear Issues in an Age of Globalization," April 11, 2005

Fair Director, Capital Science & Engineering Fair, 2007-2013

Board President, Badger State Science and Engineering Fair, Aug 2007-Apr 2009

E. Professional Service

1. Service to profession

Technical reviewing for national groups and other institutions:

DOE-BES Shared Equipment Research (ShaRE) Program Executive Committee March 2006-March 2008.
DOE-NE SBIR program
DOE-NE Nuclear Engineering University Program
Department of Homeland Security, Science and Technology Directorate, Southeast Regional Research Initiative
National Science Foundation
Science and Technology Center of Ukraine
International Science and Technology Center
U.S. Civilian Research & Development Foundation
American Nuclear Society Student Conference (2004), MSTD
Co-Editor, Elsevier Comprehensive Nuclear Materials. 2007-2011
PNNL TMIST review Committee, March 2011
Department of Energy, Basic Research Needs for Environmental Management, Crosscutting Panel Co-Chair (2015)
Critical Materials Institute Advisory Board (2014-2015)
Advisory Board, University of Michigan Department of Nuclear Engineering
Advisory Board, North Carolina University Department of Nuclear Engineering
Advisory Board, University of Florida Nuclear Engineering Program
DOE EERE Council of Technologists for the Technologist in Residence Program
DOE Basic Energy Science Energy Frontier Research Centers Mid-program review panel (Feb 2016)

Technical reviewing for technical journals:

Acta Materialia
ASCE Journal of Hydraulic Engineering
Applied Physics Letters
Corrosion Engineering
Corrosion Journal
Corrosion Science & Engineering
Current Opinion in Solid State & Materials Science
IEEE Spectrum
IEEE Transactions on Plasma Science
Journal of the American Ceramic Society
Journal of ASTM International
Journal of the Electrochemical Society

Journal of Fluorine Chemistry
Journal of Materials Research
Journal of Material Science
Journal of Nuclear Materials
Journal of Physical Chemistry
Journal of Supercritical Fluids
Materials Chemistry and Physics
Materials and Design
Materials Letters
Materials Science & Engineering A
Microscopy and Microanalysis
MRS Communications
Nuclear Engineering & Design
Nuclear Instruments and Methods B
Nuclear Science & Engineering
Nuclear Technology
Scripta Materialia
Surface Review and Letters

Technical reviewing for publishers:

American Society of Metals

National and International Committees

Chair, Vice-Chair, Secretary Treasurer, Materials Science and Technology Division, American Nuclear Society, 2002-2005

OECD NEA Working Party on Partitioning and Transmutation Committee**,** subcommittee on Fuels and Materials**.**, 2002-2005.

Advanced Fuel Cycle Initiative Fuel Development Working Group, since 2004

Member Generation IV Initiative Materials Working Group, since 2004

Chair, American Nuclear Society Schumar Scholarship Committee, since 2003

Chair ASTM International Committee on Publications, 2006-2010, member since 2004

Editorial Advisory Board, Nuclear Technology

Co-chair, Fuels, Waste Forms, and Materials subgroup, Workshop on Science and Technology Challenges for the Advanced Fuel Cycle Initiative, sponsored by the Department of Energy, Office of Science, September 2005.

Chair, Department of Energy Gas Test Loop Advisory Committee Meeting (2005-2006)

Member, Department of Energy Gen IV Materials Handbook Advisory Committee Meeting (2005)

Member, Department of Energy, Office of Fusion Energy Sciences, Workshop on Basic Research Needs for Advanced Nuclear Energy Systems, July 31–August 3, 2006

Member, Department of Energy, Office of Basic Energy Sciences, Test Blanket Module External Review Committee, August 15-16, 2006.

Member, Planning Committee for the OECD NEA NSC workshop on "Structural Materials for Innovative Nuclear Systems," June 2007, Karlsruhe, Germany

American Nuclear Society, National Program Committee Chair since 2007, member since 2005

TMS, Materials for Nuclear Power Technical Advisory Group Member since 2006

Co-chair, ATR User Facility Workshop University Working Group. 2007

Chair, OECD/NEA Expert Group on Innovative Structural Materials, 2008-2012

Editorial Advisory Board, Journal of Nuclear Materials 2010-2014

Member, Peer Review Group, DOE Nuclear Energy Fuel Cycle R&D Program Systems Engineering Program (2010-2011)

American Nuclear Society, Nominating Committee 2011, 2012

Panel Chair, Nuclear Energy, 2011 World Materials Summit

DOE Lawrence Award Review Committee, 2012

American Physical Society Panel on Public Affairs (POPA) Panelist and Author on a report titled "Extending Licenses for the Nation's Nuclear Power Plants: A Choice Among Clean and Secure Energy Pathways, A Report by the APS Panel on Public Affairs, June 2013.

Member, University of Florida Nuclear Engineering Program Visiting Committee

Member, North Carolina State University Department of Nuclear Engineering Visiting Committee

Member, University of Michigan Department of Nuclear Engineering Visiting Committee

Member, Critical Materials Institute Advisory Committee

Panel Chair, Crosscutting Technologies Panel, Department of Energy Office of Science Basic Research Needs for Environmental Management

American Nuclear Society Board of Directors, 2015-2018.

American Nuclear Society, 2016 Special Selection Committee for Nominating Committee Candidates (SSCNCC)

2. Departmental Service, University of Wisconsin

Material Science Program Admissions Committee, 2004-2010
Nuclear Engineering Graduate Recruiting Committee 2007-2012

Academic advising for Nuclear Engineering majors

2003-2004	NEEP Sophomores	2 advisees
2004-2005	NEEP Sophomores	11 advisees
2005-2006	NEEP Juniors	11 advisees
2006-2007	NEEP Seniors	14 advisees

2007-2008	NEEP Seniors	6 advisees
2009-2010	NEEP Seniors	6 advisees
2010-2011	NEEP Seniors & Sophomores	11 advisees
2011-2012	NEEP Juniors &Seniors	15 advisees
2012-2013	NEEP Juniors &Seniors	15 advisees

3. College of Engineering Service, University of Wisconsin

Material Science Center Executive Board, Fall 2004-December 2012
Material Science Program Admissions Committee, 2005-2010
Search Committee, Student Services Coordinator-Engineering Student Services Office, January 2007
Bollinger Academic Staff Excellence Award Committee 2010
Master of Engineering in Professional Practice Summer Project Advisor, 2010

4. University of Wisconsin

Officer Education Committee, 2004-2008, 2011-2012;Chair 2006-2008.
Research & Sponsored Programs Effort Task Force February-May 2007
Chair, Astronaut Scholarship Proposal Committee, 2010

5. PhD Committees

University of Wisconsin Department of Engineering Physics

Erik Edwards, 2006
Dave Boris, 2009
Mengkuo Wang 2006
Andy Nelson, 2009
Sam Zenobia, 2010
Mike Hvasta, 2013

University of Wisconsin Material Science Program

Youngki Yang 2008
Sam Zelinka 2009
Vahid Firouzdor, 2010
Seth Imhoff, 2010

Penn State University Department of Nuclear Engineering

Jeremy Bischoff

6. Press interviews

Surviving a Nuclear Future: Technology--with Todd Allen and Paul Wilson, University of the Air, Wisconsin Public Radio June 5, 2005

Capital Science & Engineering Fair, "Live at 5," TV3 Madison, Wisconsin, Ocober 5, 2007

At Issue with Ben Mehrans, Wisconsin Public Radio, 14 March 2011

Idaho Public Television, Idaho Science Journal May 2015 Commercial Fuel Research at INL

Idaho Statesman Interview (Rocky Barker) October 2015