MICHAEL P. BRADY, Ph.D.
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EDUCATION AND TRAINING

1997-1998:	ORISE Postdoctoral Fellow, Oak Ridge National Laboratory. Oak Ridge, TN: Alloying Behavior and Design Group/Corrosion Science and Technology Group, Metals and Ceramics Division
1993-1996:	National Research Council Postdoctoral Fellow, NASA Glenn Research Center, Cleveland, OH: Environmental Durability Branch, Materials Division
1993:	Ph.D. in Materials Science and Engineering, University of Florida
1990:	M.S. in Materials Science and Engineering, Virginia Tech. (V.P.I.)
1986:	B.S. in Materials Science and Engineering, Virginia Tech. (V.P.I.)

RESEARCH AND PROFESSIONAL EXPERIENCE

1998-present	Distinguished R&D Staff Member, Oak Ridge National Laboratory, Oak Ridge, TN (Senior R&D Staff 2005-2010, R&D Staff Member 1998-2004): Joint member of Corrosion Science and Technology Group/Alloying Behavior and Design Group, Materials Science and Technology Division

Research efforts devoted to alloy design, aqueous corrosion, high-temperature oxidation and corrosion, and materials synthesis R&D for a wide range of structural and functional applications (power plants, gas turbines, fuel cells, magnetic materials, automotive, chemical processing, etc.)

AWARDS and HONORS

-2016 Fellow, ASM International
-2015 ASME Turbo Expo, Microturbines, Turbochargers & Small Turbomachines Committee Best Paper Award (team member)
-2015 ORNL Inventor of the Year Award
-2015 Best Paper Award, *Journal of Nuclear Materials*, "High temperature oxidation of fuel cladding candidate materials in steam–hydrogen environments", BA Pint, KA Terrani, MP Brady, T Cheng, JR Keiser, JNM 440 (1), 420-427 (2013)
-2015 TMS Brimacombe Medalist Award (mid-career achievement award, inducted class of 4)
-2015 NACE Materials Performance Corrosion Innovation of the Year Award-Materials Design Category for AFA Alloy Family (ORNL Team lead, with Carpenter Technology Corporation)
-2014 SAE International Best Poster Award for Cast AFA Stainless Steels (team member)
-2012 Federal Lab Consortia Award for Excellence in Tech Transfer for Materials for a Low-Cost, Clean Cookstove (with Envirofit International and Colorado State University) (ORNL Team lead)
-2011 ORNL Director's Award Outstanding Team Accomplishment for AFA Stainless Steels (ORNL Team of the Year Award, Team lead)

-2011 Excellence in Technology Transfer Award for Development and Licensing of AFA Stainless Steels (Team lead)
-2011 ORNL Significant Event Award for AFA stainless steel license agreement with Carpenter Technologies (Team lead)
-2009 R&D 100 Award for Development of AFA Stainless Steels (Team lead)
-2007 ORNL Significant Event Research Award for Development of Alumina-Forming Austenitic (AFA) Stainless Steels (Team lead)
-2004 ORNL Significant Event Research Award for Development of Nitrided Metallic Bipolar Plates (Team lead)
-2003 Top Ten (#3) Accomplishment DOE Fuel Cell Program
-1999 Distinguished Poster Award Gordon Research Conference on High-Temperature Corrosion
-1999 NASA Space Act Board Award
-1996 NASA Tech Brief Award
-1994 Two Papers on the 1994 NASA HITEMP Conference Ten Best Paper List
-1993 Alpha Sigma Mu Materials Engineering Honor Society
-1992 The Honor Society of Phi Kappa Phi
-1985, 1992 International Metallographic Symposium Student Poster Presentation Awards

SELECT KEY ACCOMPLISHMENTS

Low-Cost Metallic Combustor Materials for Clean Cookstoves: Lead Investigator, project with Envirofit International and Colorado State University, 2008-2012, 2013-present
-Materials selection and characterization effort to aide Envirofit in implementing a metal combustor for their low-cost, clean cookstove for the developing world. These cookstoves reduce smoke and toxic emissions by up to 80% and fuel requirements, costs, and cooking time by up to 60%.
-Joint patent with Envirofit and Colorado State University, US Patent 8,899,222 "Cook Stove Assembly.
-Commercialized by Envirofit with over 650,000 Clean Cookstove Units Sold in the Developing World.
-2012 Federal Lab Consortia Award for Excellence in Technology Transfer for Materials for a Low-Cost, Clean Cookstove (with Envirofit International and Colorado State University) (ORNL Team lead)
-2015 New, low-cost, clean cookstove combustor alloy patent disclosure (lead inventor). Alloy shows preliminary promise for increased corrosion resistance at lower cost than state-of-the-art materials.

Development of Alumina-Forming Austenitic (AFA) Stainless Steels: Lead Inventor, Lead/Co-Investigator, 2006-present
-Development of a new family of high creep strength austenitic stainless steels capable of protective alumina scale formation for superior high-temperature oxidation and corrosion resistance
-2015 NACE Materials Performance Corrosion Innovation of the Year Award-Materials Design Category for AFA Alloy Family (ORNL Team lead, with Carpenter Technology Corporation)
-Licensed to Carpenter Technology Corporation, 2011. Scale-up activities and end user testing underway
-ORNL 2011 Team of the Year, 2011 Technology Transfer, and Significant Event Awards (2007, 2011)
-2009 R&D 100 Award (team lead)
-5 U.S. patents issued
-Initial findings published in the international, multi-disciplinary journal *Science*
-Highlighted in numerous general materials and specialty publications and websites including *Materials, Today, Materials World, Materials Performance, American Metal Market, Stainless Steel World, Science Daily, UPI*, etc.

Nitrided Metallic Bipolar Plates for PEM Fuel Cells: Lead Inventor, Lead/Co- Investigator, 2000-2011
-Fe/Ni-Cr base alloys designed to form an electrically conductive and corrosion resistant nitride surfaces by thermal nitriding for use as bipolar plates in proton exchange membrane fuel cells
-3 U.S. Patents Issued
-Technology evaluated by multiple industrial end users and fuel cell OEMs
-Project achievements highlighted in fuel cell and technology publications including *FUTURETECH ALERT*, *The Fuel Cell Catalyst*, *Fuel Cell Industry Report*, *Fuel Cell Today*, and *Autotech Daily*
-ORNL Significant Event Award 2004
-Selected Top Ten (# 3) DOE Fuel Cell Program Accomplishment for 2003
-Nitriding experience extended to support Proton OnSite commercialization efforts for nitrided titanium bipolar plates in fuel cell electrolyzers (2012-present).

SELECT SYNERGISTIC ACTIVITIES

-Editorial Board of the journal Oxidation of Metals, 2004 – present
-Co-Organizer of Materials in Clean Power Symposium, TMS Annual Meeting, 2006-2010/Co-Editor of 2007, 2008, and 2011 Special Issues of the International Journal of Hydrogen Energy devoted to papers from the symposium series
-JOM Topic Editor for the June, 2010 Issue "Corrosion as a Nanostructure Synthesis Strategy"
-Technical Emphasis Topic Co-Editor January 2000 Issue of JOM on high-temperature oxidation
-Technical reviewer in the areas of corrosion, gas reactions, and metallurgy for the journals Acta/Scripta Materialia, Corrosion, Corrosion Science, Intermetallics, International Journal of Hydrogen Energy, Journal of the Electrochemical Society, Journal of Materials Research, Journal of Power Sources, Materials Letters, Materials Science and Engineering A, Metallurgical and Materials Transactions, Nature, Surface and Coatings Technology (among others)
-ASM member 1989 - present
-TMS member 1995 – present
-NACE member 2014 - present

MENTORING ACTIVITIES

- Adjunct Associate Professor of Materials Science and Engineering, University of Tennessee, Knoxville, TN 2001-Present
- Mentor under ORNL Materials Science and Technology Division Mentoring Program (2010)
- Students/Post-Doctoral Fellows Advised/Co-Advised
  - -Committee Member for Ph.D. study of Bin Hu and Geneva Trotter, Dartmouth College (2013-present)
  - -Hassan Elsentriecy, Post-Doctoral Fellow 2013-2014 (currently with University of Arizona)
  - -Brian McCarthy Undergraduate Summer Intern 2008 (currently Ph.D. candidate, University of North Carolina)
  - -Committee member for PhD study of Naren Garimella, University of Central Florida (2008)
  - -External reviewer for PhD defense of Yan Wang, University of Windsor, Canada (2008)
  - -Yukinori Yamamoto, Post-Doctoral Fellow 2005-2007 (currently with ORNL)
  - -Bing Yang, Post-Doctoral Fellow 2004-2006 (currently with Shell Oil Company)

-Irene E. Paulauskas, M.S. December 2003 (later received Ph.D., currently with Bio Nano Consulting)
-Sara K. Wrobel, M.S. December 2002 (currently with CITGO, Lake Charles, LA)
-Pavlo Sachenko, Post-Doctoral Fellow 2002-2004
-Leslie Miller, Post-Master's Fellow 2001-2002 (currently with the Nuclear Regulatory Commission)
-Jesus Zamarano Undergraduate Summer Intern 2001-2002 (currently with Kalsi Engineering, Sugarland, TX)
-Sarah Bailey Undergraduate Summer Intern 2000 (currently Mathematics Professor, Furman University)

SELECT RELEVANT PUBLICATIONS AND PATENTS:

Author/co-author of >100 journal publications (Google Scholar >4300 citations, h-index 36; ISI Web of Science >2600 citations, h-index 31 as of Aug 1 2017), ~25 conference proceedings, and 2 invited book chapters. 15 issued U.S. Patents (3 licensed, additional 1 in commercial production) and 5 pending U.S. Patents.

Issued Patents

1) M. P. Brady, G. M. Ludtka, G. M. Ludtka, G. Muralidharan, D. M. Nicholson, O. Rios, Y. Yamamoto, "Magnetic Field Annealing For Improved Creep Resistance", U.S. Patent No. 9,217,187 (December 22, 2015).

2) M.W. Defoort, B.D. Wilson, N. Lorenz, M.P. Brady, A. Marchese, and D.D. Miller-Lionberg, US Patent 8,899,222 "Cook Stove Assembly" (Dec 2, 2014).

3) Y. Yamamoto, G. Muralidharan, and M.P. Brady, US Patent 8,815,146 "Alumina Forming Iron Base Superalloy" (Aug 26, 2014).

4) G. Muralidharan, Y. Yamamoto, and M.P. Brady, US Patent 8,431,072 "Cast Alumina Forming Austenitic Stainless Steels" (April 30, 2013).

5) 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).

6) 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).

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, B. Yang, and P.J. Maziaz, US Patent 7829194 "Iron-based alloy and nitridation treatment for PEM fuel cell bipolar plates" (November 9, 2010).

9) M.P. Brady, J.A. Horton, and J.M. Vitek, US 7,683,296 “Adjusting alloy compositions for selected properties in temperature limited heaters” (March 23, 2010).

10) J.M. Vitek, M.P. Brady, and J.A. Horton, US Patent 7,597,147 “Temperature limited heaters using phase transformation of ferromagnetic material”, (October 6, 2009).

11) M.P. Brady, H. Wang, and J.A. Turner, “Surface Modified Stainless Steels For PEM Fuel Cell Bipolar Plates“, U.S. Patent 7,247,403 (July 24, 2007).

12) M.P. Brady, J. H. Schneibel, B.A. Pint, P.J. Maziasz “Corrosion Resistant Metallic Bipoar Plates” U.S. Patent 7,211,346 (May 1, 2007).

13) C.T. Liu, M.P. Brady, J.H. Zhu, and P.F. Tortorelli, "Dual-Phase Cr-Ta Alloys for Structural Applications", U.S. Patent 6,245,164 (June 12, 2001).

14) M.P. Brady, J.L. Smialek, and W.J. Brindley, "Two-Phase (TiAl + TiCrAl) Coating Alloys for Titanium Aluminides", U.S. Patent 5,837,387 (November 17, 1998).

15) M.P. Brady, J.L. Smialek, and W.J. Brindley, "Oxidation-Resistant Ti-Al-Fe Alloy Diffusion Barrier Coatings", U.S. Patent 5,776,617 (July 7, 1998).

Pending Disclosures

1) J-P Wang, Y Jiang, C. Bridges, M.P. Brady, O. Rios, R. Meisner, L. Allard, and E. Lara-Curzio, “Iron Nitride Magnetic Material Including Coated Nanoparticles”.

2) M. P. Brady, O. Rios, Y. Jiang, G. Ludtka, C. Bridges, L. Allard, E. Lara-Curzio, J-P Wang, X. Zhang, “Applied Magnetic Field Synthesis and Processing of Iron Nitride Magnetic Materials”.

3) E. Lara-Curzio, J-W. Moon, M. P. Brady, C. Bridges, L. Allard, O. Rios S.G. Sankar, and B. Zande, “Low-Cost Precursor for Synthesis of High Coercivity Fe-N Magnet Powders”.

4) M.P. Brady, K. Banta, M. DeFoort, J. Mizia, Y. Yamamoto, N. Lorenz, “Corrosion-Resistant Alloy and Applications”

5) Y. Yamamoto, B.A. Pint, M.P. Brady, ORNL invention disclosure “Corrosion and Creep Resistant High Cr FeCrAl Alloys”

Book Chapters

(Invited Book Chapter) P.F. Tortorelli and M.P. Brady, “Design of High Temperature Alloys”, Shrier’s Corrosion Handbook (2010)

(Invited Book Chapter) M.P. Brady, B.A. Pint, P.F. Tortorelli, I. G. Wright, and R. J. Hanrahan, Jr., “High-Temperature Oxidation and Corrosion of Intermetallics”, Corrosion and

Environmental Degradation, Volume II, M. Schutze, Ed., Materials Science and Technology Series, Wiley-VCH, Weinheim, Germany, chapter 6, pp. 229-325 (2000).

Select Journal Publications

Magnesium Corrosion

M. P. Brady, M. Fayek, D. N Leonard, H. M. Meyer III, J. K. Thomson, L. M Anovitz, G. Rother, G.-L. Song, D. Davis, "Tracer Film Growth Study of the Corrosion of Magnesium Alloys AZ31B and ZE10A in 0.01% NaCl Solution", Journal of the Electrochemical Society 164 (7), C367-C375 (2017)

M.P. Brady, W.J. Joost, C.D. Warren, "Insights from a Recent Meeting: Current Status and Future Directions in Magnesium Corrosion Research", Corrosion 73 (5), 452-462 (2017)

D Rossouw, D Fu, DN Leonard, MP Brady, GA Botton, JR Kish, "Characterization of Localized Filament Corrosion Products at the Anodic Head on a Model Mg-Zn-Zr Alloy Surface", Corrosion, 73 (5), 518-525 (2017).

MP Brady, DN Leonard, HM Meyer, JK Thomson, KA Unocic, H.H. Elsentriecy, G.-L. Song, K. Kitchen, and B. Davis, "Advanced characterization study of commercial conversion and electrocoating structures on magnesium alloys AZ31B and ZE10A", Surface and Coatings Technology 294, 164-176 (2016)

Guang-Ling Song, Kinga A. Unocic, Harry Meyer, Ercan Cakmak, Michael P. Brady, "The Corrosivity and Passivity of Sputtered Mg-Ti Alloys", Corrosion Science 104, 36-46 (2016).

MP Brady, M Fayek, HM Meyer, DN Leonard, HH Elsentriecy, KA Unocic, LM Anovitz, E Cakmak, JR Keiser, GL Song, B Davis, "Tracer study of oxygen and hydrogen uptake by Mg alloys in air with water vapor", Scripta Materialia, Volume 106, pp, 38-41 (September 2015)

MP Brady, G Rother, LM Anovitz, KC Littrell, KA Unocic, HH Elsentriecy, G-L Song, JK Thomson, NC Gallego, B Davis, "Film Breakdown and Nano-Porous Mg (OH) 2 Formation from Corrosion of Magnesium Alloys in Salt Solutions", Journal of The Electrochemical Society, 162 (4), C140-C149, (2015).

MP Brady, M Fayek, HH Elsentriecy, KA Unocic, LM Anovitz, JR Keiser, LM Anovitz, James R Keiser, GuangLing Song, B Davis, "Tracer Film Growth Study of Hydrogen and Oxygen from the Corrosion of Magnesium in Water", Journal of The Electrochemical Society, 161 (9), C395-C404, (2014).

KA Unocic, HH Elsentriecy, MP Brady, HM Meyer, GL Song, M Fayek, RA Meisner, B Davis, "Transmission Electron Microscopy Study of Aqueous Film Formation and Evolution on Magnesium Alloys", Journal of The Electrochemical Society, 161 (6), C302-C311 (2014).

Corrosion Considerations in Bio-Oil Processing and Biomass Cookstoves

M P. Brady, K Banta, J Mizia, N Lorenz, D N. Leonard, Y Yamamoto, M DeFoort, J R. Keiser, "Alloy Corrosion Considerations in Low-Cost, Clean Biomass Cookstoves for the Developing World", Energy for Sustainable Development, 37, 20-32 (2017)

M.P. Brady, J.R. Keiser, D.N. Leonard, A.H. Zacher, K. J. Bryden, G.D. Weatherbee, "Corrosion of Stainless Steels in the Riser During Co-Processing of Bio-Oils in a Fluid Catalytic Cracking Pilot Plant", Fuel Processing Technology 159, 187-199 (2017)

MP Brady, JR Keiser, DN Leonard, L Whitmer, JK Thomson, "Corrosion Considerations for Thermochemical Biomass Liquefaction Process Systems in Biofuel Production", JOM 66 (12), 2583-2592 (2014)

JR Keiser, MP Brady, RM Connatser, SA Lewis Sr, "Degradation of Structural Alloys In Biomass-Derived Pyrolysis Oil", Journal of Science & Technology for Forest Products and Processes, 3 (3) (2014)

$Fe_{16}N_2$ and Related Magnetic Nitrides

CA Bridges, O Rios, LF Allard, HM Meyer, A Huq, Y Jiang, JP Wang, M.P. Brady, "The impact of carbon coating on the synthesis and properties of α'' -Fe 16 N 2 powders", Physical Chemistry Chemical Physics 18 (18), 13010-13017 (2016)

Y Jiang, V Dabade, MP Brady, O Rios, RD James, JP Wang, "9 T High Magnetic Field Annealing Effects on FeN Bulk Sample", Journal of Applied Physics, 115 (17), 17A758 (2014).

Water Vapor/Steam Oxidation Effects

M.P. Brady, G. Muralidharan, D. N. Leonard, J.A. Haynes, R.G. Weldon, and R.D. England, "Long-Term Oxidation of Candidate Cast Iron and Stainless Steel Exhaust System Alloys from 650-800°C in Air with Water Vapor", Oxidation of Metals, 82 (5-6), 359-381 (2014)

MP Brady, H Bei, RA Meisner, MJ Lance, PF Tortorelli, "Effect of Mo Dispersion Size and Water Vapor on Oxidation of Two-Phase Directionally Solidified NiAl–9Mo In-Situ Composites", Scripta Materialia, 80, 33-36 (2014).

BA Pint, KA Terrani, MP Brady, T Cheng, JR Keiser, "High temperature oxidation of fuel cladding candidate materials in steam–hydrogen environments", Journal of Nuclear Materials, 440 (1), 420-427 (2013).

T. Cheng, J. R. Keiser, M. P. Brady, K. A. Terrani and B. A. Pint, "Oxidation of fuel cladding candidate materials in steam environments at high temperature and pressure", Journal of Nuclear Materials, Volume 427, Issues 1–3, pp. 396-400 (2012).

M.P. Brady, J.R. Keiser, K.L. More, M. Fayek, L.R. Walker, L.M. Anovitz, R.A. Peasco-Meisner, L.M. Anovitz, D.J. Wesolowski, and D.R. Cole, "Comparison of Short-Term Oxidation Behavior of Model and Commercial Chromia-Forming Ferritic Stainless Steels in Dry and Wet Air", Oxidation of Metals, Volume 78, Issue: 1-2, pp. 1-16 (2012).

G. Rother, J.R. Keiser, M.P. Brady, K.A. Unocic, L.M. Anovitz, K.C. Littrell, R.A. Peasco-Meisner, M.L. Santella, D.J. Wesolowski, and D.R. Cole, "Small-angle neutron scattering study of the wet and dry high-temperature oxidation of alumina- and chromia-forming stainless steels", Corrosion Science, Volume 58, pp. 121-132 (2012)

M.P. Brady, M. Fayek, J.R. Keiser, H.M. Meyer III, K.L. More, L.M. Anovitz, D.J. Wesolowski, and D.R. Cole, "Wet Oxidation of Stainless Steels: New Insights into Hydrogen Ingress", Corrosion Science, Volume 53, Issue 5, pp. 1633-1638 (2011).

A.A. Chialvo, M.P. Brady, J.R. Keiser, D.R. Cole, "Modeling the Effect of Water Vapor on the Interfacial Behavior of High-Temperature Air in Contact with Fe20Cr Surfaces", Scripta Materialia, Vol: 64, Issue: 11, pp. 1027-1031 (2011).

Alumina-Forming Austenitic Stainless Steels

M. P. Brady, G. Muralidharan, Y. Yamamoto, B.A. Pint, "Development of 1100 °C Capable Alumina-Forming Austenitic Alloys", Oxidation of Metals 87 (1), 1-10 (2017).

G. Muralidharan, Y. Yamamoto, M.P. Brady, L. R. Walker, H. M. Meyer III, and D. N. Leonard, Development of Cast Alumina-forming Austenitic Stainless Steels, JOM 68 (11), 2803-2810 (2016).

BA Pint, S Dryepondt, MP Brady, Y Yamamoto, B Ruan, RD McKeirnan, "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 (12), 122001 (2016).

NM Yanar, BS Lutz, L Garcia-Fresnillo, MP Brady, GH Meier, "The Effects of Water Vapor on the Oxidation Behavior of Alumina Forming Austenitic Stainless Steels", Oxidation of Metals 84 (5-6), 541-565 (2015).

AG Fernández, A Rey, I Lasanta, S Mato, MP Brady, FJ Pérez, "Corrosion of Alumina-Forming Austenitic Steel in Molten Nitrate Salts by Gravimetric Analysis and Impedance Spectroscopy", Materials and Corrosion, 65 (3), 267-275 (2014).

MP Brady, J Magee, Y Yamamoto, D Helmick, L Wang, "Co-Optimization of Wrought Alumina-Forming Austenitic Stainless Steel Composition Ranges for High-Temperature Creep and Oxidation/Corrosion Resistance, Materials Science and Engineering A: A 590, 101-115 (2014).

Y Yamamoto, G Muralidharan, MP Brady, "Development of $L1_2$ Ordered Ni_3(Al, Ti)-Strengthened Alumina-Forming Austenitic Stainless Steel Alloys, Scripta Materialia, 69 (11), 816-819 (2013).

B.A. Pint, M.P. Brady, Y. Yamamoto, M.L. Santella, P.J. Maziasz, W.J. Matthews, " Evaluation of Alumina-Forming Austenitic Foil for Advanced Recuperators", Journal of Engineering For Gas Turbines And Power-Transactions of the ASME, Volume: 133 Issue: 10 Article Number: 102302 (Oct 2011).

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", Oxidation of Metals, Volume 75, Numbers 5-6, 337-357 (2011)

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", Metallurgical and Materials Transaction A, Volume 42, Number 4, pp. 922-931(2011)

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, 527 (7-8), pp. 2079-2086 (2010)

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

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

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, 40(8), pp. 1868-1880 (2009).

M.P. Brady, Y. Yamamoto, M.L. Santella, P.J. Maziasz, B.A. Pint, C.T. Liu, "The Development of Alumina-Forming Austenitic Stainless Steels for High-Temperature Structural Use", JOM, 60 (7), pp. 12-18 (2008).

M.P. Brady, Y. Yamamoto, Z.P. Lu, P.J. Maziasz, C.T. Liu, B.A. Pint, and M.L. Santella, "Alumina-Forming Austenitics: A New Class of Heat-Resistant Stainless Steels", Stainless Steel World Magazine, Vol. 20, pp. 23-29 (March 2008) (reprinted in Chinese in the Chinese Journal of Nature)

M.P. Brady, Y. Yamamoto, B.A. Pint, M.L. Santella1, P.J. Maziasz, and L.R. Walker, "On the Loss of Protective Scale Formation in Creep-Resistant, Alumina-Forming Austenitic Stainless Steels at 900°C in Air", Materials Science Forum, 595-598, pp 725-732 (2008)

Y. Yamamoto, M. Takeyama, Z.P. Lu, C.T. Liu, N.D. Evans, P.J. Maziasz, and M.P. Brady, "Effect Of Intermetallic Phase Precipitation On Creep Properties of Fe-20Cr-30Ni-2Nb Base Alloys", Intermetallics Vol 16/3 pp 453-462 (2008)

M.P. Brady, Y. Yamamoto, M.L. Santella, B.A. Pint, "Effects of Minor Alloy Additions and Oxidation Temperature on Protective Alumina Scale Formation in Creep-Resistant Austenitic Stainless Steels", Scripta Materialia, 57 (12), pp. 1117-1120 (2007).

Y. Yamamoto, M. P. Brady, Z. P. Lu, M. Takeyama, P. J. Maziasz, C.T. Liu, B.A. Pint, "Alumina-Forming Austenitic Stainless Steels Strengthened by Laves Phase and MC Carbide Precipitates", Metallurgical and Materials Transactions, 38(11), pp. 2737-2746 (2007)
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", Science, 316 (5823), pp. 433-436 (April 20, 2007).

PEM Fuel Cells and Electrolyzers/Nitrided Bipolar Plates

J. Mo, S.M. Steen, F.Y. Zhang, T.J. Toops, M.P. Brady, J.B. Green, "Electrochemical investigation of stainless steel corrosion in a proton exchange membrane electrolyzer cell", International Journal of Hydrogen Energy 40 (36), 12506-12511 (2015).

D.D. Papadias, R.K. Ahluwalia, JK Thomson, HM Meyer III, MP Brady, H. Wang, J. A Turner, R. Mukundan, R. Borup, "Degradation of SS316L Bipolar Plates in Simulated Fuel Cell Environment: Corrosion Rate, Barrier Film Formation Kinetics and Contact Resistance", Journal of Power Sources, 273, p. 1237-1249 (2015).

T. J. Toops, M. P. Brady, F-Y Zhang, H. M. Meyer, III, K. Ayers, A. Roemer, L. Dalton, "Evaluation of Nitrided Titanium Separator Plates for Proton Exchange Membrane Electrolyzer Cells", Journal of Power Sources, Journal of Power Sources, 272, pp. 954-960 (2014).

M. P. Brady, M. Abd Elhamid, G. Dadheech, J. Bradley, T. J. Toops, H. M. Meyer III, and P.F. Tortorelli, "Manufacturing and Performance Assessment of Stamped, Laser Welded, and Nitrided FeCrV Stainless Steel Bipolar Plates for Proton Exchange Membrane Fuel Cells", International Journal of Hydrogen Energy, 38 (11), 4734-4739 (2013).

M.P. Brady, H. Wang, J.A. Turner, H.M. Meyer, K.L. More, P.F. Tortorelli, and B. McCarthy, "Pre-Oxidized and Nitrided Stainless Steel Foil for Proton Exchange Membrane Fuel Cell Bipolar Plates: Part 1 Corrosion, Interfacial Contact Resistance, and Surface Structure", Journal of Power Sources, 195 (17), pp 5610-5618 (2010)

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