**Yukinori Yamamoto, Ph.D.**

12612 Pony Express Dr, Knoxville, TN 37934, U.S.A.
Home : Tel. +1-865-250-9388 (cell), e-mail: yukiyamahome@gmail.com
Work: Tel. +1-865-576-7095, e-mail: yamamotoy@ornl.gov

---

## OVERVIEW

Physical metallurgist with extensive background in phase equilibria, microstructure analysis (optical, SEM, TEM), diffusion, high-temperature mechanical properties and creep, and alloy design of advanced ferrous, nickel-base, titanium-base and intermetallic alloys.

## EDUCATION

**Ph. D., Materials Science and Engineering, March 1999**
Tokyo Institute of Technology, Tokyo, Japan
Adviser: M. Kajihara
Dissertation: "A Kinetic Characteristics of Microstructure Evolution for Diffusion Induced Recrystallization in Cu(Ni) and Ni(Cu) Systems using Solid/Solid Diffusion Couple Technique"

**M.S., Materials Science and Engineering, March 1996**
Materials Science and Engineering Tokyo Institute of Technology, Tokyo, Japan
Adviser: M. Kajihara (and T. Mori)
Thesis: "Effect of Misorientation Angle of [100] Twist Boundaries on the Kinetics of Diffusion Induced Grain Boundary Migration in Cu(Zn) System using Cu Bicrystals"

**B.S., Metallurgical Engineering, March 1994**
Tokyo Institute of Technology, Tokyo, Japan

## EXPERIENCE

**Senior R&D Staff: Alloy Behavior and Design Group, Materials Science and Technology Division, Oak Ridge, TN, USA**
Jun. 2017 - Present

**R&D Staff: Alloy Behavior and Design Group, Materials Science and Technology Division, Oak Ridge, TN, USA**
Feb. 2013-May. 2017

**Junior R&D Staff: Materials Processing Group, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA**
Mar. 2009-Jan. 2013

**Research Scientist: Alloying Behavior and Design Group, Materials Science and Technology Division (formerly Metals and Ceramics Division), Oak Ridge National Laboratory, Oak Ridge, TN, USA**
Nov. 2007-Mar. 2009: Research Assistant Professor, University of Tennessee, Assigned to ORNL
Nov. 2003-Nov. 2007: Postdoctoral Research Fellow

**Assistant Professor and Research Staff: Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology, Tokyo, Japan**
Jun. 2001-Oct. 2004: Assistant Professor
Apr. 2001-May 2001: Research Scholar
Apr. 1999-Mar. 2001: JSPS Research Associate (M. Takeyama Supervisor)

## HONORS

**2019 MP Corrosion Innovation of the Year (NACE International),** for FeCrAl Accident Tolerant Fuel Cladding

**2018 Research Accomplishment (UT-Battelle),** ACMZ Cast Aluminum Alloys for automotive engine-offer remarkable levels of elevated-temperature mechanical properties, thermal properties, hot tear resistance, castability, and affordability for higher-efficiency automobiles.

**2017 R&D 100 Awards (R&D Magazine,** for ACMZ Cast Aluminum Alloys

**2016 Significant Contribution (American Nuclear Society),** for the paper, 'Current Status of FeCrAl Alloys as an Accident Tolerant Cladding Alloy Class for Commercial Light Water Reactors', ANS Winter Meeting November 2015

**2015 MP Corrosion Innovation of the Year (NACE International),** for the innovation, Alumina-Forming Austenitic Alloy Family

**2011 Excellence in Technology Transfer (UT-Battelle),** for development and licensing of AFA steels, a revolutionary new class of heat-resistant steels for higher-efficiency energy production and chemical process industry applications

**2009 R&D 100 Award,** for the development of the AFA family of stainless steels: November 2009

**Oak Ridge National Laboratory Significant Event Award,** for commercialization of alumina-forming, creep resistant austenitic stainless steels: May 2011

**Members of research team recognized with Oak Ridge National Laboratory Significant Event Award,** for discovery of alumina-forming, creep resistant austenitic stainless steels: March 2007

**Best Poster Award,** The 3rd International Symposium on Gamma Titanium Aluminides, TMS: March 2003

**Best Poster Award,** The 3rd International Symposium on Structural Intermetallics, TMS: May 2002

**Doctoral Thesis Award,** The Tejima Memorial Fellowship in Science: May 2000

**Research Presentation Award,** The Japan Society of Heat Treatment: December 1999

## PATENTS

### Active Invention Disclosure

Y. Yamamoto, A. Nycz, "Modification of Maraging Steel Alloy Composition for Wire Arc Additive Manufacturing", submitted on Aug. 2021.

Y. Yamamoto, G. Muralidharan, M.P. Brady, "Cast Iron-Base, High-Strength, Oxidation-Resistant Alloy", submitted on Oct. 2019.

### Issued

1. A. Shyam, J.A. Hanes, A.S. Sabau, D. Shin, Y. Yamamoto, C.R. Glaspie, J.A. Conzales-Villarreal, Seyed Mirmiran, A.F. Rodriguez-Jasso, US Patent 11,242,587 B2 "Aluminum Alloy Compositions and Methods of Making and Using the Same", Feb. 8, 2022.

2. Amit Shyam, Yukinori Yamamoto, Dongwon Shin, Shibayan Roy, James A. Haynes, Philip J. Maziasz, Adrian Sabau, Andres F. Rodriguez - Jasso, Jose A. Gonzalez - Villarreal, Jose Talamantes - Silva, Lin Zhang, Christopher R. Glaspie, Seyed Mirmiran, US Patent 11,220,729 B2 "Aluminum Alloy

Compositions and Methods of Making and Using the Same", Jan. 11, 2022.

3. Y. Yamamoto, B.A. Pint, M.P. Brady, US Patent 10,883,160 B2 "Corrosion and Creep Resistant High Cr FeCrAl Alloys", Jan. 5, 2021.

4. M.P. Brady, Y. Yamamoto, G. Muralidharan, O. Rios, Gail M. Ludtka, Gerry M. Ludtka, D.Nicholson, US Patent 9,217,187 B2 "Magnetic Field Annealing For Improved Creep Resistance", Dec. 22, 2015.

5. Y. Yamamoto, M.P. Brady, M. Govindarajan, US Patent 8,815,146 B2 "Alumina Forming Iron Base Superalloy", Aug. 26, 2014.

6. M. Govindarajan, Y. Yamamoto, M.P. Brady, US Patent 8,431,072 B2 "Cast Alumina Forming Austenitic Stainless Steel", April 30, 2013.

7. M.P. Brady, B.A. Pint, C.T. Liu, P.J. Maziasz, Y. Yamamoto, Z.P. Lu, US Patent 7,744,813 "Oxidation resistant high creep strength austenitic stainless steel", June 29, 2010.

8. M.P. Brady, M.L. Santella, Y. Yamamoto, C.T. Liu, "US Patent 7,754,144 "High Nb, Ta, and Al creep- and oxidation-resistant austenitic stainless steel", July 13, 2010.

9. Y. Yamamoto, M.L. Santella, M.P. Brady, P.J. Maziasz, and C.T. Liu, U.S. Patent No. 7,754,305 "High Mn austenitic stainless steel", July 13, 2010.

## PROFESSIONAL SOCIAL ACTIVITIES

Maintain professional society memberships of the followings.

- ***ASM International:*** 2021-present
- ***American Society of Mechanical Engineering*** (ASME): 2012-present
- ***The Mineral, Metal & Materials Society*** (TMS): 2002-present
- ***The American Nuclear Society*** (ANS): 2010-2019
- ***Materials Research Society*** (MRS): 2000-2011
- ***The Iron and Steel Institute of Japan*** (ISIJ): 2001-2011
- ***The Japan Institute of Metals*** (JIM): 1995-2007

Active reviewer of professional material science journals

- ***Journal of Nuclear Materials, Materials at High Temperatures, Materials Characterization, Materials Letter, Materials Science and Engineering A, Nuclear Materials Energy, Scripta Materialia*** (Elsevier)
- ***Metallurgical and Materials Transactions A*** (TMS)

## PUBLICATION LIST

**Journal Articles (90)**

1. "Mao, Keyou S; Massey, Caleb P; Yamamoto, Yukinori; Unocic, King A; Gussev, Maxim N; Zhang, Dalong; Briggs, Samuel A; Karakoc, Omer; Nelson, Andrew T; Field, Kevin G; ", Improved Irradiation Resistance of Accident-Tolerant High-Strength FeCrAl Alloys with Heterogeneous Structures, *Acta Materialia*, 117843, 2022

2. "Yamamoto, Yukinori; Brady, Michael P; Ren, Qing-Qiang; Poplawsky, Jonathan D; Hoelzer, David T; Lance, Michael J; ", Creep Behavior and Phase Equilibria in Model Precipitate Strengthened Alumina-Forming Austenitic Alloys, *JOM*, 74, 1453-1468, 2022

3. "Pint, Bruce A; Su, Yi-Feng; Brady, Michael P; Yamamoto, Yukinori; Jun, Jiheon; Ickes, Michael R; ", Compatibility of Alumina-Forming Austenitic Steels in Static and Flowing Pb, *JOM*, 73, 4016-4022, 2021

4. "Massey, Caleb P; Zhang, Dalong; Briggs, Samuel A; Edmondson, Philip D; Yamamoto, Yukinori; Gussev, Maxim N; Littrell, Kenneth C; Field, Kevin G; ","Corrigendum to"" Deconvoluting the Effect of

Chromium and Aluminum on the Radiation Response of Wrought FeCrAl Alloys After Low-Dose Neutron Irradiation", *Journal of Nuclear Materials*, 558, 153197, 2022

5. "Zhou, Lingfeng; Zeng, Zhipeng; Brady, Michael P; Leonard, Donovan N; Meyer III, Harry M; Yamamoto, Yukinori; Li, Wenyuan; Collins, Greg; Liu, Xingbo; ", Chromium evaporation and oxidation characteristics of alumina-forming austenitic stainless steels for balance of plant applications in solid oxide fuel cells, *International Journal of Hydrogen Energy*, 46, 21619-21633, 2021

6. "Massey, Caleb P; Zhang, Dalong; Briggs, Samuel A; Edmondson, Philip D; Yamamoto, Yukinori; Gussev, Maxim N; Field, Kevin G; ", Deconvoluting the effect of chromium and aluminum on the radiation response of wrought FeCrAl alloys after low-dose neutron irradiation, *Journal of Nuclear Materials*, 549, 152804, 2021
7. "Mao, Keyou S; Massey, Caleb P; Gussev, Maxim N; Yamamoto, Yukinori; Nelson, Andrew T; Field, Kevin G; Edmondson, Philip D; ", Irradiation-induced amorphization of Fe-Y-based second phase particles in accident-tolerant FeCrAl alloys, *Materialia*, 15, 101016, 2021

8. "Roy, Sougata; Silwal, Bishal; Nycz, Andrzej; Noakes, Mark; Cakmak, Ercan; Nandwana, Peeyush; Yamamoto, Yukinori; ", Investigating the effect of different shielding gas mixtures on microstructure and mechanical properties of 410 stainless steel fabricated via large scale additive manufacturing, *Additive Manufacturing*, 38, 101821, 2021

9. "Peng, Jian; Yamamoto, Yukinori; Brady, Michael P; Lee, Sangkeun; Haynes, J Allen; Shin, Dongwon; ", Uncertainty quantification of machine learning predicted creep property of alumina-forming austenitic alloys, *JOM*, 73, 164-173, 2021

10. "Raiman, Stephen S; Field, Kevin G; Rebak, Raul B; Yamamoto, Yukinori; Terrani, Kurt A; ", Hydrothermal corrosion of 2nd generation FeCrAl alloys for accident tolerant fuel cladding, *Journal of Nuclear Materials*, 536, 152221, 2020

11. "Peng, Jian; Yamamoto, Yukinori; Hawk, Jeffrey A; Lara-Curzio, Edgar; Shin, Dongwon; ", Coupling physics in machine learning to predict properties of high-temperatures alloys, npj *Computational Materials*, 6, 1-7, 2020

12. "Kuhn, Bernd; Talik, Michal; Fischer, Torsten; Fan, Xiuru; Yamamoto, Yukinori; Lopez Barrilao, Jennifer; ", Science and technology of high performance ferritic (HiperFer) stainless steels, *Metals*, 10, 463, 2020

13. "Pint, Bruce A; Dryepondt, Sebastien; Brady, Michael P; Yamamoto, Yukinori; Ruan, Bo; McKeirnan Jr, Robert D; ", Field and Laboratory Evaluations of Commercial and Next Generation Alumina-Forming Austenitic Foil for Advanced Recuperators," *Turbo Expo: Power for Land, Sea, and Air*", 56796, V008T23A010, 2015

14. "Field, Kevin G; Zhang, Dalong; Littrell, Kenneth C; Yamamoto, Yukinori; ", Designing for Radiation Tolerance in FeCrAl Alloys*, Transactions*, 118, 1365-1367, 2018

15. "Besmann, TM; Yamamoto, Y; Unocic, KA; ", Thermochemical Assessment of Advanced LWR Fuel Cladding, *Transactions*, 110, 977-979, 2014

16. "Zhang, D; Yamamoto, Y; Howard, RH; Gussev, MN; Field, KG; ", Characterization of Dislocation Loops and Precipitates in Neutron-Irradiated FeCrAl Weldments, *Transactions*, 118, 1543-1544, 2018

17. "Kuo, Chih-Hsiang; Shassere, Benjamin; Poplawsky, Jonathan; Yamamoto, Yukinori; Babu, Sudarsanam Suresh; ", Validation of an alloy design strategy for stable Fe–Cr–Al–Nb-X ferritic alloys using electron microscopy and atom probe tomography, *Materials Characterization*, 158, 109987, 2019

18. "Shyam, Amit; Roy, Shibayan; Shin, Dongwon; Poplawsky, Jonathan D; Allard, LF; Yamamoto, Yukinori; Morris, JR; Mazumder, Baishakhi; Idrobo, JC; Rodriguez, Andres; ", Elevated temperature microstructural stability in cast AlCuMnZr alloys through solute segregation, *Materials Science and Engineering*: A, 765, 138279, 2019

19. "Chen, Xiang; Bhattacharya, Arunodaya; Sokolov, Mikhail A; Clowers, Logan N; Yamamoto, Yukinori; Graening, Tim; Linton, Kory D; Katoh, Yutai; Rieth, Michael; ", Mechanical properties and microstructure characterization of Eurofer97 steel variants in EUROfusion program, *Fusion Engineering and Design,* 146, 2227-2232, 2019

20. "Cakmak, Ercan; Nandwana, Peeyush; Shin, Dongwon; Yamamoto, Yukinori; Gussev, Maxim N; Sen, Indrani; Seren, M Hazar; Watkins, Thomas R; Haynes, J Allen; ", A comprehensive study on the fabrication and characterization of Ti–48Al–2Cr–2Nb preforms manufactured using electron beam melting, *Materialia*, 6, 100284, 2019

21. "Shin, Dongwon; Yamamoto, Yukinori; Brady, Michael P; Lee, Sangkeun; Haynes, James A; ", Modern data analytics approach to predict creep of high-temperature alloys, *Acta Materialia*, 168, 321-330, 2019

22. "Sun, Zhiqian; Yamamoto, Yukinori; Chen, Xiang; ", Impact toughness of commercial and model FeCrAl alloys, *Materials Science and Engineering*: A, 734, 93-101, 2018

23. "Rowcliffe, AF; Kessel, CE; Katoh, Y; Garrison, LM; Tan, L; Yamamoto, Y; Wiffen, FW; ", Materials-engineering challenges for the fusion core and lifetime components of the fusion nuclear science facility, *Nuclear Materials and Energy*, 16, 82-87, 2018

24. "Rowcliffe, Arthur F; Garrison, Lauren M; Yamamoto, Yukinori; Tan, Lizhen; Katoh, Y; ", Materials challenges for the fusion nuclear science facility, *Fusion Engineering and Design*, 135, 290-301, 2018

25. "Brady, Michael P; Banta, Kelly; Mizia, John; Lorenz, Nathan; Leonard, Donovan N; Yamamoto, Yukinori; DeFoort, Morgan; Keiser, James R; ", "Alloy corrosion considerations in low-cost, clean biomass cookstoves for the developing world", *Energy for Sustainable Development*, 37, 20-32, 2017

26. "Field, Kevin G; Briggs, Samuel A; Hu, Xunxiang; Yamamoto, Yukinori; Howard, Richard H; Sridharan, Kumar; ", Heterogeneous dislocation loop formation near grain boundaries in a neutron-irradiated commercial FeCrAl alloy, *Journal of Nuclear Materials*, 483, 54-61, 2017

27. "Chen, Wei; Yamamoto, Yukinori; Peter, William H; Gorti, Sarma B; Sabau, Adrian S; Clark, Michael B; Nunn, Stephen D; Kiggans, JO; Blue, Craig A; Williams, JC; ", Cold compaction study of Armstrong Process® Ti–6Al–4V powders, *Powder technology*, 214, 194-199, 2011

28. "Yamamoto, Yukinori; Brady, Michael P; Muralidharan, Govindarajan; Pint, Bruce A; Maziasz, Philip J; Shin, Dongwon; Shassere, Benjamin; Babu, Sudarsanam Suresh; Kuo, C-H; ","Development of creep-resistant, alumina-forming ferrous alloys for high-temperature structural use", *Pressure Technology*, 40764, V001T04A003, 2018

29. "Yamamoto, Yukinori; Yu, Xinghua; Babu, Sudarsanam Suresh; ", Improvement of Creep Performance of Creep Strength Enhanced Ferritic (CSEF) Steel Weldments Through Non-Standard Heat Treatments, *Pressure Technology*, 40740, 74-80, 2014

30. "Yu, X; Santella, ML; Yamamoto, Y; Terasaki, H; Komizo, Y; Babu, SS; ", In Situ Phase Transformation Study in Fine Grained Heat Affected Zone of Grade 91 Steels, "*In-situ Studies with Photons, Neutrons and Electrons Scattering II*", 29-49, 2014

31. "Shassere, Benjamin A; Yamamoto, Yukinori; Babu, Sudarsanam Suresh; ", Toward improving the type IV cracking resistance in Cr-Mo steel weld through thermo-mechanical processing, *Metallurgical and Materials Transactions* A, 47, 2188-2200, 2016

32. "Pint, Bruce A; Terrani, Kurt A; Yamamoto, Yukinori; Snead, Lance Lewis; ", Material selection for accident tolerant fuel cladding, *Metallurgical and Materials Transactions* E, 2, 190-196, 2015

33. "Field, Kevin G; Briggs, Samuel A; Sridharan, Kumar; Howard, Richard H; Yamamoto, Yukinori; ", Mechanical properties of neutron-irradiated model and commercial FeCrAl alloys, *Journal of Nuclear Materials*, 489, 118-128, 2017

34. "Unocic, Kinga A; Yamamoto, Yukinori; Pint, Bruce A; ", Effect of Al and Cr content on air and steam oxidation of FeCrAl alloys and commercial APMT alloy, *Oxidation of Metals*, 87, 431-441, 2017

35. "Chen, Wei; Yamamoto, Yukinori; Peter, William H; Clark, Michael B; Nunn, Stephen D; Kiggans, JO; Muth, Thomas R; Blue, Craig A; Williams, James C; Akhtar, K; ", The investigation of die-pressing and sintering behavior of ITP CP-Ti and Ti-6Al-4V powders, *Journal of alloys and compounds*, 541, 440-447, 2012

36. "Muth, Thomas R; Yamamoto, Yukinori; Frederick, David Alan; Contescu, Cristian I; Chen, Wei; Lim, Yong Chae; Peter, William H; Feng, Zhili; ", Causal factors of weld porosity in gas tungsten arc welding of powder-metallurgy-produced titanium alloys, *JOM*, 65, 643-651, 2013

37. "Field, Kevin G; Hu, Xunxiang; Littrell, Kenneth C; Yamamoto, Yukinori; Snead, Lance L; ", Radiation tolerance of neutron-irradiated model Fe–Cr–Al alloys, *Journal of Nuclear Materials,* 465, 746-755, 2015

38. "Besmann, Theodore M; Yamamoto, Yukinori; Unocic, Kinga A; ", Thermochemical Compatibility and Oxidation Resistance of Advanced LWR Fuel Cladding, *Nuclear Technology*, 195, 181-191, 2016

39. "Unocic, Kinga A; Dryepondt, Sebastien; Yamamoto, Yukinori; Maziasz, Philip J; ","Creep and oxidation behavior of modified CF8C-plus with W, Cu, Ni, and Cr", *Metallurgical and Materials Transactions A*, 47, 1641-1653, 2016

40. "Yamamoto, Yukinori; Pint, Bruce A; Terrani, Kurt A; Field, Kevin G; Yang, Ying; Snead, Lance Lewis; ", Development and property evaluation of nuclear grade wrought FeCrAl fuel cladding for light water reactors, *Journal of Nuclear Materials*, 467, 703-716, 2015

41. "Peter, William H; Chen, Wei; Yamamoto, Yukinori; Dehoff, Ryan R; Muth, T; Nunn, Stephen D; Kiggans, Jim O; Clark, Michael B; Sabau, Adrian S; Gorti, Sarma; ", "Current status of Ti PM: Progress, opportunities and challenges", *Key Engineering Materials*, 520, 1-7, 2012

42. "Briggs, Samuel A; Edmondson, Philip D; Littrell, Kenneth C; Yamamoto, Yukinori; Howard, Richard H; Daily, Charles R; Terrani, Kurt A; Sridharan, Kumar; Field, Kevin G; ", A combined APT and SANS investigation of α′ phase precipitation in neutron-irradiated model FeCrAl alloys, *Acta Materialia*, 129, 217-228, 2017

43. "Pint, Bruce A; Dryepondt, Sebastien; Brady, Michael P; Yamamoto, Yukinori; Ruan, Bo; McKeirnan, Robert D; ", Field and Laboratory Evaluations of Commercial and Next-Generation Alumina-Forming Austenitic Foil for Advanced Recuperators, *Journal of Engineering for Gas Turbines and Power*, 138, 2016

44. "Pint, Bruce A; Brady, Michael P; Yamamoto, Yukinori; Santella, Michael L; Maziasz, Philip J; Matthews, Wendy J; ", Evaluation of alumina-forming austenitic foil for advanced recuperators, *Journal of engineering for gas turbines and power*, 133, 2011

45. "Brady, MP; Muralidharan, G; Yamamoto, Y; Pint, BA; ", Development of 1100 C capable alumina-forming austenitic alloys, *Oxidation of Metals*, 87, 1-10, 2017

46. "Yamamoto, Yukinori; Muralidharan, Govindarajan; Brady, Michael P; ","Development of L12-ordered Ni3 (Al, Ti)-strengthened alumina-forming austenitic stainless steel alloys", *Scripta Materialia*, 69, 816-819, 2013

47. "Field, Kevin G; Gussev, Maxim N; Yamamoto, Yukinori; Snead, Lance L; ", Deformation behavior of laser welds in high temperature oxidation resistant Fe–Cr–Al alloys for fuel cladding applications, *Journal of nuclear materials*, 454, 352-358, 2014

48. "Brady, Michael P; Magee, John; Yamamoto, Yukinori; Helmick, David; Wang, Lu; ", Co-optimization of wrought alumina-forming austenitic stainless steel composition ranges for high-temperature creep and oxidation/corrosion resistance, *Materials Science and Engineering*: A, 590, 101-115, 2014

49. "Dehoff, Ryan; Duty, Chad; Peter, William; Yamamoto, Yukinori; Chen, Wei; Blue, Craig; Tallman, Cory; ",Case study: additive manufacturing of aerospace brackets, *Advanced Materials & Processes*, 171, 19-23, 2013

50. "Briggs, Samuel A; Edmondson, Philip D; Field, Kevin G; Yamamoto, Yukinori; Littrell, Kenneth C; Daily, Charles R; Sridharan, Kumar; ", Complementary techniques for quantification of α'phase precipitation in neutron-irradiated Fe-Cr-Al model alloys, *Microscopy and Microanalysis*, 22, 1470-1471, 2016

51. "Gussev, Maxim N; Field, Kevin G; Yamamoto, Yukinori; ", "Design, properties, and weldability of advanced oxidation-resistant FeCrAl alloys", *Materials & Design*, 129, 227-238, 2017

52. "Sun, Zhiqian; Yamamoto, Yukinori; ", Processability evaluation of a Mo-containing FeCrAl alloy for seamless thin-wall tube fabrication, *Materials Science and Engineering*: A, 700, 554-561, 2017

53. "Sun, Zhiqian; Bei, Hongbin; Yamamoto, Yukinori; ", Microstructural control of FeCrAl alloys using Mo and Nb additions, *Materials Characterization*, 132, 126-131, 2017

54. "Gussev, Maxim N; Byun, Thak Sang; Yamamoto, Yukinori; Maloy, Stuart A; Terrani, Kurt A; ", In-situ tube burst testing and high-temperature deformation behavior of candidate materials for accident tolerant fuel cladding, *Journal of Nuclear Materials*, 466, 417-425, 2015

55. "Muralidharan, G; Yamamoto, Y; Brady, MP; Walker, LR; Meyer III, HM; Leonard, DN; ", Development of cast alumina-forming austenitic stainless steels, *JOM*, 68, 2803-2810, 2016

56. "Peter, William H; Muth, T; Chen, Wei; Yamamoto, Yukinori; Jolly, Brian; Stone, NA; Cantin, GMD; Barnes, John; Paliwal, Muktesh; Smith, Ryan; ", Titanium sheet fabricated from powder for industrial applications, *JOM*, 64, 566-571, 2012

57. "Shassere, Benjamin; Yamamoto, Yukinori; Poplawsky, Jonathan; Guo, Wei; Babu, Sudarsanam Suresh; ", Heterogeneous creep deformations and correlation to microstructures in Fe-30Cr-3Al alloys strengthened by an Fe2Nb Laves phase, *Metallurgical and Materials Transactions A*, 48, 4598-4614, 2017

58. "Pint, Bruce A; Dryepondt, Sebastien; Brady, Michael P; Yamamoto, Yukinori; ", Evaluation of commercial and next generation alumina-forming austenitic foil for advanced recuperators, *"Turbo Expo: Power for Land, Sea, and Air"*, 55195, V05AT23A018, 2013

59. "Sun, Zhiqian; Edmondson, Philip D; Yamamoto, Yukinori; ", Effects of Laves phase particles on recovery and recrystallization behaviors of Nb-containing FeCrAl alloys, *Acta Materialia*, 144, 716-727, 2018

60. "Field, Kevin G; Briggs, Samuel A; Sridharan, Kumar; Yamamoto, Yukinori; Howard, Richard H; ", Dislocation loop formation in model FeCrAl alloys after neutron irradiation below 1 dpa, *Journal of Nuclear Materials*, 495, 20-26, 2017

61. "Shin, Dongwon; Shyam, Amit; Lee, Sangkeun; Yamamoto, Yukinori; Haynes, J Allen; ", Solute segregation at the Al/θ′-Al2Cu interface in Al-Cu alloys, *Acta Materialia*, 141, 327-340, 2017

62. "Yu, Xinghua; Babu, Sudarsanam Suresh; Terasaki, H; Komizo, Y; Yamamoto, Yukinori; Santella, Michael L; ", Correlation of precipitate stability to increased creep resistance of Cr–Mo steel welds, *Acta Materialia*, 61, 2194-2206, 2013

63. "Edmondson, Philip D; Briggs, Samuel A; Yamamoto, Yukinori; Howard, Richard H; Sridharan, Kumar; Terrani, Kurt A; Field, Kevin G; ", Irradiation-enhanced α′ precipitation in model FeCrAl alloys, *Scripta Materialia*, 116, 112-116, 2016

64. "Tan, Lizhen; Busby, Jeremy T; Maziasz, Philip J; Yamamoto, Yukinori; ", Effect of thermomechanical treatment on 9Cr ferritic–martensitic steels, *Journal of nuclear materials*, 441, 713-717, 2013

65. Y. Yamamoto, M.P. Brady, M.L. Santella, H. Bei, P.J. Maziasz, B.A. Pint, "Overview of strategies for high-temperature creep and oxidation resistance of alumina-forming austenitic stainless steels", Invited paper for *Metallurgical and Materials Transaction A*, Volume 42, Issue 4 (2011), Page 922-931.

66. M.P. Brady, K.A. Unocic, M.J. Lance, M.L. Santella, Y. Yamamoto, and L.R. Walker, "Increasing the Upper Temperature Oxidation Limit of Alumina Forming Austenitic Stainless Steels in Air with Water Vapor", *Corrosion Science*, Volume 75, Numbers 5-6 (2011) Page 337-357.

67. H. Bei, Y. Yamamoto, M. P. Brady, and M. L. Santella, "Aging effects on the mechanical properties of alumina-forming austenitic stainless steels", *Materials Science and Engineering A*, Volume 527, Issue 7-8 (2010), Page 2079-2086.

68. Y. Yamamoto, M. L. Santella, M.P. Brady, H. Bei, and P. J. Maziasz, "Effect of Alloying Additions on Phase Equilibria and Creep Resistance of Alumina-Forming Austenitic Stainless Steels", *Metallurgical and Materials Transactions A***,** Volume 40, Issue 8 (2009), Page 1868-1880.

69. Y. Yamamoto, M.L. Santella, C.T. Liu, N.D. Evans, M.P. Brady, and P.J. Maziasz, "Evaluation of Mn substitution for Ni in alumina-forming austenitic stainless steels", *Materials Science and Engineering A*, Volume 524 Nos. 1-2 (2009), Page 176–185.

70. M. P. Brady, Y. Yamamoto, M. L. Santella and L. R. Walker , "Composition, Microstructure, and Water Vapor Effects on Internal/External Oxidation of Alumina-Forming Austenitic Stainless Steels", *Oxidation of Metals*, Volume 72, Numbers 5-6 (2009), 311-333.

71. N. D. Evans, P. J. Maziasz, J. P. Shingledecker, Y. Yamamoto, "Microstructure Evolution of Alloy 625 Foil and Sheet during Creep at 750°C," in *Materials Science and Engineering A,* Volume 498, Issues 1-2 (2008), Pages 412-420.

72. M. P. Brady, Y. Yamamoto, M. L. Santella, P. J. Maziasz, B. A. Pint, C. T. Liu, Z. P. Lu, H. Bei, "Development of Alumina-Forming Austenitic Stainless Steels for High-Temperature Structural Use," in *JOM* 60(7) (July, 2008), p.12-18.

73. M.P. Brady, Y. Yamamoto, B.A. Pint, M.L. Santella, P.J. Maziasz, L.R. Walker, "On the Loss of Protective Scale Formation in Creep-Resistant, Alumina-Forming Austenitic Stainless Steels at 900°C in Air," in *Materials Science Forum* 595-598 (December, 2008), p. 725-732.

74. M. P. Brady, Y. Yamamoto, Z. P. Lu, P. J. Maziasz, C. T. Liu, B. A. Pint, M. L. Santella, "Alumina-Forming Austenitics: A New Class of Heat-Resistant Stainless Steels," in *Stainless Steel World Magazine*, March (2008), p. 23-29.

75. Y. Yamamoto, M. Takeyama, C. T. Liu, Z. P. Lu, N. D. Evans, P. J. Maziasz, M. P. Brady, "Alloying Effects on Creep and Oxidation Resistance of Austenitic Stainless Steel Alloys Employing Intermetallic Preciptates," in *Intermetallics* 16(3) (2008), p. 453-462.

76. Y. Yamamoto, M. P. Brady, Z. P. Lu, C. T. Liu, M. Takeyama, P. J. Maziasz, B. A. Pint, "Alumina-Forming Austenitic Stainless Steels Strengthened by Laves Phase and MC Carbide Precipitates," in *Metallurgical and Materials Transaction A*, 38(11) (2007), pp. 2737-2746.

77. P. J. Maziasz, B. A. Pint, J. P. Shingledecker, N. D. Evans, Y. Yamamoto, K. L. More, E. Lara-Curzio, "Advanced alloys for compact, high-efficiency, high-temperature heat-exchangers," in *International Journal of Hydrogen Energy*, 32 (2007), p. 3622-3630.

78. M.P. Brady, Y. Yamamoto, M. L. Santella, and B.A. Pint, "Effects of Minor Alloy Additions and Oxidation Temperature on Protective Alumina Scale Formation in Creep-Resistant Austenitic Stainless

Steels," in *Scripta Materialia*, 57(12) (2007), p. 1117-1120.

79. Y. Yamamoto, M. P. Brady, Z. P. Lu, P. J. Maziasz, C. T. Liu, B. A. Pint, K. L. More, H. M. Meyer, E. A. Payzant, "Creep-Resistant, $Al_2O_3$-Forming Austenitic Stainless Steels," in *Science*, 316 (2007), p.433-436.

80. Y. Yamamoto, M. Takeyama, "Physical metallurgy of single crystal gamma titanium aluminide alloys –Orientation control and thermal stability of lamellar microstructure," in *Intermetallics*, 163 (2005), p. 965-970.

81. Y. Yamamoto, M. Takeyama, T. Matsuo, "Stability of Lamellar Microstructure Consisting of γ/γ Interfaces in Ti-48Al-8Nb Single Crystal at Elevated Temperatures," in *Materials Science and Engineering*, A329-331 (2002), p. 631-636.

82. M. Takeyama, Y. Yamamoto, H. Morishima, K. Koike, S. Y. Chang, T. Matsuo, "Lamellar Orientation Control of Ti-48Al PST Crystal by Unidirectional Solidification," in *Materials Science and Engineering*, A329-331 (2002), p.7-12.

83. Y, Yamamoto, S. Uemura, M. Kajihara, "Kinetic Features of Diffusion Induced Recrystallization in The Cu(Ni) System at 873 K," in *Materials Science and Engineering*, A333 (2002), p. 262-269.

84. Y. Yamamoto, S. Uemura, M. Kajihara, "Observation on diffusion-induced recrystallization in binary Ni/Cu diffusion couples annealed at an intermediate temperature," in *Materials Science and Engineering*, A312 (2001), p.176.

85. Y. Yamamoto, M. Kajihara, "Numerical Analysis of Observations on Diffusion Induced Recrystallization in the Ni(Cu) System using A Kinetic Model," in *Materials Transactions*, 42(8) (2001), p.1763-1770.

86. Y. Yamamoto, M. Moriyama, M. Kajihara, T. Mori, "Kinetics of Diffusion Induced Grain Boundary Migration of [100] Twist Boundaries in the Cu(Zn) System," in *Acta Materialia*, 47(6) (1999), p.1757-1766.

87. Y. Yamamoto, M. Kajihara, "Quantitative Analysis of Observations on Diffusion Induced Grain Boundary Migration for Random Boundaries in the Cu(Zn) System using a Driving Force Model," in *Acta Materialia*, 47(4) (1999), p.1195-1201.

88. Y. Yamamoto, J.O. Kiggans, M.B. Clark, S.D. Nunn, A.S. Sabau, and W.H. Peter, "Consolidation Process in Near Net Shape Manufacturing of Armstrong CP-Ti/Ti-6Al-4V Powders", Key Engineering Materials Vol. 436 (2010) pp. 103-111.

89. W. Chen, Y. Yamamoto, and W.H. Peter, "Investigation of pressing and sintering processes of CP-Ti powder made by Armstrong Process", Key Engineering Materials Vol. 436 (2010) pp. 123-130.

90. Y. Yamamoto, M. Kajihara, "Kinetics of diffusion-induced recrystallization in the Cu(Ni) system at low temperatures", Journal of Electronic Materials, Vol. 37, Issue 11 (2008), pp. 1710-1720.

**Conference Proceedings (36)**

1. "Yamamoto, Yukinori; Brady, Michael P; Muralidharan, Govindarajan; Pint, Bruce A; ","Alloy design strategy of creep-resistant, alumina-forming austenitic stainless steel alloys", "Proceedings of the seventh international conference on creep, fatigue and creep-fatigue interaction", 2016,

2. "Gussev, Maxim N; Field, Kevin G; Cakmak, Ercan; Yamamoto, Yukinori; ", Mechanical Behavior and Structure of Advanced Fe-Cr-Al Alloy Weldments, Proceedings of the 18th International Conference on Environmental Degradation of Materials in Nuclear Power Systems–Water Reactors,1417-1430, 2019

3. "Shingledecker, John P; Shyam, Amit; Yamamoto, Yukinori; Kuhn, Dr Bernd; ", Materials Research for Advanced Power Engineering in Europe: A Perspective on the 10th Liege Conference, Advanced Materials and Processes, 173, 3, 2015

4. "Kuhn, B; Fischer, T; Yamamoto, Y; Lopez Barrilao, J; Fan, X; ", Mechanical properties and application potentials of high performance ferritic (HiperFer) steels," Proceedings of the 4th International ECCC Creep & Fracture Conference, Duesseldorf, Germany", 10-14, 2017

5. "Muralidharan, Govindarajan; Yamamoto, Yukinori; Brady, Michael; Walker, Larry; ", Development of Cast Alumina-Forming Austenitic Stainless Steel Alloys, AIP Conference Proceedings, 2012

6. "Field, Kevin G; Yamamoto, Yukinori; Pint, Bruce A; Gussev, Maxim N; Terrani, Kurt A; ", Accident tolerant FeCrAl fuel cladding: current status towards commercialization, Proceedings of the 18th International Conference on Environmental Degradation of Materials in Nuclear Power Systems–Water Reactors,1381-1389, 2019

7. "Chen, Wei; Yamamoto, Yukinori; Peter, William; Clark, Michael; Nunn, Stephen; Kiggans, Jim; Muth, Thomas; Dehoff, Ryan; Blue, Craig; Fuller, Brian; ", The Effect of Powder Morphology on the Sintering Behavior of Ti and Ti Alloy Powders, AIP Conference Proceedings, 2012

8. "Kuhn, Bernd; Talik, Michal; Lopez Barrilao, J; Singheiser, Lorenz; Yamamoto, Yukinori; ", Development status of high performance ferritic (HiperFer) steels, "Proceedings of the 8th International Conference on Advances in Materials Technology for Fossil Power Plants, Albufeira, Portugal",11-14, 2016,

9. "Zinkle, Steven; Brady, Michael; Yamamoto, Yuki; Santella, Michael; Maziasz, Phillip; Hoelzer, David; Busby, Jeremy; Tan, Lizhen; Muralidharan, Govindarajan; ", Development of High-Performance Structural Alloys for Nuclear Energy Systems, AIP Conference Proceedings, 2012

10. "Kuhn, B; Fischer, T; Fan, X; Talik, M; Aarab, F; Yamamoto, Y; ", HiperFer-Weiterentwicklungs-Und Anwendungspotenziale, "Proceedings of the 43rd FVWHT Vortragsveranstaltung Langzeitverhalten Warmfester Stähle und Hochtemperaturwerkstoffe, Online",43, 2020

11. Y. Yamamoto, W.H. Peter, A.S. Sabau, G.B. Sarma, J.O. Kiggans, S.D. Nunn, M.B. Clark, C.A. Blue, J.E. Barnes, C. Henry, J.A. Capone, M. Paliwal, B. Fuller, and K. Akhtar, "Low Cost Titanium Near-Net-Shape Manufacturing Using Armstrong and/or Hydride-Dehydride CP-Ti and Ti-6Al-4V Powders", submitted for proceedings of the 2010 International Conference on Powder Metallurgy & Particulate Materials, PowderMet 2010, June 27-30, Hollywood, FL.

12. A.S. Sabau, G.B. Sarma, W.H. Peter, and Y. Yamamoto, "PROCESS SIMULATION OF COLD PRESSING AND SINTERING OF TITANIUM ARMSTRONG CP-Ti/Ti-6Al-4V POWDERS", submitted for proceedings of the 2010 International Conference on Powder Metallurgy & Particulate Materials, PowderMet 2010, June 27-30, Hollywood, FL.

13. M.P. Brady, J. H. Magee, Y. Yamamoto, P.J. Maziasz, M.L. Santella, B.A. Pint, and H. Bei, "Development and Exploratory Scale-Up of Alumina-Forming Austenitic (AFA) Stainless Steels", Proceedings of Stainless Steel World 2009 Conference & Expo Maastricht, The Netherlands, November 10th -12th, 2009

14. B. A. Pint, M.P. Brady, Y. Yamamoto, M. L. Santella, P.J. Maziasz, and W.J. Matthews, "Evaluation Of Alumina-Forming Austenitic Foil For Advanced Recuperators", Proceedings of GT2010 ASME Turbo Expo 2010: Power for Land, Sea, and Air June 14-18, 2010, Glasgow, Scotland.

15. L. Tan, J.T. Busby, P.J. Maziasz, and Y. Yamamoto, "Effect of Thermomechanical Treatment on 9Cr Ferritic-Martensitic Steels", submitted to proceedings in embedded topical meeting "Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors" in American Nuclear Society: 2010 Annual Meeting, June 14-18, San Diego, CA.

16. B. A. Pint, M. P. Brady, Y. Yamamoto, M. L. Santella, J. Y. Howe, R. Trejo and P. J. Maziasz, "Development of Alumina-Forming Austenitic Alloys for Advanced Recuperators," ASME Paper

#GT2009-60197, presented at the International Gas Turbine & Aeroengine Congress & Exhibition, June, 8th-12th, 2009, Orlando, FL.

17. M.P. Brady, Y. Yamamoto, H. Bei, M.L. Santella, P.J. Maziasz, "Development of Alumina-Forming Austenitic Stainless Steels", Proceedings of 23rd Annual Conference on Fossil Energy Materials, May 12th-14th, 2009, Pittsburgh, PA.

18. Y. Yamamoto, M. P. Brady, M. L. Santella, B. A. Pint, P. J. Maziasz, "Creep-Resistant, Alumina-Forming Austenitic Stainless Steels For Higher Temperature Use In Power Generation Systems," in *proc. the 33rd International Technical Conference on Coal Utilization & Fuel Systems* (June 1-5, 2008, Clearwater, FL), B. A. Sakkestad, ed., Coal Technology Association, Gaithersburg, MD (2008).

19. Y. Yamamoto, M.P. Brady, M.L. Santella, H. Bei, P.J. Maziasz, B.A. Pint, "Development of Alumina-Forming Austenitic Stainless Steels", Proceedings of 22nd Annual Conference on Fossil Energy Materials, July 8th-10th, 2008, Pittsburgh, PA.

20. M.P. Brady, Y. Yamamoto, Z.P. Lu, P.J. Maziasz, M.L. Santella, B.A. Pint, "MULTI-PHASE HIGH TEMPERATURE ALLOYS: EXPLORATION OF ALUMINA-FORMING, CREEP-RESISTANT AUSTENITIC STAINLESS STEELS", Proceedings of 21st Annual Conference on Fossil Energy Materials, April 30th – May 2nd, 2007, Knoxville, TN.

21. Y. Yamamoto, Z. P. Lu, M. P. Brady, C. T. Liu, P. F. Tortorelli, "Multi-Phase High Temperature Alloys: Exploration of Laves Phase Strengthening of Steels", Proceedings of 20st Annual Conference on Fossil Energy Materials, June 12th – 14th, 2006, Knoxville, TN.

22. P. J. Maziasz, J. P. Shingledecker, N. D. Evans, Y. Yamamoto, K. L. More, R. Trejo, E. Lara-Curzio, "Creep Strength And Microstructure Of Al20-25+Nb Alloy Sheets And Foils For Advanced Microturbine Recuperators," GT2006-90195, in *Proc. 2006 ASME Turbo Expo* (May 9-11, 2006, Barcelona, Spain), Am. Soc. Mech.. Engin., New York, NY (2006).

23. N.D. Evans, Y. Yamamoto, P.J. Maziasz, and J.P. Shingledecker, "Age Induced Gamma Prime Coarsening and Hardness Behavior in Pryromet 31V", *Microscopy and Microanalysis*, Vol. 12, Issue 2 (2006), Page 1044-1045.

24. Y. Yamamoto, N. D. Evans, P. J. Maziasz, and C. T. Liu, "Effect of B Addition on Thermal Stability of Lamellar Structure in Ti-47Al-2Cr-2Nb Alloys," in *Integrative and Interdisciplinary Aspects of Intermetallics*, eds. M. J. Mills, H. Inui, H. Clemens and C-L Fu, MRS Symp. Proc. 842, Matls. Res. Soc., Warrendale, PA (2005), p. 163-168.

25. P. J. Maziasz, J. P. Shingledecker, B. A. Pint, N. D. Evans, Y. Yamamoto, K. L. More, E. Lara-Curzio, "Overview of Creep Strength and Oxidation of Heat-Resistant Alloy Sheets and Foils for Compact Heat-Exchangers," GT2005-68927, in *Proc. 2005 ASME Turbo Expo* (June 6-9, 2005, Reno, NV), Am. Soc. Mech.. Engin., New York, NY (2005).

26. N. D. Evans, P. J. Maziasz, Y. Yamamoto, and J. P. Shingledecker, "Electron Microscopy of Heat-Resistant Alloy Sheets and Foils Being Considered for Use in Recuperators," in *Microscopy and Microanalysis*, (2005).

27. M. P. Brady, C. T. Liu, Y. Yamamoto, Zhao Ping Lu, H. Meyer, "Multi-Phase High Temperature Alloys: Exploration of Laves Phase Strengthening of Steels," in *Annual Review of Fossil Energy Material Program* (2005).

28. Y. Yamamoto, M. Nagaki, M. Takeyama, and T. Matsuo, "Crystallographic Considerations for Lamellar Orientation Control of Ti-48Al PST Crystal," in *GAMMA TITANIUM ALUMINIDES 2003*, eds. Y. W. Kim, H. Clemens, A. H. Rosenberger, TMS, Warrendale, PA (2004), p. 121-126.

29. M. P. Brady, C. T. Liu, E. A. Payzant, P. F. Tortorelli, Y. Yamamoto, Larry Walker, "Multi-Phase High Temperature Alloys and Progress in Controlled Oxidation for Functional and Protective Surfaces," in

*Annual Review of Fossil Energy Material Program*, (2004).

30. Y. Yamamoto, M. Takeyama, T. Matsuo, "A Mechanism of Polycrystallization in Fully Lamellar Ti-48Al-8Nb Single Crystal Alloy Aged at Elevated Temperatures," in *Defect Properties and Related Phenomena in Intermetallic Alloys*, Materials Research Society Symposium Proceedings (2003), BB.5.5.

31. Y. Yamamoto, M. Takeyama, T. Matsuo, "Microstructure Change in Fully Lamellar Ti-48Al-8Nb Single Crystal during Aging at Elevated Temperatures," in *Structural Intermetallics 2001* (2002), p. 601-606.

32. Y. Yamamoto, M. Takeyama, T. Matsuo, "Thermal Instability of γ/γ Interfaces in Fully Lamellar Ti-48Al Single Crystal Alloys at Elevated Temperatures," in *Proceedings of the International Conference on Processing & Manufacturing of Advanced Materials* (THERMEC'2000), 177(3) (2001), [CD-ROM], Section E3.

33. Y. Yamamoto, H. Morishima, K. Koike, M. Takeyama, T. Matsuo, "Control of Lamellar Orientation in γ-TiAl Based PST Crystal by Using Seed Crystals," in *High Temperature Ordered Intermetallic Alloys IX*, Materials Research Society Symposium Proceedings (2001), N.5.54.1-6.

34. Y. Yamamoto, S. Uemura, M. Kajihara, "Composition Dependence of Kinetics of Diffusion Induced Recrystallization in Polycrystalline Cu/Ni Diffusion Couples", in *Proceedings of the International Conference on Solid-Solid Phase Transformations '99 (JIMIC-3)* (1999), p.593-596.

35. M. Moriyama, Y. Yamamoto, M. Saitoh, M. Kajihara, "Microstructure Observations for Diffusion Induced Recrystallization and Diffusion Induced Grain Boundary Migration on Surfaces of Zincified Cu Bicrystals with [110] Twist Boundaries," in *Interface Science*, 7(2) (1999), p.181-189.

36. M. Moriyama, Y. Yamamoto, M. Kajihara, T. Mori, "Orientation Dependence of DIGM of [100] Twist Boundaries in the Cu(Zn) System," in *Proceedings of 8th International Conference on Intergranular and Interphase Boundaries in Materials* (1996), p. 399-402.