ADRIAN S. SABAU, PhD, FASME

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https://www.researchgate.net/profile/Adrian_Sabau
http://scholar.google.com/citations?user=STsPNOEAAAAJ&hl=en
https://www.scopus.com/authid/detail.uri?authorId=7003410482
https://orcid.org/0000-0003-3088-6474, http://adriansabau.net/

RESEARCH INTERESTS

Dr. Sabau seeks to advance laser processing, materials processing, and materials development for energy applications through the development of multiphysics solution algorithms, code implementation, and novel experimental techniques. His expertise include computer models for energy transport and mass transport, in an integrated computational materials engineering (ICME) environment, for process simulations of materials behavior and performance in harsh environments.

EMPLOYMENT

10/18-present	**Computational Materials Scientist** (Senior) Multiscale & Materials Group Computational Sciences & Eng. Division	Oak Ridge National Laboratory (MMG) (CSED)
01/08-09/18	**Senior Research Staff Member** Materials Processing and Joining Materials Science & Techn. Division	Oak Ridge National Laboratory (Materials Processing Group, MPG) (MSTD)
10/99-12/07	**Research Staff Member**	Oak Ridge National Laboratory, MPG
05/97-10/99	**Post-Doctoral Fellow**	Oak Ridge National Laboratory, MPG
07/96-04/97	**Research Associate**	Tennessee State University Mechanical Engineering Department
08/92-06/96	**Graduate Assistant**	Southern Methodist University Mechanical Engineering Department

OTHER APPOINTMENTS

- *Adjunct Professor* - 2018-Present - Mechanical, Aerospace and Biomedical Engineering Department, University of Tennessee, Knoxville, TN.
- *Joint Faculty* - 2013-2018 - Mechanical, Aerospace and Biomedical Engineering Department (0 %), University of Tennessee, Knoxville, TN.
- *Adjunct Professor* - 2007-2013 - Mechanical, Aerospace and Biomedical Engineering Department, University of Tennessee, Knoxville, TN.

EDUCATION

Ph.D. **Mechanical Engineering** Computational Fluid Dynamics (CFD), 8/92-5/96, **Southern Methodist University**, Dallas, TX

Diploma Engineer, Mechanical Engineering and Materials Processing, 9/87-6/92, **University of Craiova**, Craiova, Romania.

THESES

Stability Analysis of the Dynamic Model of a Manipulator and its Hydraulic Power Circuit
Diploma Engineer Thesis, University of Craiova, Craiova, Romania, July 1992.

Numerical Methods for Fluid-Solid Interaction Problems with Moving Boundaries
Ph.D. Dissertation, Southern Methodist University, Dallas, TX, May 1996.

EXPERIMENTAL FACILITIES and LABORATORIES

- *Laser structuring facility* (Facility Manager since 2013; Laboratory Space Manager since 2018)
- *Plasma-arc lamp facility* (Facility Manager, 2009-2018)

PUBLICATIONS (see attached list)

5 patents granted,
67 journal papers (1-st author 35 papers),
11 industry refereed journal papers (1-st author 10 papers),
5 co-edited books.
86 conference papers (1-st author 49 papers).
16 invited talks.

HONORS AND AWARDS

UT-BATTELLE **Awards**, Research Accomplishment in Science and Technology
Shyam A., Shin D., Allard L., Yamamoto Y., Haynes J.A.,
Watkins T., Sabau A., Porter W., Hawkins C., McClurg D. (2018)

ORNL **Significant Event Award** (SEA) - Testing of Solar Probe Cup for NASA's Parker Solar Probe Spacecraft using the Plasma-Arc Lamp Oct., 2018 (Team lead by PI A.S. Sabau)

R&D 100 Magazine, **R&D 100 Award**, ACMZ Cast Aluminum Alloys
Shyam A., Haynes J.A., Yamamoto Y., Shin D., Sabau A., Allard L.,
Watkins T., Porter W., Morris J., Roy S., Maziasz P., McClurg D.,
Hawkins C., Shower P., and Milligan B.. (and collaborators from
Fiat Chrysler Automobile USA and Nemak USA) 2017.

ORNL **Significant Event Award** (SEA) - New High Temperature Cast Aluminum Alloys – Dec., 2016 (Team lead by PI Shyam A.)

ASME **Fellow** (2016)

UT-Battelle **Technology Commercialization Award** (2014)

ORNL **Significant Event Award for** Development and Demonstration of a High-Heat Flux Testing Facility based on Plasma-arc Lamps for Neutron-Irradiated Materials, (Team lead by PI A.S. Sabau), 2013.

NFLC **National Federal Laboratory Consortium Award for Excellence in Technology Transfer**, "Pulse Thermal Processing", Blue C.A., Clemos, A., Dudney, N., Duty, C., Harper D., Ott R., Rivard, J., Sabau A., DeTrana, A.G., 2012.

R&D 100 Magazine, **R&D 100 Award in Process Sciences**, CermaClad^{TM}
MesoCoat Inc., (Sherman A.J., Engleman G.,)
ORNL (Blue C., Clemos, A., Dudney N., Duty, C., Harper D., Ott R.,
Rivard, J., Sabau A., Sikka V.), EMTEC (Martin M.), 2011.

R&D 100 Magazine, **R&D 100 Award in Process Sciences**, PulseForge^{TM} 3100
with Pulse Thermal Processing, NovaCentrix, Inc. (Schroder K., Jackson D.,
McCool S., Pope D., Kierzyk T., Lind D., Rawson I., Sommers R.) and
ORNL (Blue C., Clemos, A., Dudney, N., Duty, C., Harper D., Ott R.,
Rivard, J., Sabau A.), 2009.

Southern Methodist University, **The Frederick E. Terman Award**, 1994-1995
(for *academic achievement* in Mechanical Engineering, 3.96/4 GPA)

University of Craiova, **Valedictorian**-equivalent,
Highest ranking; 1992 graduating class in Mechanical Engineering Dept.

University of Craiova, **National Merit Scholarship** (9.92/10 GPA), 1989-1992

MEDIA

1. `https://www.wate.com/news/local-news/ornl-helps-nasa-with-testing-space-probe-heading-to-1373585434/`, Aug 15, 2018.
2. `https://www.youtube.com/watch?v=-OtmgdCg8EM`, ORNL rendering of our contributions to Solar Probe , Aug 15, 2018.
3. `https://www.ornl.gov/news/materials-taking-heat`, May 1, 2018.

4. https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series/10-19-2017, Webinar on laser-interference structuring, Oct. 19, 2017.
5. https://www.ornl.gov/research-highlight/nasa-probe-parts-pass-ornls-sun-simulating-exposu May 11, 2018.
6. https://www.ornl.gov/news/laser-treatment-bonding-potential-road-success-carbon-fiber, https://www.youtube.com/watch?v=vBTKG5HS6RU, May 19, 2016.
7. https://www.ornl.gov/content/ornl-s-plasma-arc-lamp-tests-instrument-nasa-solar-probe, September 2, 2015.

Pending Issued Patents, Patent Applications, and Software Copyrights

1. A.S. Sabau and I.G. Wright, SpallMap, UT-Battelle Open Source Copyright 80000028, https://github.com/adisoft17/spallmap, Copyright 2018 UT-Battelle LLC. All rights reserved, Filed 3/22/2018, Approved 4/13/2018.
2. A.S. Sabau, J.W. Klett, and Y. Polsky, Multi-zone Shell and Tube Heat Exchanger, Provisional Patent Application UTB 4045.2 filed 9/30/2020.
3. A.S. Sabau, J. Li, H. Meyer III, C. Daniel, Laser-Interference Surface Preparation for Enhanced Coating Adhesion, U.S. Patent No. 11,065,719 07/20/2021.
4. A. Shyam, Y. Yamamoto, D. Shin, J.A. Haynes, P.J. Maziasz , A.S. Sabau, S. Roy, A.F. Rodriguez-Jasso, J.A. Gonzalez-Villarreal, J. Talamantes-Silva, L. Zhang, C.R. Glaspie, S. Mirmiran, Aluminum Alloy Compositions and Methods of Making and Using the Same, US Patent Application Number 15/160,926, Filed May 20, 2016.
5. A.S.Sabau, C.D. Warren, C. Daniel, J. Chen, D.L. III Erdman, Laser Nanostructured Surface Preparation for Joining Dissimilar Materials, U.S. Patent No. 10,082,166 B2, 09/25/2018.
6. I.V. Vlassiouk, W.H. Peter, A.S. Sabau, S. Dai, P. Fulvio, I.N. Ivanov, and N.V. Lavrik, "High quality large scale single and multilayer graphene production by chemical vapor deposition," U.S. Patent No. 10,023,468 07/17/2018.
7. D.J. King, S. Babinec, P.L. Hagans, L.C. Maxey, E.A. Payzant, C. Daniel, A.S. Sabau, R.B. Dinwiddie, B.L. Armstrong, J.Y. Howe, D.L. Wood III, N.S. Nembhard, "Characterization of dielectric materials," U.S. Patent No. US9689822 B2 14/602,370 06/27/2017.
8. B.L. Armstrong, C. Daniel, J.Y. Howe, J.O. Kiggans, Jr., A.S. Sabau, D.L. Wood, III, and S. Kalnaus, Method and apparatus for in-situ drying investigation and optimization of slurry drying methodology, U.S. Patent No. 9,337,470 05/10/2016.

EDITED BOOKS

1. *CFD Modeling and Simulation in Materials Processing 2018*, Editors: Laurentiu Nastac, Koulis Pericleous, Adrian S. Sabau, Lifeng Zhang, and Brian G. Thomas, TMS 2018 Proceedings, Phoenix, AZ, March 11-15, 2018, Springer, ISBN: 978-3-319-72059-3, 241 pages.
2. *CFD Modeling and Simulation in Materials Processing*, Editors: Laurentiu Nastac, Lifeng Zhang, Brian G. Thomas, Miaoyong Zhu, Andreas Ludwig, Adrian S. Sabau, Koulis Pericleous, Herve Combeau, TMS 2016 Proceedings, Nashville, TN, Febr. 14-18, 2016, Wiley, A John Wiley and Sons, Inc., ISBN: 978-1-119-22576-8, 304 pages.
3. *Advances in the Science and Engineering of Casting Solidification: An MPMD Symposium Honoring Doru Michael Stefanescu*, Editors: L. Nastac, B. Liu, H. Fredriksson, J. Lacaze, C-P Hong, A. Catalina, A. Buhrig, D. M. Maijer, C. A. Monroe, A. Sabau, R. Ruxanda, A. A. Luo, S. Sen, A. Diszegi, 2015, TMS 2015 Proceedings, Orlando, FL, March 11-15, 2015, Wiley, A John Wiley and Sons, Inc., ISBN: 978-1-119-08238-5, 448 pages.
4. *Modeling of multi-scale Phenomena in Materials Processing III Symposium*, Editors: A.S. Sabau, L. Nastac and A. Rollett, TMS 2013, San Antonio, TX, March 3-7, 2013, EPD Congress 2013, Wiley, A John Wiley and Sons, Inc., ISBN 978-1-11860-574-5, ISSN 1079-7580.
5. *CFD Modeling and Simulation in Materials Processing*, Editors: Laurentiu Nastac, Lifeng Zhang, Brian G. Thomas, Adrian Sabau, Nagy El-Kaddah, Adam C. Powell, Herve Combeau, TMS 2012 Proceedings, Orlando, FL, March 11-15, 2012, Wiley, A John Wiley and Sons, Inc., ISBN: 978-1-118-29615-8, 332 pages.

PROFESSIONAL SOCIETIES MEMBERSHIP

- **ASME** Member since 1992, **Fellow** since 2016.
  - 2017-present, Member of the ASME *Materials Processing Technical Committee*.
  - 2014-2015, ASME *East Tennessee Section* Executive Committee member (2014 - secretary).
- **TMS** Member since 2004.
  - 2021 - 2023, Secretary of the *Process Modeling and Technology* (PM&T) Committee.
  - 2017-2020, Member of the TMS *Content Development and Dissemination Committee* (CDDC) of TMS, nominated position at the national/international level.
  - 2017-2020, Member of the TMS *Materials Processing & Manufacturing Division* (MPMD) Council, as representative of CDDC.
  - 2009 - present, Member of the *Computational Materials Science and Engineering Committee* (CMSEC) of TMS.
  - 2000 - present, Member of the PM&T of TMS (former *Process Modeling Analysis and Control Committee* -PMAC).
- **ASM** Member since 2009.
  - 2012-2015, ASM Local Chapter Executive Committee member (yearly service as Public Relations representative; Secretary; Chair; and Long Range Planning).

OTHER PROFESSIONAL SERVICE

- **Journal editorial activity**
  - *Nuclear Materials and Energy*, Editorial Board Member since 2014.
  - *Frontiers in Materials*, Guest Editor for Special Issue *Advances in computational modeling of additive manufacturing processes*, 2021.
  - *Materials*, Guest Editor for for Special Issue *Computational Methods in Advanced Materials Processing, Metal Casting, and Materials for Energy Applications*, 2021.
- **Primary organizer of six international symposiums**
  - Computational Techniques for Multi-Scale Modeling in Advanced Manufacturing (A.S. Sabau, A.D. Rollett, L. Nastac, M. Li, and A. Anderson and S. Rokkam), 150-th TMS Annual Meeting, March 15-18, 2021.
  - Modeling of Multi-Scale Phenomena in Materials Processing and Advanced Manufacturing (A.S. Sabau, A.D. Rollett, L. Nastac, M. Li, and A. Spear), MST 2016 Meeting, Salt Lake City, Oct. 23-27, 2016.
  - Modeling of Multi-Scale Phenomena in Materials Processing - III (A.S. Sabau, A.D. Rollett, L. Nastac, J. Madison, and M. Li), 142-nd TMS Annual Meeting, San Antonio, TX, March 3-7, 2013.
  - Modeling of Multi-Scale Phenomena for Batteries (A.S. Sabau, P. Balbuena and V. Subramanian), 2010 TMS Annual Meeting, Seattle, WA, Febr. 14-18, 2010.
  - Modeling of Multi-Scale Phenomena in Materials Processing (A.S. Sabau, A.D. Rollett, A.V. Catalina), MST 2008 Meeting, Pittsburgh, PA, Oct. 5-9, 2008.
  - Modeling of Multi-Scale Phenomena in Materials Processing (A.S. Sabau, A.D. Rollett and B. Mueller), 2002 TMS Annual Meeting, Seattle, WA, Febr. 17-21, 2002.
- **Co-organizer of nine international symposiums**
  - Computational Approaches for Big Data, Artificial Intelligence and Uncertainty Quantification in Computational Materials Science (Q. Liang; F. Tavazza; C. Woodward; A.S. Sabau; H. Zhuang; S. Chowdhury) 2019 TMS Annual Meeting, San Antonio, TX, March 10-14, 2019
  - Multi-scale Simulation and experimental validation of Additive Manufacturing Technologies: A Status Update by Academia, Solution Providers and Industry on its Intake, Market Opportunities Now and Going Forward (Deepankar Pal; Ankit Saharan; Anthony Rollett; Adrian Sabau), Materials Science & Technology 2018, Pittsburgh, PA, Oct. 14-18, 2018.

  - Phase Transformations in Materials Processing, (M.A. Zaeem, M. Mamivand, and A.S. Sabau), 2018 ASME International Mechanical Engineering Congress and Exposition (IMECE), Pittsburgh, PA Nov. 9-15, 2018.
  - CFD Modeling and Simulation in Materials Processing 2018, (Laurentiu Nastac, Koulis Pericleous, Adrian S. Sabau, Lifeng Zhang, and Brian G. Thomas), 2018 TMS Annual Meeting, Phoenix, AZ, March 11-15, 2018
  - Phase Transformations in Materials Processing and Their Effects on Mechanical Properties (M.A. Zaeem, A.S. Sabau, and W.K. Lui), 2017 ASME International Mechanical Engineering Congress and Exposition (IMECE), Tampa, FL, Nov. 3-9, 2017.
  - CFD Modeling and Simulation in Materials Processing (L. Nastac, L. Zhang, B.G. Thomas, M. Zhu, A. Ludwig, A.S. Sabau, K. Pericleous, and H. Combeau), 2016 TMS Annual Meeting, Nashville, TN, Febr. 14-18, 2016.
  - CFD Advances in the Science and Engineering of Casting Solidification: An MPMD Symposium Honoring Doru Michael Stefanescu (with L. Nastac, B. Liu, H. Fredriksson, J. Lacaze, C-P. Hong, A. Catalina, A. Buhrig-Polaczek, D. Maijer, C. Monroe, A. Sabau, R. Ruxanda, A. Luo, S. Sen, and A. Diszegi), 2015 TMS Annual Meeting, Orlando, FL, March 15-19, 2015.
  - Algorithm Development in Computational Materials Science and Engineering (with Jonathan Zimmerman, Douglas Spearot, Adrian Sabau, Mark Tschopp, and Mohan Asle Zaeem), 2014 TMS Annual Meeting, San Diego, CA, Febr. 16-20, 2014.
  - CFD Modeling and Simulation in Materials Processing (with L. Nastac, L. Zhang, B.G. Thomas, N. El-Kaddah, A.C. Powel, and H. Combeau), 2012 TMS Annual Meeting, Orlando, FL, March 11-15, 2012.

- **Journal Reviewer** - Optics and Laser Technology, Journal of Nuclear Materials, Oxidation of Metals, JOM, Thin Solid Films, Metallurgical and Materials Transactions, ASME Journal of Fluids in Engineering, Nuclear Materials and Energy, Journal of Engineering Manufacture, International Journal of Advanced Manufacturing Technology, Journal of Numerical Analysis, Industrial and Applied Mathematics, and International Journal of Cast Metals Research.

- **Mentor: Post-Doctoral Fellows and PhD Candidates**
  - *Post-Doctoral Collaborators*
    - John D.K. Rivard (2004-2005, ORNL DARPA Program manager, US Senate Legislative Fellow),
    - Christian Shaffer (2010-2011, Battery Modeling Engineer at Ford),
    - Hebi Yin (2010-2012, Senior Engineer at Pratt & Whitney),
    - Sergiy Kalnaus (2010-2012, ORNL staff),
    - Raghavan Narendran UTK (2017-2021, Scientist at LANL).
  - *PhD Candidate Students*
    - John D.K. Rivard (2001-2003),
    - Anoop Samant, UTK (2005-2006, R&D Manager at KTH Parts Industries),
    - William Sames (2013-2013, CEO at HTS International Corporation),
    - Raghavan Narendran UTK (2013-2014),
    - Seth Pemberton (2013, Research Engineer at Illinois Rocstar),
    - Ali Nejad (2015-2018).

PERSONAL DEVELOPMENT/LEADERSHIP

- *Decision Making & Delegation Workshop*, One day training, ORNL, 12/05/2017.
- *Project Management Fundamentals*, One day training, ORNL, 08/22/2017.
- *Advanced Communicator Bronze*, Toastmaster International, 03/2007.
- Member of *Shaw Speakers Toastmasters Club*, Toastmaster International, 9/2004-10/2009.

- *Exploring Crucial Conversations - Tools for Talking When the Stakes are High*, One day training, ORNL, 04/18/2007.
- PI and project leader on multi-physics multidisciplinary projects.
- Coordinate and direct activities for large projects (+$300K/year) and facilities: Plasma-arc Lamp (2009-2018) and Laser-interference structuring (2009-present).

AREAS OF EXPERTISE: Multiphysics materials science and solution algorithms for advanced: (a) manufacturing and (b) component design for harsh-environments

SUMMARY OF QUALIFICATIONS

- Microstructure simulation, computer design, and fabrication for Additive Manufacturing
- Conduct high-heat flux testing for Solar Probe Cup for NASA's Parker Solar Probe Spacecraft using Plasma Arc Lamps (PAL). `https://www.youtube.com/watch?v=-OtmgdCg8EM`
- Pioneered the use of laser-interference processing for multi-material joining and coating applications.
- Developed a high-heat flux testing facility using water-wall Plasma Arc Lamps (PAL) for neutron-irradiated specimens for the Fusion Program at ORNL.
- Twenty three years of experience in development/implementation of solution algorithms for PDEs in Computational Fluid Dynamics, Phase Changes, and Thermal Radiation.
- Developed a comprehensive oxide growth/stress analysis/heat transfer model to predict oxide exfoliation in boiler tubes by simulating the stress evolution in oxide layers grown inside steam tubes during boiler shut-downs. Open-source code released.
- Developed radiation transport models for photonic processing of metallic and semiconductor nanostructured films using High-Density Infrared (HDI) Plasma-Arc Lamps and lasers.
- Developed models for the DSC instruments to characterize with high-accuracy the evolution of phase changes.
- Developed computational models for turbine thermodynamic cycles and blade cooling.
- Developed solution algorithms for the numerical simulation of interdendritic flows and microporosity formation during casting processes. The algorithm for microporosity prediction was implemented in the casting software ProCAST.
- Developed an interface reconstruction technique for the Volume of Fluid (VOF) method for free-surface flows.
- Extensive background in linear algebra, group theory, and abstract linear spaces.

LIST OF PUBLICATIONS

THESES

Sabau, A. S., "Stability Analysis for the Dynamic Model of a Manipulator and its Hydraulic Power Circuit," **Diploma of Engineer Thesis**, University of Craiova, Craiova, Romania, July 1992.

Sabau, A. S., "Numerical Methods for Fluid-Solid Interaction Problems with Moving Boundaries," **Ph.D. Dissertation**, Southern Methodist University, Dallas, Texas, May 1996.

JOURNAL PUBLICATIONS

1. E. Robey, S. Ramesh, A.S. Sabau, A. Abdoli, J. Black, D. Straub, J. Yip, Design Optimization of an Additively Manufactured Prototype Recuperator for Supercritical CO2 Power Cycles, Submitted to the **Energy**, June 2021.
2. Liu H., Weibel J.A., Sabau, A.S., Geoghegan P., Chen J., and Groll E.A., Adhesive Bonding of Copper Prepared by Laser-Interference near the Interference Structuring Limits **Materials**, 2021, Vol. 14, pp. 3485.
3. A.S. Sabau, J. Cook, A.M. Aaron, J.B. Tipton Jr., and A. Lumsdaine, Steady-state Mechanical Analysis for Target Assembly in the Material Plasma Exposure eXperiment Facility, **Fusion Science and Technology**, Accepted for publication, April, 2021. `https://doi.org/10.1080/15361055.2021.1920785`
4. J. Jun, A.S. Sabau, and M.S. Stephens, Corrosion Behavior of Laser Interference Structured Al 2024 with Chromate-containing Epoxy Primer Coatings, **Corrosion**, 2021; Vol. 77, pp. 577-590.
5. Chen, J., Sabau, A.S., H.M. Meyer III, and D.N., Leonard, Surface and subsurface characterization of laser-interference structured Ti6Al4V, **Applied Surface Science**, 2021, Vol. 555, 149576,
6. M. Searle, J. Black, D. Straub, J. Yip, E. Robey, S. Ramesh, A. Roy, A.S. Sabau, and D. Mollot, Heat transfer coefficients of additively manufactured tubes with internal pin fins for supercritical carbon dioxide cycle recuperators, **Applied Thermal Engineering**, Vol. 181, 116030, 2020.
7. Sabau, A.S., Bejan A., Brownell D., Gluesenkamp, K.R., B.L. Murphy, List-III F.A., Carver K., Schaich C.R., and Klett J.W., Design, Additive Manufacturing, and Performance of Heat Exchanger with A Novel Flow-Path Architecture, **Applied Thermal Engineering**, 2020, Vol. 180, pp. 115775.
8. Coleman J., Plotkowski, A., Stump, B., Raghavan N., Sabau A.S, Krane, M., Heigel, J., Ricker, D. R., Levine, L., and Babu, S., Sensitivity of Thermal Predictions to Uncertain Surface Tension Data in Laser Additive Manufacturing, ASME **Journal of Heat Transfer**, 2020, Vol. 142, paper 122201.
9. A.S. Sabau, H.M. Meyer III, and D.N., Leonard, Laser-interference Pulse Number Dependence of Surface Chemistry and Sub-surface Microstructure of AA2024-T3 Alloy, **Optics and Laser Tech.**, 2020, Vol. 131, paper 106457.
10. Garrison, L.M.; Sabau, A.S.; Gregory, B.; Geringer, J.W.; Katoh, Y.; Hamaji, Y.; Hasegawa, A., Plasma-arc lamp high heat flux cycling exposure of neutron irradiated tungsten materials. **Physica Scripta**, 2020, T171, 014077.

11. Sabau, A.S., Milligan, B.K., Mirmiran, S., Glaspie, C., Shyam, A., Haynes, J.A., Rodriguez, A.F., Villarreal, J.A. and Talamantes, J., 2020. Grain Refinement Effect on the Hot-Tearing Resistance of Higher-Temperature Al–Cu–Mn–Zr Alloys, **Metals**, 10(4), p.430.
12. Sabau A.S, Contescu C.I., Jellison G.E, Howe J.Y., Armstrong B.L., Claus Daniel, and Babinec S., Evaporation due to infrared heating and natural convection, 2020, **Heat and Mass Transfer**, 56(8), 2585-2593.
13. A.S. Sabau, J. Jun, D. McClurg, Coating adhesion of a chromate-containing epoxy primer on Al2024-T3 surface processed by laser-interference, **Int. J. of Adhesion and Adhesives**, Vol. 102, 2020, p. 102641. doi:10.1016/j.ijadhadh.2020.102641
14. A.S. Sabau, L. Yuan, N. Raghavan, M. Bement, Srdjan Simunovic, J. Turner, and V.K. Gupta, Fluid Dynamics Effects on Microstructure Prediction in Single Laser Tracks for Additive Manufacturing of IN625, 2020, **Metall. and Mater. Trans. - B**,51(3), 1263-1281.
15. H.M. Meyer III, A.S. Sabau, and C. Daniel, Surface chemistry and composition-induced variation of laser interference-based surface treatment of Al alloys, **Applied Surface Science**, 2019, Vol. 489, pp. 893-904.
16. Sabau A.S., Tokunaga K., Littleton M.G., Kiggans Jr. J.O., Schaich C.R., Dinwiddie R.B., Moore D.T., Ueda Y., and Katoh Y., A 6 MW/m2 High Heat Flux Testing Facility of Irradiated Materials Using Infrared Plasma-Arc Lamps, **Fusion Science and Technology**, 2019, Vol. 75(7), pp. 690-701.
17. Nejad A.H., Kivanc E., Sabau A.S., Bejan A., and Arimilli R.V., Counter cross-flow evaporator geometries for supercritical organic Rankine cycles, **International Journal of Heat and Mass Transfer**, Vol. 135, pp. 425-435, 2019.
18. Ibano K., Sabau A.S.,Tokunaga K., M. Akiyoshi, J.O. Kiggans, C.R. Schaich, Y. Katoh, and Y. Ueda, Surface morphology of Tungsten-F82H after High-Heat Flux Testing using Plasma-Arc Lamps, **Nucl. Mater. and Energy**, 2018, Vol. 16, pp. 128-132.
19. Sabau A.S., Mirmiran S., Glaspie C., Li S., Apelian D., Shyam A., Haynes J.A., and Rodriguez A.F., Hot-tearing assessment of multicomponent non-grain refined Al-Cu alloys for permanent mold castings based on load measurements in a constrained mold, **Metallurgical and Materials Transactions B**, Vol. 49, pp. 1267-1287, 2018.
20. Sabau A.S., A.H. Nejad, Klett J.W., Bejan A., and Kivanc E., Novel Evaporator Architecture with Entrance-Length Crossflow-Paths For Supercritical Organic Rankine Cycles, **International Journal of Heat and Mass Transfer**, Vol. 119, pp. 208-222, 2018.
21. Bejan A., Alalaimi M., Sabau A.S., Lorente A., Entrance-length Dendritic Plate Heat Exchangers, **International Journal of Heat and Mass Transfer**, Vol. 114, pp. 1350-1356, 2017.
22. Katoh Y., Clark D., Ueda Y., Hatano Y., Yoda M., Sabau A.S., Yokomine T., Garrison L.M., Geringer J.W., Hasegawa A., Hinoki T., Shimada M., Buchenauer D., Oya Y., and Muroga T. Progress in the U.S./Japan PHENIX Project for the Technological Assessment of Plasma Facing Components for DEMO Reactors, **Fusion Science and Technology**, Vol. 72, pp. 222-232, 2017.
23. Bejan A., Alalaimi M., Lorente A., Sabau A.S., and Klett J.W., Counterflow heat exchanger with core and plenums at both ends, **International Journal of Heat and Mass Transfer**, Vol. 99, pp. 622-629, 2016.
24. Sabau A.S., Greer C.M., Chen J., Warren C.D., and Daniel C., Surface Characterization of Carbon Fiber Polymer Composites and Aluminum Alloys after Laser Interference Structuring, **JOM**, Vol. 68, pp. 1882-1889, 2016.
25. Bejan A., Almerbati A., Lorente A., Sabau A.S., and Klett J.W., Arrays of flow channels with heat transfer embedded in conducting walls, **International Journal of Heat and Mass Transfer**, Vol. 99, pp. 504-511, 2016.
26. Sabau A.S., Modeling of Interdendritic Porosity Defects in an Integrated Computational Materials Engineering Approach for Metalcasting, **International Journal of Cast Metals Research**, Vol. 29, pp. 331-337, 2016.

27. Charry C.H., Abdel-Khalik S.I., Yoda M., Sabau A.S., and Snead L.L., Evaluation of Cooling Conditions for a High Heat Flux Testing Facility based on Plasma-Arc Lamps, **Fusion Science and Technology**, Vol. 68, pp. 694-699, 2015.
28. Sabau A.S., Ohriner E.K., Kiggans J.O., Schaich C.R., Ueda Y., Harper D.C., Katoh Y., and Snead L.L., "High-Heat Flux Testing of Irradiated Tungsten based Materials for Fusion Applications using Infrared Plasma Arc Lamps," **Fusion Science and Technology**, Vol. 66, pp. 394-404, 2014.
29. Sabau A.S., Ohriner E.K., Kiggans J.O., Harper D.C., Snead L.L., and Schaich C.R., Facility for high heat flux testing of irradiated fusion materials and components using infrared plasma arc lamps, **Physica Scripta**, T159, 014007 (4pp), doi:10.1088/0031-8949/2014/T159/014007, 2014.
30. Kalnaus S., Tenhaeff W.E., Sakamoto J., Dudney N.J., Sabau A.S., Daniel C., and N.J Dudney, "Analysis of composite electrolytes with sintered reinforcement structure for energy storage applications," **Journal of Power Sources**, Vol. 241, pp. 178-185, 2013.
31. Sabau A.S., I. G, Wright, and Shingledecker, J.P., "Oxide Scale Exfoliation and Regrowth in TP347H Superheater Tubes," **Materials and Corrosion**, Vol. 63, pp. 896-908, 2012. 15
32. Yin H., Sabau A.S., Conklin J.C., McFarlane J. and Qualls A.L., "Mixtures of SF6-CO2 as working fluids for geothermal power plants," **Applied Energy**, Vol. 106, pp. 243-253, 2013.
33. Vidhi R., Goswami Y., Chen J., Stefanakos E., Kuravi S., Sabau A.S., "Organic Fluids in a Supercritical Rankine Cycle for Low Temperature Power Generation," **J. Energy Resour. Technol.**, Vol. 135, 042002, 9 pages, 2013.
34. Shingledecker J.P., Pint, B.A., Sabau, A.S., Fry A.T., and Wright I.G., "Managing Steam-Side Oxidation and Exfoliation in USC Boiler Tubes," **Advanced Materials & Processes,** Vol. 171, pp. 23-25, 2013.
35. Kalnaus S., Sabau A.S., Tenhaeff W.E., Dudney N.J., and Daniel C., "Design of composite polymer electrolytes for Li ion batteries based on mechanical stability criteria," **Journal of Power Sources**, Vol. 201, pp. 280-287, 2012.
36. Kalnaus S., Sabau A.S., Newman S., Tenhaeff W.E., Daniel C., Dudney N.J., "Effective conductivity of particulate polymer composite electrolytes using random resistor network method," **Solid State Ionics**, Vol. 199-200, pp. 44-53, 2011.
37. Chen W., Yamamoto Y., Peter W.H., Gorti S.B., Sabau A.S., Clark M.B., Nunn S.D., Kiggans J.O., Blue C.A., Williams J.C., Fuller B., Akhtar K., "Cold compaction study of Armstrong Process(R) Ti-6Al-4V powders," **Powder Technology**, Vol. 214, pp. 194-199, 2011.
38. Duty, C.E., Bennett, C.J.C., Sabau, A.S., Jellison, G.E.Jr., Bodreaux, P.R., Walker S.C., and Ott, R., "Advanced Method for Increasing the Efficiency of White Light Quantum Dot LEDs," **Physica Status Solidi A**, Vol. 208, pp. 1980-1982, 2011.
39. Troparevsky, M.C, Sabau, A.S., Lupini,A.R. and Zhang, Z., "Transfer-matrix formalism for the calculation of optical response in multilayer systems: from coherent to incoherent interference," **Optics Express**, Vol. 18, No. 24, pp. 24715-21, 2010.
40. Sabau, A.S. and Wright, I.G. "Influence of Oxide Growth and Metal Creep on Strain Development in the Steam-side Oxide in Boiler Tubes," **Oxidation of Metals**, Vol. 73, pp. 467-492, 2010.
41. Wright, Ian G.; Howe, Jane Y.; Sabau, Adrian S., Morphological evolution of oxide scales grown on ferritic steels in steam, **Materials at High Temperatures**, Vol. 26, 2009, pp. 105-111(7), DOI: 10.3184/096034009X464348.
42. Sabau, A.S. and Wright, I.G., "On the estimation of thermal strains developed during oxide growth, **J. Appl. Phys.** 106, 023503, 2009, DOI:10.1063/1.3157199.
43. Sabau, A.S., Duty, C.E., Dinwiddie, R.B, Nichols, M., Blue, C.A., and Ott, R.D., A radiative transport model for heating paints using high density plasma arc lamps, **J. Appl. Phys.** 105, 084901, 2009, DOI:10.1063/1.3097356

44. Sabau, A.S. and Wright, I.G. "The effects of changing fuels on hot gas path conditions in syngas turbines," **Journal of Engineering for Gas Turbines and Power**, Vol. 13, Article no. 044501, 2009.
45. Sabau AS, Ohriner EK, "Comments on americium volatilization during fuel fabrication for fast reactors," **Journal of Nuclear Materials**, 2008, Vol. 376, pp. 251-253.
46. Xu, J., Ott, R; Sabau, A.S. Pan, Z.; Xiu, F.; Liu, J.; Erie, J-M.; Norton, D. P., "Generation of nitrogen acceptors in ZnO using pulse thermal processing," **Applied Physics Letters**, Vol. 92, no. 15, 2008, pp. 151112.
47. Sabau, A.S. and Porter, W.D., "Alloy Shrinkage Factors for the Investment Casting of 17-4PH Stainless Steel Parts," **Metallurgical and Materials Transactions**, 2006, Vol. 39B, pp. 317-330.
48. Sabau A.S. and Dinwiddie R.B., "Characterization of spray lubricants for the high pressure die casting processes," **Journal of Matl. Processing Technology**, 2008, Vol. 195, pp. 267-274.
49. Sabau, A.S. and Hatfield E.C. "Measurement of Heat Flux and Heat Transfer Coefficient Due to Spray Application for the Die Casting Process" **Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Engineering Manufacture**, Vol. 221, pp. 1307-1316, 2007.
50. Sabau, A.S. and Porter, W.D., "Analysis of A Heat-Flux Differential Scanning Calorimetry Instrument," **Metallurgical and Materials Transactions A**, 2007, Vol 38A, pp. 1546-1554.
51. Sabau, A.S. Kadolkar, P.B., Dinwiddie, R.B., Ott R.D., and Blue, C.A., "Process Parameters for Infrared Processing of FePt Nanoparticle Films," **Metallurgical and Materials Transactions A**, 2007, Vol. 38A, pp. 788-797.
52. Sabau, A.S. and Wu, Z., "Evaluation of a Heat Flux Sensor for Spray Cooling for the Die Casting Processes," **Journal of Materials Processing Technology**, 2007, Vol. 182, pp. 312-318.
53. Sabau A.S. and Dinwiddie R.B., "Numerical simulation of high-density plasma-arc processing of FePt nanoparticle films," **J. of Metals**, 2006, Vol. 58, pp. 35-38.
54. Sabau, A.S., "Measurement of Heat Flux at Metal-Mold Interface during Casting Solidification," **International Journal of Cast Metals Research**, 2006, Vol. 19, pp. 188-194.
55. Sabau, A. S. "Alloy Shrinkage Factors For The Investment Casting Process, **Metallurgical and Materials Transactions**, 2006, Vol. 37B, pp. 131-140.
56. Frankel, J.I. Porter, W.D., and Sabau, A. "Analysis of volumetric changes through melting using a dilatometer," **Journal of Thermal Analysis and Calorimetry**, 2005, Vol. 82, pp. 171-177.
57. Rivard J.D.K., Sabau A.S., Blue C.A., Harper, D.C., and Kiggans, J.O., "Modeling and processing of liquid-phase-sintered γ-TiAl during high-density infrared processing," **Metallurgical and Materials Transactions**, 2006, Vol. 37A, pp. 1289-1299.
58. Rivard J.D.K., Blue C.A., Ott R.D., Sabau A., Santella M., Pan T.Y., Joaquin A., "Advanced manufacturing technologies utilising high density infrared radiant heating," **Surface Engineering**, 2004, Vol. 20, pp. 220-228.
59. Rivard, J.K.D., Sabau, A.S., Blue C.A., Ohriner, E.K., and Harper, D.C. "High Density Infrared Processing of γ-TiAl Sheet," **TMS Letters**, 2004, Vol. 1, No. 5, pp. 95-96.
60. Sabau, A.S. "Predicting Interdendritic Cavity Defects during Casting Solidification," **JOM** 2004, Vol. 56 (3), pp. 54-56.
61. Rivard, J.K.D., Sabau, A., Blue C.A., Ohriner, E.K., , N. Jayaraman, "Thermophysical Properties of Roll Compacted Nickel Sheet for High Density Infrared Processing," **Metallurgical and Materials Transactions A**, 2003, Vol. 34A, pp. 3043-3054.

62. Sabau, A.S., and Viswanathan, S., "Material Properties For Predicting Wax Pattern Dimensions In Investment Casting," **Materials Science & Engineering A**, 2003, Vol. 362A, pp. 125-134.
63. Sabau, A.S., and Viswanathan, S., "Microporosity Prediction in Aluminum Alloy Castings," **Metallurgical Transactions, B**, 2002, Vol. 33B, pp. 243-255.
64. Sabau, A. S. and Raad, P. E., "Comparisons of Compact and Classical Finite Difference Solutions of Stiff Problems on Nonuniform Grids," **Computer & Fluids**, 1999, Vol. 28, pp. 361-384.
65. Sabau, A. S. and Raad, P. E., "Oscillations in High-Order Finite Difference Solutions of Stiff Problems on Nonuniform Grids," **International Journal for Numerical Methods in Fluids**, 1999, Vol. 30, pp. 939-956.
66. Raad, P. E. and Sabau, A. S., "Dynamics of a Gas Permeable Contact Lens During Blinking," **ASME Journal of Applied Mechanics**, 1996, Vol. 63, pp. 411-418.
67. Sabau, A. S. and Raad, P. E., "Blink-Induced Motion of a Gas Permeable Contact Lens," **Journal of Optometry and Vision Science**, 1995, Vol. 72, pp. 378-386.

REFEREED PUBLICATIONS in **Key Engineering Materials**

1. Yuan, L.; Sabau, A.S.; StJohn, D.; Prasad, A.; Lee, P.D. Columnar-to-equiaxed transition in a laser scan for metal additive manufacturing. **IOP Conf. Series: Materials Sci. and Eng.**, 2020, Vol. 861, 012007, doi:10.1088/1757-899x/861/1/012007.
2. Peter, W.H., Chen W., Yamamoto Y., Dehoff, R., Muth, T.R., Nunn, S.D., Kiggans J., Clark, M.B., Sabau, A.S., Gorti, S.B., Blue, C.A., and Williams, J.C., "Current Status of Ti PM: Progress, Opportunities and Challenges," **Key Engineering Materials**, Vol. 520, pp. 1—7, 2012.

REFEREED PUBLICATIONS in **Materials Science Forum**

3. Wright I.G., Sabau A.S., and Dooley R.B., "Development of Strain in Oxides Grown in Steam Tubes," **Materials Science Forum**, High Temperature Corrosion and Protection of Materials 7, Vols. 595-598, pp. 387-395, 2008.

REFEREED PUBLICATIONS in
TRANSACTIONS of American Foundry Society Journal

4. Sabau, A.S., "Shrinkage Prediction for the Investment Casting of Stainless Steels," **Transactions of American Foundry Society**, 2007, Vol. 115, paper 07-042, pp. 281-292.
5. Sabau, A.S., "Prediction of Alloy Shrinkage Factors for the Investment Casting Process," **Transactions of American Foundry Society**, 2006, Vol. 114, paper 06-004, pp. .
6. Sabau, A.S., "Numerical simulation of the investment casting process," **Transactions of American Foundry Society**, 2005, Vol. 113, paper 05-160, pp. 407-417.
7. Sabau, A.S. and Viswanathan, S., "Thermophysical Properties of Zircon and Fused Silica-based Shells used in the Investment Casting Process," **Transactions of American Foundry Society**, 2004, Vol. 112, paper 04-081, pp. 649 - 661.
8. Sabau, A.S. and Viswanathan, S., "Temperature Measurements In Wax Patterns And Wax-Die Interfacial Heat Transfer Coefficients In Investment Casting," **Transactions of American Foundry Society**, 2003, Vol. 111, paper 03-026, pp. 411-417.
9. Sabau, A.S. and Viswanathan, S., "Prediction of Wax Pattern Dimensions in Investment Casting," **Transactions of American Foundry Society**, 2002, Vol. 110, paper 02-103, pp. 733-746.

10. Sabau, A.S., and Viswanathan, S., "Critical Material Properties for Predicting Pattern Tooling Dimensions in Investment Casting," 2001, **Transactions of American Foundrymen's Society**, Paper No. 01-017, pp. 1-18.
11. Viswanathan, S., Duncan, A.J., Sabau A.S., Han, Q., Porter, W.D., and Riemer, B.W., 1998, "Modeling of Solidification and Porosity in Aluminum Alloy Castings," **Transactions of American Foundrymen's Society**, 1998, paper 98-103, pp. 411-417.

REPORTS

1. Cetiner, N.O., E. Popov, E. Dominguez-Ontiveros, E.J. Fountain, V.K. Varma, A.S. Sabau, F. Rasheed and K. Banerjee, Dual-Purpose Canister Filling Demonstration Project Progress Report. M3SF-20OR010305017. U.S. Department of Energy, Office of Spent Fuel and Waste Science and Technology, ORNL/SPR-2020/1734, Sept. 2020, `https://doi.org/10.2172/1779142`
2. B.R. Betzler, et al., Transformational Challenge Reactor Conceptual Design Report, ORNL/SPR-2020/1433, TCR-DA-RPRT-001, Febr. 2020.
3. Adrian S. Sabau and Patrick Ulysse, Modeling of Cracking Defects during DC Casting of Al7050 Alloy Using a Hot-tearing Criterium, ORNL/TM-2019/1322 (CRADA No. NFE-17-06823), Sept. 2019.
4. Sabau, A.S. Gluesenkamp, K.R., Lafond, P. and Brownell, D., Certification and User Manual for A 5kW Heat Exchanger Test Loop at Low Temperatures and High-Pressures, 2020, ORNL/TM-2019/1403, `doi:10.2172/1505324`.
5. Adrian S. Sabau, Lang Yuan, Narendran Raghavan, Srdjan Simunovic, John Turner, Vipul K. Gupta, Fluid Dynamics Effects on Microstructure Prediction in Single Laser Tracks for Additive Manufacturing, ORNL/TM-2018/1044, `doi:10.2172/1505324`, Dec. 2018.
6. A.S. Sabau, E.L. Popov, P. Jain, S. Kassoumeh, and J. Evangelista, Correlations for Micro-Cooling Technology for High-Pressure Die Casting using High-Performance Computing, ORNL/TM-2018/908 (CRADA/NFE-16-06434) (July, 2018).
7. T. R. Watkins, A.S. Sabau, D. Erdman III, P. Joshi, G. M. Ludtka, B. Murphy, H. Yin, W. Zhang, T. W. Skszek, X. Niu, IR Heat Treatment of Hybrid Steel-Al Joints, ORNL/TM-2014/ORNL-10-02839 (Sept., 2014).
8. Peter W., Dehoff R., Blau P., Yamamoto Y., Chen W., Sabau A., Klarner A., Novatnak D., Lherbier L., DelCorsio G., Aprigliano L., VanHoosier C., and Moffett J., "Application of Wear-Resistant, NanoComposite Coatings Produced from Iron-Based Glassy Powders," Final project report, ORNL/TM-2013/134, 03/31/2013.
9. Peter W., Yamamoto Y., Chen W., Dehoff R., Nunn S., Sabau A., Kiggans J., Muth T., Daehn G., Kabert B., Tallman C., Gorham R., Barnes J., Henry C., Capone J., Paliwal M., Smith R., Akhtar K., Peltier D., Everett R., and Imam A., "Near Net Shape Manufacturing of New, Low Cost Titanium Powders for Industry," Final project report, ORNL/TM-2012/510, 03/5/2013.
10. Daniel C., Armstrong B., Maxey C., Sabau A.s., Wang H., Hagans, P., and Babinec, S., "Development and application of processing and process control for nano-composite materials for lithium ion batteries," Final Report - Recovery Act, ORNL/TM-2013/259.
11. Daniel C., Armstrong B., Maxey C., Sabau A., and Wang H., "Development and application of processing and process control for nano-composite materials for lithium ion batteries," Final project report, ORNL report TM-2012/613, December 15, 2012.
12. McFarlane J., Qualls K.J., Qualls L.A., Sabau A.S, Wright, S.A., Yin H., Anovitz, L.M., Kercher, A.K., "Ways to Minimize Water Usage in Engineered Geothermal Systems," ORNL/TM-2012/412.
13. Sabau, A.S. and Chad E.D., "Analysis of an Advanced Technique for Low-Cost Synthesis of Silicon Films," ORNL/TM-2011/447, 2011.

14. Duty, C.E.; Joshi, P.C.; Jellison Jr, G.E.; Angelini, J.A.; Sabau, A.S., "Wide Area Thermal Processing of Light Emitting Materials," ORNL/TM-2011/428, 2011.
15. I.G, Wright, A.S. Sabau, and Shingledecker, J.P., "Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation: 2011 Progress - Industry Experience & Model Refinement," EPRI, Palo Alto, CA, 2010, 1019793.
16. Sabau, A.S., Jellison, G.E., Dinwiddie, R.B., Angelini, J.A., Ott, R.D., Xu, J., Harper, D.C., Troparevski, M.C., Hsueh, C-H, and Zhang, Z. "Transformational, Large Area Fabrication of Nanostructured Materials using Plasma Arc Lamps," Final project report, ORNL/TM-2010/141.
17. Sabau, A.S. and I.G. Wright, W. Zhang, and K.A. Unocic, "Growth Characteristics in Waterwall Tubes of Supercritical Units, Final Project Report," EPRI, Palo Alto, CA, 2010.
18. Sabau, A.S. and Wright, I.G. "Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation: Exfoliation Calculations for Ferritic, Austenitic, and Fine-Grained Austenitic Alloys - 2009 Progress," EPRI, Palo Alto, CA 2009, 1017625.
19. Felicelli S., Berry J., Wang L. and Sabau A., "Casting/solidification of magnesium alloys," 2008, CAVS REPORT, MSU.CAVS.CMD.2008-R0032
20. Cannell, N. and Sabau, A.S., "Predicting Pattern Tooling and Casting Dimensions for Investment Casting-Phase III," Final Technical Report, ORNL/TM-2007/204, December 2007, http://www.osti.gov/bridge/servlets/purl/923051-rVU3sx/
21. Ohriner, E.K., Sabau, A.S. and G. B. Ulrich, "Plastic Straining of Iridium Alloy Dop-26 during Cup Sizing Operations," Final Technical Report, ORNL/TM-2007/169, October 2007.
22. Sabau, A.S., Hatfield, E.C, Dinwiddie, R.B., Kuwana, K., Viti, V., Hassan, M.I., and Saito, K. "Assessment of Computer Simulation Software and Process Data for High Pressure Die Casting of Magnesium," Final Technical Report, ORNL/TM-2007/041.
23. Duty, C.E., Sabau, A.S., A. Clemons, C. Blue, and R. Ott, "Thermally Induced Chemical Volatilization from Vehicle-Type Surfaces Using a Short Pulse Plasma Arc Lamp," Final Project Report to DARPA, September 2007.
24. Wright, I.G. and A.S. Sabau, "Comments on Factors Influencing Water-Side Oxide Growth in Waterwall Tubes," Interim report on EPRI Project, Oxide Scale Growth Characteristics in Waterwalls of Supercritical Steam Boilers, August 2007.
25. Wright, I.G., Pint, B.A., A.S. Sabau, and P.F. Tortorelli, "Materials Issues in Coal-Derived Synthesis Gas/Hydrogen-Fired Turbines," Annual Report to DOE Office of Fossil Energy Turbine Program, July 2007.
26. Sabau, A.S. and I.G. Wright, "Estimation of Thermal Strains Developed During Oxide Growth," Interim report on EPRI Project EP-P20513/C9989: Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation, March 2007.
27. Cannell, N. and Sabau, A.S., "Predicting Pattern Tooling and Casting Dimensions for Investment Casting-Phase II," Final Technical Report, ORNL/TM-2005/228, June 2006, http://www.osti.gov/ener rd1y7p/850402.PDF
28. Frankel, J.I., Sabau, A.S., and Porter, W.D., "Inverse Process Analysis for the Acquisition of Thermophysical Data," Final project report ORNL/TM-2005/132, June 2006, http://www.osti.gov/bridge/se eX7lOV/861453.PDF
    http://www.eere.energy.gov/industry/imf/pdfs/1776_inverseprocessanalysis_finalreport.pdf
29. Tolbert, L. M. , T. J. King, B. Ozpineci, J. B. Campbell, G. Muralidharan, D. T. Rizy, A. S. Sabau, H. Zhang, W. Zhang, X. Yu, H. F. Huq, H. Liu, "Power Electronics for Distributed Energy Systems and Transmission and Distribution Applications: Assessing the Technical Needs for Utility Applications," ORNL/TM-2005/230, December 2005.
    `http://www.ornl.gov/~webworks/cppr/y2001/rpt/124182.pdf`
30. S. Viswanathan, A. S. Sabau, Q. Han, A. J. Duncan, W. D. Porter, R. B. Dinwiddie, and D. E. Penrod, 2001, "Design and Product Optimization for Cast Light Metals," CRADA Final Report, ORNL94-0319,
    `http://www.ornl.gov/~webworks/cppr/y2001/rpt/110475.pdf`

31. S. Viswanathan, W. Ren, W. D. Porter, C. R. Brinkman, and A. S. Sabau, R. M. Purgert, "Metal Compression Forming of Aluminum Alloys and Metal Matrix Composites," 2000, CRADA Final Report, ORNL95-0363, http://www.osti.gov/bridge/servlets/purl/751621-6qo3hm/webviewable/751621.pdf

INVITED TALKS

1. Adrian S. Sabau and Jiheon Jun, (invited) Coating adhesion for a nano-structuring laser-interference surface treatment, **International Conference on Processing & Manufacturing of Advanced Materials - Processing, Fabrication, Properties, Applications; THERMEC 2021**, Virtual, May 10-14, 2021.
2. Adrian S. Sabau, Harry M. Meyer III, Donovan N. Leonard, and Jian Chen, (invited) Sub-Surface Microstructure of Aluminum Alloys after Laser-Interference Structuring, **International Conference on Processing & Manufacturing of Advanced Materials - Processing, Fabrication, Properties, Applications; THERMEC 2018**, Paris, France, July 9-13, 2018.
3. Sabau A.S., (keynote talk), How constructal theory can help the science and technology of heat exchangers? NSF Workshop **Constructal Theory after 20 Years of Exploration and What the Future Holds**, `http://elearning.engineering.villanova.edu/Mediasite/Catalog/Full/9ac28dfb1182486ab6964a5f49381db521`, Villanova, PA, April 17-18, 2018.
4. T. Naguy and A.S. Sabau, (invited) "Laser De-Paint and Surface Preparation Mechanism Technologies." Sabau presented the 2-nd part "Laser-Interference Surface Preparation for Enhanced Coating Adhesion and Adhesive Joining of Multi-Materials." Presentation was part of the **SERDP & ESTCP Webinar Series**, `https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series/10-19-2017`. Webinar presented on October 19, 2017.
5. A.S. Sabau, E. Popov, and D. Pointer, "Computational Fluid Dynamics Study of a New Cooling Technology for High-pressure Die Casting," panel presentation at **HPC User Forum**, Milwaukee, Wi, September 5-7, 2017.
6. A.S. Sabau, C. Daniel, J. Busby, "Science and Technology of Laser interference," International Conference on Frontiers in Materials Processing, Applications, Research and Technology (FiMPART), Bordeaux, France, July 9-12, 2017.
7. A.S. Sabau "Laser Interference-Based Surface Treatments of Carbon Fiber Polymer Composites and Aluminum for Enhanced Bonding," **Adhesive and Sealant Council (ASC) 2017 Spring Convention & EXPO**, Atlanta, GA, April 4-5, 2017.
8. A.S. Sabau, "Laser interference-based surface treatments of carbon fiber polymer composites and aluminum for enhanced bonding," **5-th annual Global Automotive Lightweight Materials**, Detroit, 23-25 Aug., 2016.
9. Sabau A.S., Chen J., Warren C.D., Erdman D.L. III, Daniel C., Skszek T., and Caruso Dailey M., A Laser Interference-Based Surface Treatment of Al and Carbon Fiber Polymer Composites for Enhanced Bonding, paper LB15–0070, **SAMPE Conference and Exhibition**, Long Beach, CA, May 23-26, 2016.
10. A.S. Sabau, "Modeling of Casting Defects in an Integrated Computational Materials Engineering Approach," in **Advances in the Science and Engineering of Casting Solidification: An MPMD Symposium Honoring Doru Michael Stefanescu** (eds L. Nastac, et al.), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781119093367.ch28.
11. A.S. Sabau, J. Chen, J. F. Jones, A. Hackett, G. D. Jellison, C. Daniel, D. Warren, J. D. Rehkopf, "Surface Modification of Carbon Fiber Polymer Composites after Laser Structuring," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Advanced Composites for Aerospace, Marine, and Land Applications II**, Orlando, FL.
12. A.S. Sabau, W.D. Porter, S. Roy, and A. Shyam, "Process Simulation Role in the Development of New Alloys Based on an Integrated Computational Materials Engineering Approach," paper IMECE2014-37982, Proceedings of the **ASME 2014 Int. Mech. Eng. Congress & Exposition IMECE2014**, Nov. 14-20, 2014, Montreal, Quebec, Canada.
13. W.H. Peter, T. Muth, R. Dehoff, S. Nunn, Y. Yamamoto, W. Chen, A. Sabau, A. Liby, C. Blue, Powder Metallurgy and Additive Manufacturing of Titanium Powders, **TMS 2013 Annual Meeting, Cost Affordable Titanium IV Symposium**.

14. A.S. Sabau, I.G, Wright, and Shingledecker J.P., "Growth and regrowth of multiple layered oxide films in a non-uniform temperature field," **2-nd EPRI-NPL Workshop on Scale Exfoliation from Steam-Touched Surfaces**, National Physical Laboratory, Teddington, London, UK, January 17-18, 2012.
15. Sabau A.S., Dinwiddie R.B., Xu J., Angelini J.A., Harper D.C., "Thermal Annealing of ZnO films using high-density plasma arc lamps," (invited) **Symposium Surfaces and Heterostructures at Nano- or Micro-Scale and Their Characterization, Properties, and Applications, 2011 TMS Annual Meeting & Exhibition**, Febr. 27 - March 3, 2011, San Diego, CA.
16. I.G. Wright, A.S. Sabau, M. Schütze, and R.B. Dooley, "Oxide Growth and Exfoliation in Steam," **EPRI Workshop**, Major Component Reliability in Conventional Fossil Plants and Heat Recovery Steam Generators, Warrington, England, April 17-19, 2007.

CONFERENCE PUBLICATIONS

1. Weinmeister, J. Sabau, A.S., and Jain P., Additively manufactured surface heat transfer enhancements for the transformational challenge reactor, 19th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-19), Log nr.: 19001, Brussels, Belgium, Aug. 29 – Sept. 3, 2021.
2. Panicker, N.S., Delchini, M.O.G., Sambor, T., Sabau, A.S. and Jain, P., Advanced thermal-hydraulic model of heat recovery steam generators, Paper TFEC-2020-36547, 5-6th Thermal and Fluids Engineering Conference, May 26-28, 2021.
3. J. Chitale, A. Abdoli, G.S. Dulikravich, A.S. Sabau, J.B. Black, Conjugate Heat Transfer Analysis of the Supercritical CO2 Based Counter Flow Compact 3D Heat Exchangers, ITHERM 2020, Orlando, FL. July 21-23, 2020.
4. A.S. Sabau, J. Jun, Z. Burns and M. Stephens, Corrosion Resistance of Laser-Interference Structured Aluminum alloy 2024 Coated with MIL-PRF-85582 Primer, Submission no: 0218_0314_000108, **2019 DoD-Allied Nations Technical Corrosion Conference: Corrosion Prevention and Control**, Oklahoma City, OK, Aug. 11-15, 2019.
5. J. Jun, AS Sabau, Z Burns and M. Stephens, Corrosion Performance of MIL PRF- 23377 Primer on Laser-Interference Structured Aluminum alloy 2024, Submission no: 0218_0314_000109, **2019 DoD-Allied Nations Technical Corrosion Conference: Corrosion Prevention and Control**, Oklahoma City, OK, Aug. 11-15, 2019.
6. Kung S.C., Shingledecker J.P, Wright I.G., Sabau A.S., Tossey B., and Lolla T. Corrosion of Heat Exchanger Alloys in Open-Fired sCO2 Power Cycles, Paper 66, **6th International Supercritical CO2 Power Cycles Symposium**, Pittsburgh, PA, March 27-29, 2018.
7. Sabau A.S., Mirmiran S., Glaspie C., Li S., Apelian D., Shyam A., Haynes J.A., and Rodriguez A.F., Hot-tearing of multicomponent Al-Cu alloys based casting load measurements in a constrained permanent mold, **TMS 2017 146th Annual Meeting & Exhibition Supplemental Proceedings**, pp. 465-473, 2017.
8. Sabau A.S., Nejad A.H., Klett James W., Bejan A., and Ekici K., Novel evaporator geometries based on entrance-length flowpaths for geothermal binary power plants, paper IMECE2016-67660, **Proceedings of the ASME 2016 International Mechanical Engineering Congress and Exposition IMECE2016**, November 11-17, 2016, Phoenix, Arizona, USA.
9. Y. Hatano, Y. Ueda, D. Clark, T. Yokomine, A.S. Sabau, M. Yoda, T. Hinoki, A. Hasegawa, Y. Katoh, L. Garrison, Y. Oya, M. Shimada, D. Buchenauer, M. Fukuda, T. Tanaka, T. Muroga, Japan-US Joint Research Project PHENIX (2013–2018); Heat Transfer Tests, Neutron Irradiation and Post-Irradiation Examinations for Development of He-Cooled Tungsten Divertor, **26th IAEA Fusion Energy Conference IAEA CN234**, Kyoto, Japan, October 17-22, 2016.
10. Sabau A.S., Chen J., Warren C.D., Erdman D.L. III, Daniel C., Skszek T., and Caruso Dailey M., A Laser Interference-Based Surface Treatment of Al and Carbon Fiber Polymer Composites for Enhanced Bonding, paper LB15–0070, **SAMPE Conference and Exhibition**, Long Beach, CA, May 23-26, 2016.
11. Sabau A.S., Shingledecker J.P, Kung S.C., and Wright I.G., Exfoliation Propensity of Oxide Scale in Heat Exchangers Used for Supercritical CO2 Power Cycles, Paper 66, **5th International Supercritical CO2 Power Cycles Symposium**, San Antonio, TX, March 29-31, 2016.
12. Kung S.C., Shingledecker J.P, D. Thimsen, Wright I.G., Sabau A.S., Tossey, B.M. Oxidation/corrosion in materials for supercritical CO2 power cycles, Paper xx, **5th International Supercritical CO2 Power Cycles Symposium**, San Antonio, TX, March 29-31, 2016.
13. Sabau A.S., Nejad A.H., Klett James W., Bejan A., and EKICI K., Multi-scale Evaporator Architectures for Geothermal Binary Power Plants, https://pangea.stanford.edu/ERE/db/GeoConf/papers/SGW/2016/Sabau.pdf **41TH ANNUAL Stanford Geothermal Workshop**, Stanford, CA, Febr. 22-24, 2016.

14. A.S. Sabau, J. Chen, J. F. Jones, A. Hackett, G. D. Jellison, C. Daniel, D. Warren, J. D. Rehkopf, "Surface Modification of Carbon Fiber Polymer Composites after Laser Structuring," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Advanced Composites for Aerospace, Marine, and Land Applications II**, Orlando, FL.
15. J. Chen, A.S. Sabau, J. F. Jones, A. Hackett, G. D. Jellison, C. Daniel, and D. Warren, "Aluminum Surface Texturing by Means of Laser Interference Metallurgy," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Light Metals 2015: Aluminium Processing**, Orlando, FL.
16. A.S. Sabau, "Modeling of Casting Defects in an Integrated Computational Materials Engineering Approach," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Advances in the Science and Engineering of Casting Solidification: An MPMD Symposium Honoring Doru Michael Stefanescu**, Orlando, FL.
17. A.S. Sabau, W.D. Porter, S. Roy, and A. Shyam, "Process Simulation Role in the Development of New Alloys Based on an Integrated Computational Materials Engineering Approach," paper IMECE2014-37982, Proceedings of the **ASME 2014 Int. Mech. Eng. Congress & Exposition IMECE2014**, Nov. 14-20, 2014, Montreal, Quebec, Canada.
18. Yin, H., Sabau, A. S., Skszek, T. W. and Niu, X. (2013) "Microstructure Evolution Modeling for Solution Treatment of Aluminum Alloys," in **EPD Congress 2013** (eds M. L. Free and A. H. Siegmund), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781118658468.ch10, pp: 79-86, March 3-7, 2013: San Antonio, TX.
19. Yin, H., Sabau, A. S., Ludtka, G. M., Skszek, T. W. and Niu, X. (2013) Yield Strength Prediction for Rapid Age-Hardening Heat Treatment of Aluminum Alloys, in **EPD Congress 2013** (eds M. L. Free and A. H. Siegmund), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781118658468.ch10, pp: 87–94, March 3-7, 2013: San Antonio, TX.
20. Sabau, A.S., and Wright I.G., Shingledecker, J.P., and Tortorelli, P.F., "Managing Oxide Scale Exfoliation In Boilers With TP347H Superheater Tubes," Proceedings of the **7th International Conference on Advances in Materials Technology for Fossil Power Plants**, Waikoloa, Hawaii, USA, October 22, 2013.
21. Vidhi R., Kuravi S., Besarati S., E.K. Stefanakos, D. Yogi Goswami, and A.S. Sabau, "Performance of working fluids for power generation in a supercritical organic Rankine cycle," Proceedings of the **ASME 2012 6th International Conference on Energy Sustainability & 10th Fuel Cell Science**, Engineering and Technology Conference, Paper 91473, ESFuelCell2012, July 23-26, 2012, San Diego, CA.
22. Sabau, A.S., Gorti S.B., Peter W.H., Chen W., and Yamamoto Y., "Numerical Simulation of Cold Pressing of Armstrong CP-Ti Powders," **2012 TMS Annual Meeting**, Vol. 1, pp. 521-528, TMS 2012 – 141st Annual Meeting and Exhibition, Supplemental Proceedings, March 11- 15, Orlando, FL.
23. Sabau A.S., Yin, H., McFarlane J., Gruszkiewicz M., Conklin, J.C., Qualls L.A., And Pawel, S.J., "Mixtures of CO2-SF6 as Working Fluids for Geothermal Plants," Proceedings of the **ASME 2011 International Mechanical Engineering Congress & Exposition**, IMECE2011, Nov. 11-17, 2011, Denver, CO.
24. McFarlane J., Qualls L., Sabau A.S., Wright S., Yin H. "Air versus Water Cooling in Engineered Geothermal Systems," **Groundwater Protection Council Annual Forum**, Sept. 24-28, 2011, Atlanta, GA.
25. Sabau A.S, Yin H., Qualls L.A., and McFarlane J., "Investigations of supercritical CO2 Rankine cycles for geothermal power plants," **2011 Supercritical CO2 Power Cycle Symposium**, Boulder, CO, May 24-25, 2011.
26. Vidhi R., Goswami Y., Chen J., Stefanakos E., Kuravi S., Sabau A.S., "Study of Supercritical Carbon Dioxide Power Cycle for Low Grade Heat Conversion," **2011 Supercritical CO2 Power Cycle Symposium**, Boulder, CO, May 24-25, 2011.

27. Sabau A.S., Dinwiddie R.B., Xu J., Angelini J.A., Harper D.C., "Thermal Annealing of ZnO films using high-density plasma arc lamps," (invited) **Symposium Surfaces and Heterostructures at Nano- or Micro-Scale and Their Characterization, Properties, and Applications, 2011 TMS Annual Meeting & Exhibition**, Febr. 27 - March 3, 2011, San Diego, CA.
28. Gorti, S.B., Sabau A.S., Peter W.H., Nunn S.D., Yamamoto Y., and Chen W., Process simulation of cold pressing and sintering of Armstrong CP-Ti powders, Supplemental Proceedings Vol. 1, pp. 483-490, **Symposium XXXX, 2011 TMS Annual Meeting & Exhibition**, Febr. 27 - March 3, 2011, San Diego, CA.
29. Sabau A.S., Shingledecker J.P., and Wright I.G., "Steam-Side Oxide Scale Exfoliation Behavior in Superheaters And Reheaters: Differences in the Behavior of Alloys T22, T91, And TP347 Based on Computer Simulation Results," **6th International Conference on Advances in Materials and Technology for Fossil Power Plants**, Santa Fe, NM, Aug. 31-Sept. 3, 2010.
30. Sabau A.S., Sarma B. Gorti, Peter W.H., Yamamoto Y., "Process Simulation of Cold Pressing of Armstrong CP-Ti Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
31. Sabau A.S., Sarma B. Gorti, Kiggans J.O., Peter W.H., Erdman D.L., "Material Properties for the Simulation of Cold Pressing of Armstrong CP-Ti Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
32. Yamamoto Y., Peter W.H., Sabau A.S., Sarma B. Gorti, Kiggans J.O., Nunn S.D., Blue C.A., Barnes J.E., Henry C., Capone J.A., Paliwal M., Fuller B., Akhtar K., "Low-Cost Titanium Near-Net-Shape Manufacturing Using Armstrong and/or Hydride-Dehydride CP-Ti/Ti-6Al-4V Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
33. Sabau A.S., Wright I.G., Zhang W., Pint B.A., Unocic K.A., and Mathews J., "Temperature Evolution and Oxide Growth in Waterwall Tubes of Supercritical Units," **Boiler Tube and HRSG Tube Failures and Inspections International Conference**, Baltimore, MD, April 19-22, 2010.
34. Sabau A.S. and Wright I.G., Prediction of Oxide Scale Exfoliation in Steam Tubes, **Boiler Tube and HRSG Tube Failures and Inspections International Conference**, Baltimore, MD, April 19-22, 2010.
35. Yamamoto Y., Kiggans J.O., Clark M.B., Nunn S.D., Sabau A.S., and Peter W.H., "Consolidation Process in Near Net Shape Manufacturing of Armstrong CP-Ti/Ti-6Al-4V Powders", Key Engineering Materials, Vol. 436, pp. 103-111, **Symposium Cost-Affordable Titanium III, 2010 TMS Annual Meeting & Exhibition**, Seattle, WA, Febr. 14-18, 2010.
36. Wang, L., Felicelli, S. Sabau, A.S., and Berry, J., "Interdependence between cooling rate, microstructure and porosity in Mg alloy AZ91," **Shape Casting: Third International Symposium**, pp. 123-130, TMS 2009 Annual Meeting & Exhibition, Feb. 15-19, San Francisco, CA.
37. Wang, L., Felicelli, S. Sabau, A.S., and Berry, J., "Interdependence between cooling rate, microstructure and porosity in Mg alloy AE42," **Magnesium Technology 2009**, pp. 249-253, TMS 2009 Annual Meeting & Exhibition, Feb. 15-19, San Francisco, CA.
38. A.S. Sabau, C.E. Duty, R.D. Ott, G.E. Jellison, "Numerical Simulation of Annealing of CdSe Quantum Dots for White Light LEDs", **Modeling of Multi-Scale Phenomena in Materials Processing Symposium**, MST08, Pittsburgh, PA (Oct 5-9), pp. 877-888, 2008.
39. E. K. Ohriner, A. Sabau, G. B. Ulrich, and E. P. George, "Deformation Modeling of Iridium Dop-26 Alloy to Determine Potential for Secondary Recrystallization", **International Conference on Tungsten, Refractory, and Hard Materials** VII, Washington DC, June 8-12, 2008.

40. Wright, I.G. Sabau, A.S., M. Schütze, and R.B. Dooley, "Oxide Growth and Exfoliation in Steam," **EPRI International Conference on Boiler Tube and HRSG Tube Failures and Inspections**, October 16-18, 2007, Calgary, Canada.
41. Sabau, A.S. and Wright, I.G. "Numerical Simulations of The Effects of Changing Fuel for Turbines Fired by Natural Gas and Syngas," paper no. GT2007-27530, **ASME Turbo Expo** 2007, Montreal, Canada, May 14-17, 2007, Vol.2, pp. 413-422.
42. Sabau, A.S. and Wright, I.G. "Integration of Thermodynamic and Heat Transfer Models for Turbines Fired by Syngas and Hydrogen," **Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies**, TMS Annual Meeting, Orlando, Florida, February 25-March 1, 2007, pp. 43-52.
43. Wright, I.G., Gibbons, T.B., Sabau, A.S., Pint, B.A., "High-Temperature Materials Issues in Syngas/Hydrogen-Fired Turbines," **TMS Materials in Clean Power Systems: Applications, Corrosion, and Protection: Hydrogen Separation, Delivery, and Materials Issues in Clean Power Plants**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. .
44. Hassan, M.I., Kuwana K., Viti V., Sabau, A.S., Saito K., "Warm water scale model experiments for magnesium die casting," **Magnesium Technology**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. 139-144.
45. Sabau, A.S., "Heat fluxes at metal-mold interface during casting solidification," **TMS Light Metals**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. 827-832.
46. Rivard, J.D.K. Blue, C.A., Sabau, A., Ohriner, E.K., Ludtka, G.M., Tiegs, T.N., and Stiglich, J.J., "The use of high density infrared heating for surface modification/coatings processes," 2006, Proceedings of the 18-th **International Conference on Surface Modification Technologies**, pp. 139-146.
47. Sabau, A.S., "In-situ Measurements of Heat Flux During Lubricant Spray Application in Die Casting," **North American Die Casting Association (NADCA)**-CastExpo 2006, Columbus, Ohio, April 18-21, 2006.
48. Viti V., Kuwana K., Sabau A.S, Hassan, M., and Saito K., "Numerical Simulations of Jet Break-Up Phenomena for the High Pressure Die Casting Process," **Materials Processing Fundamentals Symposium**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, EPD 2006 Proceedings, Editors: S. Howard, R.L. Stephens, C.J. Newman, J-Y.J. Hwang, A.M. Gokhale, T.T. Chen, T.P. Battle, M.L. Free, B.R. Davis, C.L. Harris, H. Henein, P.N. Anyalebechi, A.C. Powell, G.K. Krumdick and C.K. Belt, pp. 669-679.
49. Sabau, A.S. and Wu, Z., "Measurement of Heat Flux During Lubricant Application for the Die Casting Process," **North American Die Casting Association (NADCA)-CastExpo 2005**, St. Louis, Missouri, USA, April 2005.
50. Kuwana K., Viswanathan S., Clark J.A., Sabau A., Hassan M.I., Saito K., and Das S. "Calculation of Heat Transfer Coefficients at the Ingot Surface During DC Casting," in Proceedings of **Light Metals 2005**, TMS Annual Meeting, San Francisco, California, February 13-17, 2005 pp. 989-995.
51. Long Z., Han Q., Viswanathan S., Ningileri S., Das S., Kuwana K., Hassan M., Khraisheh M., Sabau A., and Saito K., "Integrated 3D Model to Simulate Solidification and Predict Hot Cracking During DC Casting of Aluminum Alloys," in Proceedings of **Light Metals 2005**, TMS Annual Meeting, San Francisco, California, February 13-17, 2005, pp. 1057-1063.
52. P.B. Kadolkar, R.D. Ott, C.A. Blue, and A.S. Sabau, "Functionalization of Nanomaterials Utilizing Pulse Thermal Processing," **MRS Proceed.**, 2004, Vol. 853E, Eds: J-P. Wang, P.J. Ryan, K. Nielsch, Z. Cheng.
53. Sabau, A. S., "Tests for Determining Viscoelastic Properties of Investment Casting Waxes," **Investment Casting Institute 52-nd Annual Meeting**, Covington, KY, Sept. 19-22, 2004, Paper no. 1.

54. Sabau, A. S. and Porter, W. D., "Analytical Models for the Systematic Errors of Differential Scanning Calorimetry Instruments," **ASME Heat Transfer/Fluids Engineering Summer Conference**, Charlotte, NC, July 11-18, 2004, paper HT-FED2004-56745.
55. Osborne, G.E., Frankel, J.I., Sabau, A.S., and Porter, W.D. "Characterization of Thermal Lags and Resistances in a Heat-Flux DSC," in Proceedings of **Materials Processing Fundamentals**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, pp. 527-536.
56. Sabau, A.S., Kuwana, K., Viswanathan, S., Saito, K., and Davis, L.J. "Heat Transfer Boundary Conditions for the Numerical Simulation of the DC Casting Process," in Proceedings of **Light Metals 2004**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, Ed. RD Peterson, pp. 597-602.
57. Sabau, A.S., Porter, W.D., and Frankel, J.I. "Conduction and Radiation Parameters for Analytical Models of Differential Scanning Calorimetry Instruments," in Proceedings of **Solidification of Aluminum Alloys**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, Ed. Chu, M.G, Granger, D.A., and Han, Q., pp. 19-28.
58. Rivard, J.K.D., Blue C.A., Sabau, A.S., Ohriner, E.K., and Harper, D.C. "High Density Infrared Processing of Thin Gage Gamma-TiAl," **JANNAF 39th Combustion Subcommittee/27th Airbreathing Propulsion Subcommittee/21st Propulsion Systems Hazards Subcommittee/3rd Modeling and Simulation Subcommittee Joint Meeting**, Colorado Springs, CO, December 1-5, 2003.
59. Sabau, A.S., Rivard, J.K.D., Blue C.A., Ohriner, E.K., and Harper, D.C. "A Sintering Model for the Evolution of Thermal Conductivity during High Density Infrared Processing of Powder Compacts," **International Thermal Conductivity Conference 27**, Knoxville, TN, October 29, 2003.
60. Rivard, J.K.D., Blue C.A., Ott R.D., Sabau A., Santella M., Tsung-Yu Pan and Joaquin A., 2003, "Advanced Manufacturing Technologies Utilizing High Density Infrared (HDI) Radiant Heating," Proceedings of **Advanced Manufacturing Processes and Systems**, Global Powertrain Congress, September 23-25, 2003, Ann Arbor, MI.
61. Ohriner, E.K.; Blue, C.A.; Sabau, A.; Rivard, J.D.K., "Energy efficient production of sheet material using radiant arc-lamp heating," Proceedings of the **TMS Materials Processing and Manufacturing Division**, Mar 2-6 2003, San Diego, CA, 2003, pp. 147-158.
62. Osborne G.E., Frankel J.I. , Sabau A.S., "A New Parameter Estimation Method for DSC Thermodynamic Property Evaluation - Part I: Analytic Development," pp. 51-58, Proceedings of the **22nd IASTED International Conference on Modelling, Identification, and Control** (MIC 2003), M.H. Hamza (Ed.), February 10-13, 2003, Innsbruck, Austria.
63. Osborne G.E., Frankel J.I. , Sabau A.S., "A New Parameter Estimation Method for DSC Thermodynamic Property Evaluation - Part II: Runge-Kutta Implementation and Numerical Results," pp. 59-66, Proceedings of the **22nd IASTED International Conference on Modelling, Identification, and Control** (MIC 2003), M.H. Hamza (Ed.), February 10-13, 2003, Innsbruck, Austria.
64. Rivard, J.K.D., Blue C.A., Ohriner E.K., Sabau A.S., Harper D.C, and N. Jayaraman, "Direct Sheet Fabrication of Advanced Materials," World Congress on Powder Metallurgy & Particulate Materials, Proceedings of **Advances in Powder Metallurgy and Particulate Materials, 2002**, MPIF, Princeton, NJ (2002), 11-81-11-91, June 16-21, Orlando, FL.
65. Ott, D.R., Craig A. Blue, Adrian S. Sabau, Tsung-Yu Pan, Armando M. Joaquin, "Preferential Softening of 6063-T6 Aluminum Alloy Utilizing a High Density Infrared (HDI) Plasma Arc Lamp," 2002 TMS Fall Meeting, Proceedings of **Forming and Shaping of Light Weight Automotive Structures**, Columbus, OH, October 6-10, 2002.
66. Temmel, C., Liu, K.C., Agnew, S.R., Sabau, A.S., Han, Q., and Viswanathan, S., 2001, "Experimental and Computational Study of Bolt Retention Behavior of Magnesium Alloy AM60B," in Proceedings of **Magnesium Technology 2001**, pp. 201, TMS Annual Meeting, New Orleans, Louisiana, February 11-15.

67. Sabau, A.S., and Viswanathan, S., "Microporosity evolution and interdendritic fluid flows during solidification," 2001 Annual Fall TMS Meeting, **Computational Modeling of Materials, Minerals, and Metals Processing**, pp. 725-734, San Diego, CA, Sept. 23-26.

68. Sabau, A.S., and Viswanathan, S., "Numerical Simulation of Wax Pattern Dimensions in Investment Casting," 2001 Annual Fall TMS Meeting, Proceedings of **Computational Modeling of Materials, Minerals, and Metals Processing**, pp. 431-440, San Diego, CA, Sept. 23-26.
69. Sabau, A.S., and Viswanathan, S., "Determining Wax Pattern Dimensions in Investment Casting Using Viscoelastic Models," **Investment Casting Institute 49-th Annual Meeting**, Orlando, FL, October 7-10, 2001, Paper no. 3.
70. Viswanathan, S., Sabau, A.S., Han, Q., and Duncan, A.J., "Prediction of Microporosity Distributions in Aluminum Alloy Castings," in Proceedings of **TMS Merton C. Flemings Symposium on Solidification and Materials Processing**, 2001, pp. 379-384, Cambridge,MA, June 28-30, 2000.
71. Sabau, A.S., and Viswanathan, S., 'Material Properties for Predicting Wax Pattern Dimensions in Investment Casting," **Investment Casting Institute 48-th Annual Meeting**, Dallas, TX, October 15-18, 2000, Paper no. 4.
72. Sabau, A.S. and Viswanathan, S., "Porosity Prediction in Aluminum A356 Alloy Castings," in Proceedings of **Light Metals 2000**, TMS Annual Meeting, Nasville, TN, March 12-16, Ed. R.D. Peterson, pp. 597-602.
73. Sabau, A.S., Han, Q., and Viswanathan, S., "Projection Methods for Interdendritic Flows," in Proceedings of **Fluid Flow Phenomena in Metals Processing**, TMS Annual Meeting, San Diego, February 28-March 4, 1999, pp. 403-413.
74. Viswanathan, S., Duncan, A.J., Sabau, A.S., and Han, Q., "Prediction of Microporosity in Aluminum Alloy Castings," **Modeling of Casting, Welding, and Advanced Solidification Processes VIII**, 1998, Eds. B.G.Thomas and C. Beckermann, San Diego, CA, pp. 849-856.
75. Viswanathan, S., Sabau, A.S., Han, Q., and Duncan, A.J., "Next generation casting process models predicting porosity and microstructure," **SAE Transactions: Journal of Materials & Manufacturing**, Vol. 107, pp. 1174-1177, 1998.
76. Viswanathan S., Sabau A.S., Han Q., and Duncan A.J., "Modeling of Porosity in Aluminum Alloy Castings," Proceed. of **Materials Solutions Conference '98 on Aluminum Casting Technology**, Oct. 12-15, 1998, Rosemont, IL, pp. 135-138.
77. Sabau, A. S. and Raad, P. E., "On Boundary Conditions for Free-surface Flows," **ASME Fluids Engineering Division Annual Summer Meeting**, San Francisco, CA, July 18-23, 1999, paper FEDSM99-7098.
78. Sabau, A. S. and Raad, P. E., "Numerical Modeling of Impact between Fluid and Solid Structures with One-fluid VOF Methods," **ASME Fluids Engineering Division Annual Summer Meeting**, Washington, D.C., June 21-25, 1998, paper FEDSM98-5221.
79. Sabau, A. S. and Tao, Y-X, " On Mathematical Modeling of Convective Melt of a Granular Porous Medium," **ASME National Heat Transfer Conference**, Washington, D.C., August 10-12, 1997, HTD-Vol349, vol. 11, pp. 197-204.
80. Sabau, A. S., Tao, Y-X, Liu, G. and Vidhuvalavan, G., "Effective Thermal Conductivity of Granular Porous Media using Fractal Concepts," **ASME National Heat Transfer Conference**, Washington, D.C., August 10-12, 1997, HTD-Vol349, vol. 11, pp. 121-128.
81. Sabau, A. S. and Tao, Y-X, 1997, "Parallel Implementation of the Projection Method for Solving Free-surface Flows," **ASME Fluid Engineering Division Summer Meeting**, Numerical Developments in CFD Proceedings, FEDSM'97. Part 20 (of 24), Vancouver, British Columbia, Canada, June 22-261997.

82. Sabau, A. S. and Raad, P. E., "Flow Over a Cylindrical Containment Dike," **ASME Fluids Engineering Division Annual Summer Meeting**, San Diego, CA, July 7-11, 1996, ASME FED-Vol238, Vol. 3, pp. 369-374.
83. Sabau, A. S. and Raad, P. E.,"A Study of Multidomain Compact Finite Difference Schemes for Stiff Problems," **ASME Fluid Engineering Division Summer Meeting**, San Diego, CA, July 7-11, 1996, ASME FED-Vol238, Vol. 3, pp. 217-224.
84. Sabau, A. S. and Raad, P. E.,"On Two-Dimensional Water-Solid Impact with VOF Methods," **ASME Winter Annual Meeting**, San Francisco, CA, November 12-17, 1995, ASME, FED-Vol. 234, pp. 113-123.
85. Sabau, A. S. and Raad, P. E., "On Numerical Oscillations in High-Order Finite Difference Solutions of Boundary Layer Problems on Nonuniform Grids," **ASME Fluids Engineering Division Annual Summer Meeting**, Hilton Head Island, SC, Aug. 13-18, 1995, FED-Vol. 215, pp. 89-96.
86. Raad, P. E. and Sabau, A. S., "Permeable Contact Lens Motion During Blinking," **Advances in Bioengineering**, ASME International Mechanical Engineering Congress and Exposition, Chicago, Il, 1994, Nov. 6-11, ASME BED-Vol. 28, pp. 75-76.

PUBLICATIONS IN ROMANIAN

1. Sabau, A. S. "An Algorithm for Computing the Inertia Torques using Second Order Transfer Matrices in Kinematic Links of Industrial Robots," **Symposium on Design, Technology, and Management in Mechanical Engineering**, Iasi, Romania, May 22-23, 1992, 111-116.

2. Iordachita, I. and Sabau, A. S., "Computation of the RD5NT Robot Workspace using the Monte Carlo Method," **Symposium on Design, Technology, and Management in Mechanical Engineering**, Iasi, Romania, May 22-23, 1992, 123-128.
3. Sabau, A. S., "On Computing the Joint Torques using Second Order Transfer Matrices for Industrial Robots," **Symposium on Design, Technology, and Management in Mechanical Engineering**, Iasi, Romania, May 22-23, 1992, 117-122.

OTHER PRESENTATIONS

1. Sabau A.S., Ohriner E.K., Byun, T.S., Katoh, Y., Kiggans J.O, Ueda, Y., Snead L.L., and Harper D.C., "High-Heat Flux Testing of Irradiated W-based Materials for Fusion Applications using Infrared Plasma Arc Lamps," presentation at the **16-th International Conference on Fusion Reactor Materials - ICFRM16**, Beijing, China, Oct. 20-26, 2013.

2. Sabau A.S., Ohriner E.K., Kiggans J.O., Harper D.C., and Snead L.L., "Facility for high heat flux testing of irradiated fusion materials and components using infrared plasma arc lamps," poster presented at the **14th International Conference on Plasma-Facing Materials and Components for Fusion Applications**, 14-17 May, 2013, Julich, Germany.
3. Sabau A.S., Porter W.D., and Yin H., "Process Simulation Role in the Development of Metal Casting Processes Based on an Integrated Computational Materials Engineering Approach," presented at **2nd World Congress on Integrated Computational Materials Engineering**, July 7-11, 2013, Salt Lake City, Utah.
4. Dudney, Nancy J., Tenhaeff, Wyatt E. , Liang, Chengdu, Sabau, Adrian S. "Solid electrolytes to enable lithium, lithium-sulfur, and lithium-air batteries," 220th ECS Meeting, Boston, Massachusetts, USA, October 09—14, 2011.
5. Peter, W.H., Dehoff, R.; R. Muth, Thomas R., Yamamoto, Y.; Chen, W; Sabau, A.S., Gorti, S.B.; Kiggans, J.; Nunn, S.D.; Clark, M.B.; Blue, C.A.; Williams, J.C. "Processing and Properties of Commercially Pure Ti and Ti-6Al-4V Made by Two Different Powder Metallurgy Methods," Powder Processing, Consolidation and Metallurgy of Titanium, Brisbane, Australia, December 05—07, 2011.

6. Peter, W.H., Dehoff, R.; R. Muth, Thomas R., Yamamoto, Y.; Chen, W; Sabau, A.S., Kiggans, J.; Nunn, S.D.; Gorti, S.B.; Clark, M.B.; Blue, C.A.; Barnes, J.E; Henry, C.T; Capone, J.; Paliwal, M.; Fuller, B.; Akhtar, K., "Netshape Fabrication of Titanium Components." Titanium 2011, San Diego, California, USA, October 02—05, 2011.
7. Wei Chen, Yukinori Yamamoto, Thomas Muth, William Peter, Michael Clark, Sarma Gorti, Adrian Sabau, Stephen Nunn, Jim Kiggans, Craig Blue, James Williams, Brian Fuller, and Kamal Akhtar, "The cold compaction and sintering study of two low-cost Ti and Ti alloy powders." MS&T 2011, Columbus, Ohio, USA, October 16—20, 2011.
8. S. Kalnaus, A. Sabau, W. Tenhaeff, N.J. Dudney, and C. Daniel, Analysis of Composite Polymer Electrolytes for Li Battery Applications, 2012 Spring MRS Meeting, April 9-13, San Francisco, CA.
9. Nancy J. Dudney, Wyatt E. Tenhaeff, Sergiy Kalnaus, Adrian S. Sabau, Erik G. Herbert, Kunlun Hong, Transport and Mechanical Properties of Pure and Composite Solid Lithium Electrolytes, Symposium on Scalable Energy Storage, Beyond Lithium Ion V.
10. W. Tenhaeff, E. Herbert, G. Pharr, S. Kalnaus, S. Newman, A. Sabau, C. Daniel, X. Yu, K. Hong, N.J. Dudney, "Characterizing the Electrochemical and Mechanical Properties of Glass and Polymer Electrolytes and Predicting the Effective Conductivity of Their Composite Structures by Random Resistor Networks," **2010 MRS Fall Meeting**, Boston, MA, Nov. 30-Dec. 3, 2010.
11. S. Kalnaus, A. Sabau, W. Tenhaeff, S. Newman, N. Dudney, C. Daniel, Effective conductivity and percolation threshold of polymer composite electrolyte by random resistor networks, **2010 MRS Fall Meeting**, Boston, MA, Nov. 30-Dec. 3, 2010.
12. A.S. Sabau and N.J. Dudney, "Predicting of Surface Morphology Defects in Electrochemical Storage Devices," **Symposium: Modeling of Multi-Scale Phenomena for Batteries**, 2010 TMS Annual Meeting & Exhibition, Seattle, WA, Febr. 14-18, 2010.
13. G. Romanoski, L. Snead, J. Kelly, and A.S. Sabau, "Infrared Thermal Fatigue Test for IFE First Wall Materials," **Twelfth International Conference on Fusion Reactor Materials**, ICFRM-12 (poster).
14. G. Romanoski, L. Snead, J. Kelly, and A.S. Sabau, S.J. Zinkle, "Bonding Tungsten to Low Activation Ferritic Steel, "HAPL Workshop, Lawrence Livermore National Laboratory, June 20-21, 2005 (presentation).

TOTAL PUBLICATION COUNTS (see attached list)

67 journal papers (1-st author 35 papers),
11 industry refereed journal papers (1-st author 10 papers),
86 conference papers (1-st author 48 papers).
16 invited talks.

LIST OF PUBLICATIONS by Research Areas

Additive Manufacturing

1. E. Robey, S. Ramesh, A.S. Sabau, A. Abdoli, J. Black, D. Straub, J. Yip, Design Optimization of an Additively Manufactured Prototype Recuperator for Supercritical CO2 Power Cycles, Submitted to the **Energy**, June 2021.
2. Yuan, L.; Sabau, A.S.; StJohn, D.; Prasad, A.; Lee, P.D. Columnar-to-equiaxed transition in a laser scan for metal additive manufacturing. **IOP Conf. Series: Materials Sci. and Eng.**, 2020, Vol. 861, 012007, doi:10.1088/1757-899x/861/1/012007.
3. Sabau, A.S., Bejan A., Brownell D., Gluesenkamp, K.R., B.L. Murphy, List-III F.A., Carver K., Schaich C.R., and Klett J.W., Design, Additive Manufacturing, And Performance of Heat Exchanger With A Novel Flow-Path Architecture, **Applied Thermal Engineering**, 2020, Vol. 180, pp. 115775. doi:10.1016/j.applthermaleng.2020.115775.
4. Coleman J., Plotkowski, A., Stump, B., Raghavan N., Sabau A.S, Krane, M., Heigel, J., Ricker, D. R., Levine, L., and Babu, S., Sensitivity of Thermal Predictions to Uncertain Surface Tension Data in Laser Additive Manufacturing, ASME **Journal of Heat Transfer**, 2020, Vol. 142, paper 122201.
5. M. Searle, J. Black, D. Straub, J. Yip, E. Robey, S. Ramesh, A. Roy, A.S. Sabau, and D. Mollot, Heat transfer coefficients of additively manufactured tubes with internal pin fins for supercritical carbon dioxide cycle recuperators, **Applied Thermal Engineering**, Vol. 181, 116030, 2020.
6. A.S. Sabau, L. Yuan, N. Raghavan, M. Bement, Srdjan Simunovic, J. Turner, and V.K. Gupta, Fluid Dynamics Efects on Microstructure Prediction in Single Laser Tracks for Additive Manufacturing of IN625, 2020, **Metall. and Mater. Trans. B**, 51(3), 1263-1281, DOI: 10.1007/s11663-020-01808-w.

Papers in Conference Proceedings

7. Weinmeister, J. Sabau, A.S., and Jain P., Additively manufactured surface heat transfer enhancements for the transformational challenge reactor, 19th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-19), Log nr.: 19001, Brussels, Belgium, Aug. 29 – Sept. 3, 2021.
8. J. Chitale, A. Abdoli, G.S. Dulikravich, A.S. Sabau, J.B. Black, Conjugate Heat Transfer Analysis of the Supercritical CO2 Based Counter Flow Compact 3D Heat Exchangers, ITHERM 2020, Orlando, FL. July 21-23, 2020.

Additive Manufacturing - related - IR processing (melting, solidification, moving heat source)

9. Rivard J.D.K., Blue C.A., Ott R.D., Sabau A., Santella M., Pan T.Y., Joaquin A., "Advanced manufacturing technologies utilising high density infrared radiant heating," **Surface Engineering**, 2004, Vol. 20, pp. 220-228.
10. Rivard, J.K.D., Sabau, A.S., Blue C.A., Ohriner, E.K., and Harper, D.C. "High Density Infrared Processing of γ-TiAl Sheet," **TMS Letters**, 2004, Vol. 1, No. 5, pp. 95-96.
11. Rivard, J.K.D., Sabau, A., Blue C.A., Ohriner, E.K., , N. Jayaraman, "Thermophysical Properties of Roll Compacted Nickel Sheet for High Density Infrared Processing," **Metallurgical and Materials Transactions A**, 2003, Vol. 34A, pp. 3043-3054.
12. Sabau, A.S., Rivard, J.K.D., Blue C.A., Ohriner, E.K., and Harper, D.C. "A Sintering Model for the Evolution of Thermal Conductivity during High Density Infrared Processing of Powder Compacts," **International Thermal Conductivity Conference 27**, Knoxville, TN, October 29, 2003.

13. Rivard, J.K.D., Blue C.A., Ott R.D., Sabau A., Santella M., Tsung-Yu Pan and Joaquin A., 2003, "Advanced Manufacturing Technologies Utilizing High Density Infrared (HDI) Radiant Heating," Proceedings of **Advanced Manufacturing Processes and Systems**, Global Powertrain Congress, September 23-25, 2003, Ann Arbor, MI.
14. Ohriner, E.K.; Blue, C.A.; Sabau, A.; Rivard, J.D.K., "Energy efficient production of sheet material using radiant arc-lamp heating," Proceedings of the **TMS Materials Processing and Manufacturing Division**, Mar 2-6 2003, San Diego, CA, 2003, pp. 147-158.
15. Rivard, J.K.D., Blue C.A., Ohriner E.K., Sabau A.S., Harper D.C, and N. Jayaraman, "Direct Sheet Fabrication of Advanced Materials," World Congress on Powder Metallurgy & Particulate Materials, Proceedings of **Advances in Powder Metallurgy and Particulate Materials, 2002**, MPIF, Princeton, NJ (2002), 11-81-11-91, June 16-21, Orlando, FL.

High-Temperature Thermophysical Property Data

1. Sabau, A.S. and Porter, W.D., "Analysis of A Heat-Flux Differential Scanning Calorimetry Instrument," **Metallurgical and Materials Transactions A**, 2007, Vol 38A, pp. 1546-1554.
2. Sabau, A.S. and Hatfield E.C. "Measurement of Heat Flux and Heat Transfer Coefficient Due to Spray Application for the Die Casting Process" **Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Engineering Manufacture**, Vol. 221, pp. 1307-1316, 2007.
3. Sabau, A.S. and Dinwiddie, R.B., "Characterization of spray lubricants for the high pressure die casting processes," **Journal of Materials Processing Technology**, 2008, Vol. 195, pp. 267-274.
4. Sabau, A.S. and Wu, Z., "Evaluation of a Heat Flux Sensor for Spray Cooling for the Die Casting Processes," **Journal of Materials Processing Technology**, 2007, Vol. 182, pp. 312-318.
5. Sabau, A.S., "Measurement of Heat Flux at Metal-Mold Interface during Casting Solidification," **International Journal of Cast Metals Research**, 2006, Vol. 19, pp. 188-194.
6. Frankel, J.I. Porter, W.D., and Sabau, A. "Analysis of volumetric changes through melting using a dilatometer," **Journal of Thermal Analysis and Calorimetry**, 2005, Vol. 82, pp. 171-177.

Papers in Conference Proceedings

7. Sabau, A.S., "In-situ Measurements of Heat Flux During Lubricant Spray Application in Die Casting," **North American Die Casting Association (NADCA)**-CastExpo 2006, Columbus, Ohio, April 18-21, 2006.
8. Sabau, A.S. and Wu, Z., "Measurement of Heat Flux During Lubricant Application for the Die Casting Process," **North American Die Casting Association (NADCA)-CastExpo 2005**, St. Louis, Missouri, USA, April 2005.
9. Sabau, A. S. and Porter, W. D., "Analytical Models for the Systematic Errors of Differential Scanning Calorimetry Instruments," **ASME Heat Transfer/Fluids Engineering Summer Conference**, Charlotte, NC, July 11-18, 2004, paper HT-FED2004-56745.
10. Osborne, G.E., Frankel, J.I., Sabau, A.S., and Porter, W.D. "Characterization of Thermal Lags and Resistances in a Heat-Flux DSC," in Proceedings of **Materials Processing Fundamentals**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, pp. 527-536.
11. Sabau, A.S., Porter, W.D., and Frankel, J.I. "Conduction and Radiation Parameters for Analytical Models of Differential Scanning Calorimetry Instruments," in Proceedings of **Solidification of Aluminum Alloys**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, Ed. Chu, M.G, Granger, D.A., and Han, Q., pp. 19-28.

12. Osborne G.E., Frankel J.I. , Sabau A.S., "A New Parameter Estimation Method for DSC Thermodynamic Property Evaluation - Part I: Analytic Development," pp. 51-58, Proceedings of the **22nd IASTED International Conference on Modelling, Identification, and Control** (MIC 2003), M.H. Hamza (Ed.), February 10-13, 2003, Innsbruck, Austria.
13. Osborne G.E., Frankel J.I. , Sabau A.S., "A New Parameter Estimation Method for DSC Thermodynamic Property Evaluation - Part II: Runge-Kutta Implementation and Numerical Results," pp. 59-66, Proceedings of the **22nd IASTED International Conference on Modelling, Identification, and Control** (MIC 2003), M.H. Hamza (Ed.), February 10-13, 2003, Innsbruck, Austria.
14. Hassan, M.I., Kuwana K., Viti V., Sabau, A.S., Saito K., "Warm water scale model experiments for magnesium die casting," **Magnesium Technology**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. 139-144.
15. Sabau, A.S., "Heat fluxes at metal-mold interface during casting solidification," **TMS Light Metals**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. 827-832.
16. Viti V., Kuwana K., Sabau A.S, Hassan, M., and Saito K., "Numerical Simulations of Jet Break-Up Phenomena for the High Pressure Die Casting Process," **Materials Processing Fundamentals Symposium**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, EPD 2006 Proceedings, Editors: S. Howard, R.L. Stephens, C.J. Newman, J-Y.J. Hwang, A.M. Gokhale, T.T. Chen, T.P. Battle, M.L. Free, B.R. Davis, C.L. Harris, H. Henein, P.N. Anyalebechi, A.C. Powell, G.K. Krumdick and C.K. Belt, pp. 669-679.

Reports

17. Frankel, J.I., Sabau, A.S., and Porter, W.D., "Inverse Process Analysis for the Acquisition of Thermophysical Data," Final project report ORNL/TM-2005/132, June 2006, http://www.osti.gov/bridge/se eX7lOV/861453.PDF
    http://www.eere.energy.gov/industry/imf/pdfs/1776_inverseprocessanalysis_finalreport.pdf
18. Sabau, A.S., Hatfield, E.C, Dinwiddie, R.B., Kuwana, K., Viti, V., Hassan, M.I., and Saito, K. "Assessment of Computer Simulation Software and Process Data for High Pressure Die Casting of Magnesium," Final Technical Report, ORNL/TM-2007/041.
19. Tolbert, L. M. , T. J. King, B. Ozpineci, J. B. Campbell, G. Muralidharan, D. T. Rizy, A. S. Sabau, H. Zhang, W. Zhang, X. Yu, H. F. Huq, H. Liu, "Power Electronics for Distributed Energy Systems and Transmission and Distribution Applications: Assessing the Technical Needs for Utility Applications," ORNL/TM-2005/230, December 2005. `http://www.ornl.gov/~webworks/cppr/y`

Investment Casting - process simulation and shrinkage factors

1. Sabau, A.S. and Porter, W.D., "Alloy Shrinkage Factors for the Investment Casting of 17-4PH Stainless Steel Parts," **Metallurgical and Materials Transactions**, 2006, Vol. 39B, pp. 317-330.
2. Sabau, A. S. "Alloy Shrinkage Factors For The Investment Casting Process, **Metallurgical and Materials Transactions**, 2006, Vol. 37B, pp. 131-140.
3. Sabau, A.S., and Viswanathan, S., "Material Properties For Predicting Wax Pattern Dimensions In Investment Casting," **Materials Science & Engineering A**, 2003, Vol. 362A, pp. 125-134.
4. Sabau, A.S., "Shrinkage Prediction for the Investment Casting of Stainless Steels," **Transactions of American Foundry Society**, 2007, Vol. 115, paper 07-042, pp. 281-292.
5. Sabau, A.S., "Prediction of Alloy Shrinkage Factors for the Investment Casting Process," **Transactions of American Foundry Society**, 2006, Vol. 114, paper 06-004, pp. .
6. Sabau, A.S., "Numerical simulation of the investment casting process," **Transactions of American Foundry Society**, 2005, Vol. 113, paper 05-160, pp. 407-417.
7. Sabau, A.S. and Viswanathan, S., "Thermophysical Properties of Zircon and Fused Silica-based Shells used in the Investment Casting Process," **Transactions of American Foundry Society**, 2004, Vol. 112, paper 04-081, pp. 649 - 661.
8. Sabau, A.S. and Viswanathan, S., "Temperature Measurements In Wax Patterns And Wax-Die Interfacial Heat Transfer Coefficients In Investment Casting," **Transactions of American Foundry Society**, 2003, Vol. 111, paper 03-026, pp. 411-417.
9. Sabau, A.S. and Viswanathan, S., "Prediction of Wax Pattern Dimensions in Investment Casting," **Transactions of American Foundry Society**, 2002, Vol. 110, paper 02-103, pp. 733-746.
10. Sabau, A.S., and Viswanathan, S., "Critical Material Properties for Predicting Pattern Tooling Dimensions in Investment Casting," 2001, **Transactions of American Foundrymen's Society**, Paper No. 01-017, pp. 1-18.
11. Viswanathan, S., Duncan, A.J., Sabau A.S., Han, Q., Porter, W.D., and Riemer, B.W., 1998, "Modeling of Solidification and Porosity in Aluminum Alloy Castings," **Transactions of American Foundrymen's Society**, 1998, paper 98-103, pp. 411-417.

Papers in Conference Proceedings

12. Sabau, A. S., "Tests for Determining Viscoelastic Properties of Investment Casting Waxes," **Investment Casting Institute 52-nd Annual Meeting**, Covington, KY, Sept. 19-22, 2004, Paper no. 1.
13. Sabau, A.S., and Viswanathan, S., "Numerical Simulation of Wax Pattern Dimensions in Investment Casting," 2001 Annual Fall TMS Meeting, Proceedings of **Computational Modeling of Materials, Minerals, and Metals Processing**, pp. 431-440, San Diego, CA, Sept. 23-26.
14. Sabau, A.S., and Viswanathan, S., "Determining Wax Pattern Dimensions in Investment Casting Using Viscoelastic Models," **Investment Casting Institute 49-th Annual Meeting**, Orlando, FL, October 7-10, 2001, Paper no. 3.

15. Sabau, A.S., and Viswanathan, S., 'Material Properties for Predicting Wax Pattern Dimensions in Investment Casting," **Investment Casting Institute 48-th Annual Meeting**, Dallas, TX, October 15-18, 2000, Paper no. 4.

Reports

16. Cannell, N. and Sabau, A.S., "Predicting Pattern Tooling and Casting Dimensions for Investment Casting-Phase III," Final Technical Report, ORNL/TM-2007/204, December 2007, http://www.osti.gov/bridge/servlets/purl/923051-rVU3sx/
17. Cannell, N. and Sabau, A.S., "Predicting Pattern Tooling and Casting Dimensions for Investment Casting-Phase II," Final Technical Report, ORNL/TM-2005/228, June 2006, http://www.osti.gov/ener rd1y7p/850402.PDF

Prediction of Microporosity and Hot-tearing Defects during Metal Casting

1. Sabau, A.S., Milligan, B.K., Mirmiran, S., Glaspie, C., Shyam, A., Haynes, J.A., Rodriguez, A.F., Villarreal, J.A. and Talamantes, J., 2020. Grain Refinement Effect on the Hot-Tearing Resistance of Higher-Temperature Al–Cu–Mn–Zr Alloys, **Metals**, 10(4), p.430.
2. Sabau A.S., Mirmiran S., Glaspie C., Li S., Apelian D., Shyam A., Haynes J.A., and Rodriguez A.F., Hot-tearing assessment of multicomponent non-grain refined Al-Cu alloys for permanent mold castings based on load measurements in a constrained mold, **Metallurgical and Materials Transactions B**, Vol. 49, pp. 1267-1287, 2018.
3. Sabau A.S., Modeling of Interdendritic Porosity Defects in an Integrated Computational Materials Engineering Approach for Metalcasting, **International Journal of Cast Metals Research**, Vol. 29, pp. 331-337, 2016.
4. Sabau, A.S. "Predicting Interdendritic Cavity Defects during Casting Solidification," **JOM** 2004, Vol. 56 (3), pp. 54-56.
5. Sabau, A.S., and Viswanathan, S., "Microporosity Prediction in Aluminum Alloy Castings," **Metallurgical Transactions, B**, 2002, Vol. 33B, pp. 243-255.

Papers in Conference Proceedings

6. Sabau A.S., Mirmiran S., Glaspie C., Li S., Apelian D., Shyam A., Haynes J.A., and Rodriguez A.F., Hot-tearing of multicomponent Al-Cu alloys based casting load measurements in a constrained permanent mold, **TMS 2017 146th Annual Meeting & Exhibition Supplemental Proceedings**, pp. 465-473, 2017.
7. A.S. Sabau, "Modeling of Casting Defects in an Integrated Computational Materials Engineering Approach," in **Advances in the Science and Engineering of Casting Solidification: An MPMD Symposium Honoring Doru Michael Stefanescu** (eds L. Nastac, et al.), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781119093367.ch28.
8. A.S. Sabau, W.D. Porter, S. Roy, and A. Shyam, "Process Simulation Role in the Development of New Alloys Based on an Integrated Computational Materials Engineering Approach," (invited) paper IMECE2014-37982, Proceedings of the **ASME 2014 Int. Mech. Eng. Congress & Exposition IMECE2014**, Nov. 14-20, 2014, Montreal, Quebec, Canada.
9. Yin, H., Sabau, A. S., Skszek, T. W. and Niu, X. (2013) "Microstructure Evolution Modeling for Solution Treatment of Aluminum Alloys," in **EPD Congress 2013** (eds M. L. Free and A. H. Siegmund), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781118658468.ch10, pp: 79-86, March 3-7, 2013: San Antonio, TX.
10. Yin, H., Sabau, A. S., Ludtka, G. M., Skszek, T. W. and Niu, X. (2013) Yield Strength Prediction for Rapid Age-Hardening Heat Treatment of Aluminum Alloys, in **EPD Congress 2013** (eds M. L. Free and A. H. Siegmund), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781118658468.ch10, pp: 87–94, March 3-7, 2013: San Antonio, TX.
11. Wang, L., Felicelli, S. Sabau, A.S., and Berry, J., "Interdependence between cooling rate, microstructure and porosity in Mg alloy AZ91," **Shape Casting: Third International Symposium**, pp. 123-130, TMS 2009 Annual Meeting & Exhibition, Feb. 15-19, San Francisco, CA.
12. Wang, L., Felicelli, S. Sabau, A.S., and Berry, J., "Interdependence between cooling rate, microstructure and porosity in Mg alloy AE42," **Magnesium Technology 2009**, pp. 249-253, TMS 2009 Annual Meeting & Exhibition, Feb. 15-19, San Francisco, CA.
13. Sabau, A.S., and Viswanathan, S., "Microporosity evolution and interdendritic fluid flows during solidification," 2001 Annual Fall TMS Meeting, **Computational Modeling of Materials, Minerals, and Metals Processing**, pp. 725-734, San Diego, CA, Sept. 23-26.

14. Viswanathan, S., Sabau, A.S., Han, Q., and Duncan, A.J., "Prediction of Microporosity Distributions in Aluminum Alloy Castings," in Proceedings of **TMS Merton C. Flemings Symposium on Solidification and Materials Processing**, 2001, pp. 379-384, Cambridge,MA, June 28-30, 2000.
15. Sabau, A.S. and Viswanathan, S., "Porosity Prediction in Aluminum A356 Alloy Castings," in Proceedings of **Light Metals 2000**, TMS Annual Meeting, Nasville, TN, March 12-16, Ed. R.D. Peterson, pp. 597-602.
16. Sabau, A.S., Han, Q., and Viswanathan, S., "Projection Methods for Interdendritic Flows," in Proceedings of **Fluid Flow Phenomena in Metals Processing**, TMS Annual Meeting, San Diego, February 28-March 4, 1999, pp. 403-413.
17. Viswanathan, S., Duncan, A.J., Sabau, A.S., and Han, Q., "Prediction of Microporosity in Aluminum Alloy Castings," **Modeling of Casting, Welding, and Advanced Solidification Processes VIII**, 1998, Eds. B.G.Thomas and C. Beckermann, San Diego, CA, pp. 849-856.
18. Viswanathan, S., Sabau, A.S., Han, Q., and Duncan, A.J., "Next generation casting process models predicting porosity and microstructure," **SAE Transactions: Journal of Materials & Manufacturing**, Vol. 107, pp. 1174-1177, 1998.
19. Viswanathan S., Sabau A.S., Han Q., and Duncan A.J., "Modeling of Porosity in Aluminum Alloy Castings," Proceed. of **Materials Solutions Conference '98 on Aluminum Casting Technology**, Oct. 12-15, 1998, Rosemont, IL, pp. 135-138.
20. Sabau, A. S. and Tao, Y-X, " On Mathematical Modeling of Convective Melt of a Granular Porous Medium," **ASME National Heat Transfer Conference**, Washington, D.C., August 10-12, 1997, HTD-Vol349, vol. 11, pp. 197-204.
21. Sabau, A. S., Tao, Y-X, Liu, G. and Vidhuvalavan, G., "Effective Thermal Conductivity of Granular Porous Media using Fractal Concepts," **ASME National Heat Transfer Conference**, Washington, D.C., August 10-12, 1997, HTD-Vol349, vol. 11, pp. 121-128.

Reports

22. S. Viswanathan, A. S. Sabau, Q. Han, A. J. Duncan, W. D. Porter, R. B. Dinwiddie, and D. E. Penrod, 2001, "Design and Product Optimization for Cast Light Metals," CRADA Final Report, ORNL94-0319,
`http://www.ornl.gov/~webworks/cppr/y2001/rpt/110475.pdf`
23. S. Viswanathan, W. Ren, W. D. Porter, C. R. Brinkman, and A. S. Sabau, R. M. Purgert, "Metal Compression Forming of Aluminum Alloys and Metal Matrix Composites," 2000, CRADA Final Report, ORNL95-0363,
http://www.osti.gov/bridge/servlets/purl/751621-6qo3hm/webviewable/751621.pdf
24. Felicelli S., Berry J., Wang L. and Sabau A., "Casting/solidification of magnesium alloys," 2008, CAVS REPORT, MSU.CAVS.CMD.2008-R0032

Direct-Chill Casting Process

1. Adrian S. Sabau and Patrick Ulysse, Modeling of Cracking Defects during DC Casting of Al7050 Alloy Using a Hot-tearing Criterium, Report ORNL/TM-2019/1322 (CRADA No. NFE-17-06823), Sept. 2019.
2. Kuwana K., Viswanathan S., Clark J.A., Sabau A., Hassan M.I., Saito K., and Das S. "Calculation of Heat Transfer Coefficients at the Ingot Surface During DC Casting," in Proceedings of **Light Metals 2005**, TMS Annual Meeting, San Francisco, California, February 13-17, 2005 pp. 989-995.
3. Long Z., Han Q., Viswanathan S., Ningileri S., Das S., Kuwana K., Hassan M., Khraisheh M., Sabau A., and Saito K., "Integrated 3D Model to Simulate Solidification and Predict Hot Cracking During DC Casting of Aluminum Alloys," in Proceedings of **Light Metals 2005**, TMS Annual Meeting, San Francisco, California, February 13-17, 2005, pp. 1057-1063.
4. Sabau, A.S., Kuwana, K., Viswanathan, S., Saito, K., and Davis, L.J. "Heat Transfer Boundary Conditions for the Numerical Simulation of the DC Casting Process," in Proceedings of **Light Metals 2004**, TMS Annual Meeting, March 14-18, 2004, Charlotte, NC, Ed. RD Peterson, pp. 597-602.

Infrared Processing using Plasma-arc Lamps

1. Duty, C.E., Bennett, C.J.C., Sabau, A.S., Jellison, G.E.Jr., Bodreaux, P.R., Walker S.C., and Ott, R., "Advanced Method for Increasing the Efficiency of White Light Quantum Dot LEDs," **Physica Status Solidi A**, Vol. 208, pp. 1980-1982, 2011.
2. Troparevsky, M.C, Sabau, A.S., Lupini,A.R. and Zhang, Z., "Transfer-matrix formalism for the calculation of optical response in multilayer systems: from coherent to incoherent interference," **Optics Express**, Vol. 18, No. 24, pp. 24715-21, 2010.
3. Sabau, A.S., Duty, C.E., Dinwiddie, R.B, Nichols, M., Blue, C.A., and Ott, R.D., A radiative transport model for heating paints using high density plasma arc lamps, **J. Appl. Phys.** 105, 084901, 2009, DOI:10.1063/1.3097356
4. Xu, J., Ott, R; Sabau, A.S. Pan, Z.; Xiu, F.; Liu, J.; Erie, J-M.; Norton, D. P., "Generation of nitrogen acceptors in ZnO using pulse thermal processing," **Applied Physics Letters**, Vol. 92, no. 15, 2008, pp. 151112.
5. Sabau, A.S. Kadolkar, P.B., Dinwiddie, R.B., Ott R.D., and Blue, C.A., "Process Parameters for Infrared Processing of FePt Nanoparticle Films," **Metallurgical and Materials Transactions A**, 2007, Vol. 38A, pp. 788-797.
6. Sabau, A.S. and Dinwiddie, R.B., "Numerical simulation of high-density plasma-arc processing of FePt nanoparticle films," **Journal of Metals**, 2006, Vol. 58, pp. 35-38.
7. Rivard J.D.K., Sabau A.S., Blue C.A., Harper, D.C., and Kiggans, J.O., "Modeling and processing of liquid-phase-sintered γ-TiAl during high-density infrared processing," **Metallurgical and Materials Transactions**, 2006, Vol. 37A, pp. 1289-1299.
8. Rivard J.D.K., Blue C.A., Ott R.D., Sabau A., Santella M., Pan T.Y., Joaquin A., "Advanced manufacturing technologies utilising high density infrared radiant heating," **Surface Engineering**, 2004, Vol. 20, pp. 220-228.
9. Rivard, J.K.D., Sabau, A.S., Blue C.A., Ohriner, E.K., and Harper, D.C. "High Density Infrared Processing of γ-TiAl Sheet," **TMS Letters**, 2004, Vol. 1, No. 5, pp. 95-96.
10. Rivard, J.K.D., Sabau, A., Blue C.A., Ohriner, E.K., , N. Jayaraman, "Thermophysical Properties of Roll Compacted Nickel Sheet for High Density Infrared Processing," **Metallurgical and Materials Transactions A**, 2003, Vol. 34A, pp. 3043-3054.

Papers in Conference Proceedings

11. Sabau A.S., Dinwiddie R.B., Xu J., Angelini J.A., Harper D.C., "Thermal Annealing of ZnO films using high-density plasma arc lamps," (invited) **Symposium Surfaces and Heterostructures at Nano- or Micro-Scale and Their Characterization, Properties, and Applications, 2011 TMS Annual Meeting & Exhibition**, Febr. 27 - March 3, 2011, San Diego, CA.
12. A.S. Sabau, C.E. Duty, R.D. Ott, G.E. Jellison, "Numerical Simulation of Annealing of CdSe Quantum Dots for White Light LEDs", **Modeling of Multi-Scale Phenomena in Materials Processing Symposium**, MST08, Pittsburgh, PA (Oct 5-9), pp. 877-888, 2008.

13. P.B. Kadolkar, R.D. Ott, C.A. Blue, and A.S. Sabau, "Functionalization of Nanomaterials Utilizing Pulse Thermal Processing," **MRS Proceed.**, 2004, Vol. 853E, Eds: J-P. Wang, P.J. Ryan, K. Nielsch, Z. Cheng.
14. Rivard, J.K.D., Blue C.A., Sabau, A.S., Ohriner, E.K., and Harper, D.C. "High Density Infrared Processing of Thin Gage Gamma-TiAl," **JANNAF 39th Combustion Subcommittee/27th Airbreathing Propulsion Subcommittee/21st Propulsion Systems Hazards Subcommittee/3rd Modeling and Simulation Subcommittee Joint Meeting**, Colorado Springs, CO, December 1-5, 2003.
15. Sabau, A.S., Rivard, J.K.D., Blue C.A., Ohriner, E.K., and Harper, D.C. "A Sintering Model for the Evolution of Thermal Conductivity during High Density Infrared Processing of Powder Compacts," **International Thermal Conductivity Conference 27**, Knoxville, TN, October 29, 2003.
16. Rivard, J.K.D., Blue C.A., Ott R.D., Sabau A., Santella M., Tsung-Yu Pan and Joaquin A., 2003, "Advanced Manufacturing Technologies Utilizing High Density Infrared (HDI) Radiant Heating," Proceedings of **Advanced Manufacturing Processes and Systems**, Global Powertrain Congress, September 23-25, 2003, Ann Arbor, MI.
17. Ohriner, E.K.; Blue, C.A.; Sabau, A.; Rivard, J.D.K., "Energy efficient production of sheet material using radiant arc-lamp heating," Proceedings of the **TMS Materials Processing and Manufacturing Division**, Mar 2-6 2003, San Diego, CA, 2003, pp. 147-158.
18. Rivard, J.K.D., Blue C.A., Ohriner E.K., Sabau A.S., Harper D.C, and N. Jayaraman, "Direct Sheet Fabrication of Advanced Materials," World Congress on Powder Metallurgy & Particulate Materials, Proceedings of **Advances in Powder Metallurgy and Particulate Materials, 2002**, MPIF, Princeton, NJ (2002), 11-81-11-91, June 16-21, Orlando, FL.
19. Ott, D.R., Craig A. Blue, Adrian S. Sabau, Tsung-Yu Pan, Armando M. Joaquin, "Preferential Softening of 6063-T6 Aluminum Alloy Utilizing a High Density Infrared (HDI) Plasma Arc Lamp," 2002 TMS Fall Meeting, Proceedings of **Forming and Shaping of Light Weight Automotive Structures**, Columbus, OH, October 6-10, 2002.
20. Rivard, J.D.K. Blue, C.A., Sabau, A., Ohriner, E.K., Ludtka, G.M., Tiegs, T.N., and Stiglich, J.J., "The use of high density infrared heating for surface modification/coatings processes," 2006, Proceedings of the 18-th **International Conference on Surface Modification Technologies**, pp. 139-146.

Reports

21. T. R. Watkins, A.S. Sabau, D. Erdman III, P. Joshi, G. M. Ludtka, B. Murphy, H. Yin, W. Zhang, T. W. Skszek, X. Niu, IR Heat Treatment of Hybrid Steel-Al Joints, ORNL/TM-2014/ORNL-10-02839 (Sept., 2014).
22. Sabau, A.S. and Chad E.D., "Analysis of an Advanced Technique for Low-Cost Synthesis of Silicon Films," ORNL/TM-2011/447, 2011.
23. Duty, C.E.; Joshi, P.C.; Jellison Jr, G.E.; Angelini, J.A.; Sabau, A.S., "Wide Area Thermal Processing of Light Emitting Materials," ORNL/TM-2011/428, 2011.
24. Sabau, A.S., Jellison, G.E., Dinwiddie, R.B., Angelini, J.A., Ott, R.D., Xu, J., Harper, D.C., Troparevski, M.C., Hsueh, C-H, and Zhang, Z. "Transformational, Large Area Fabrication of Nanostructured Materials using Plasma Arc Lamps," Final project report, ORNL/TM-2010/141.

Laser Processing

1. Liu H., Weibel J.A., Sabau, A.S., Geoghegan P., Chen J., and Groll E.A., Adhesive Bonding of Copper Prepared by Laser-Interference near the Interference Structuring Limits **Materials**, 2021, Vol. 14, pp. 3485.
2. J. Jun, A.S. Sabau, and M.S. Stephens, Corrosion Behavior of Laser Interference Structured Al 2024 with Chromate-containing Epoxy Primer Coatings, **Corrosion**, 2021, Vol. 77, pp. 577-590.
3. Chen, J., Sabau, A.S., H.M. Meyer III, and D.N., Leonard, Surface and subsurface characterization of laser-interference structured Ti6Al4V, **Applied Surface Science**, 2021, Vol. 555, 149576,
4. A.S. Sabau, H.M. Meyer III, and D.N., Leonard, Laser-interference Pulse Number Dependence of Surface Chemistry and Sub-surface Microstructure of AA2024-T3 Alloy, **Optics and Laser Tech.**, 2020, Vol. 131, paper 106457.
5. A.S. Sabau, J. Jun, D. McClurg, Coating adhesion of a chromate-containing epoxy primer on Al2024-T3 surface processed by laser-interference, **Int. J. of Adhesion and Adhesives**, Vol. 102, 2020: p. 102641.
6. H.M. Meyer III, A.S. Sabau, and C. Daniel, Surface chemistry and composition-induced variation of laser interference-based surface treatment of Al alloys, **Applied Surface Science**, 2019, Vol. 489, pp. 893-904.
7. Sabau A.S., Greer C.M., Chen J., Warren C.D., and Daniel C., Surface Characterization of Carbon Fiber Polymer Composites and Aluminum Alloys after Laser Interference Structuring, **JOM**, Vol. 68, pp. 1882-1889, 2016.

Papers in Conference Proceedings

8. A.S. Sabau, J. Jun, Z. Burns and M. Stephens, Corrosion Resistance of Laser-Interference Structured Aluminum alloy 2024 Coated with MIL-PRF-85582 Primer, Submission no: 0218_0314_000108, **2019 DoD-Allied Nations Technical Corrosion Conference: Corrosion Prevention and Control**, Oklahoma City, OK, Aug. 11-15, 2019.
9. J. Jun, AS Sabau, Z Burns and M. Stephens, Corrosion Performance of MIL PRF- 23377 Primer on Laser-Interference Structured Aluminum alloy 2024, Submission no: 0218_0314_000109, **2019 DoD-Allied Nations Technical Corrosion Conference: Corrosion Prevention and Control**, Oklahoma City, OK, Aug. 11-15, 2019.
10. Sabau A.S., Chen J., Warren C.D., Erdman D.L. III, Daniel C., Skszek T., and Caruso Dailey M., A Laser Interference-Based Surface Treatment of Al and Carbon Fiber Polymer Composites for Enhanced Bonding (invited), paper LB15–0070, **SAMPE Conference and Exhibition**, Long Beach, CA, May 23-26, 2016.
11. A.S. Sabau, J. Chen, J. F. Jones, A. Hackett, G. D. Jellison, C. Daniel, D. Warren, J. D. Rehkopf, "Surface Modification of Carbon Fiber Polymer Composites after Laser Structuring," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Advanced Composites for Aerospace, Marine, and Land Applications II**, Orlando, FL.
12. J. Chen, A.S. Sabau, J. F. Jones, A. Hackett, G. D. Jellison, C. Daniel, and D. Warren, "Aluminum Surface Texturing by Means of Laser Interference Metallurgy," 2015 **TMS Annual Meeting & Exhibition, Proceedings: Light Metals 2015: Aluminium Processing**, Orlando, FL.

Invited presentations

13. Adrian S. Sabau, Harry M. Meyer III, Donovan N. Leonard, and Jian Chen, (invited) Sub-Surface Microstructure of Aluminum Alloys after Laser-Interference Structuring, **International Conference on Processing & Manufacturing of Advanced Materials - Processing, Fabrication, Properties, Applications; THERMEC 2018**, Paris, France, July 9-13, 2018.

14. T. Naguy and A.S. Sabau, (invited) "Laser De-Paint and Surface Preparation Mechanism Technologies." Sabau presented the 2-nd part "Laser-Interference Surface Preparation for Enhanced Coating Adhesion and Adhesive Joining of Multi-Materials." Presentation was part of the **SERDP & ESTCP Webinar Series**, Webinar presented on October 19, 2017.
15. A.S. Sabau, C. Daniel, J. Busby, "Science and Technology of Laser interference," International Conference on Frontiers in Materials Processing, Applications, Research and Technology (FiMPART), Bordeaux, France, July 9-12, 2017.
16. A.S. Sabau "Laser Interference-Based Surface Treatments of Carbon Fiber Polymer Composites and Aluminum for Enhanced Bonding," **Adhesive and Sealant Council (ASC) 2017 Spring Convention & EXPO**, Atlanta, GA, April 4-5, 2017.
17. A.S. Sabau, "Laser interference-based surface treatments of carbon fiber polymer composites and aluminum for enhanced bonding," **5-th annual Global Automotive Lightweight Materials**, Detroit, 23-25 Aug., 2016.

Utility Power Plants: Oxide Scale and Oxide Exfoliation in Boiler Tubes and Supercritical CO_2

1. Shingledecker J.P., Pint, B.A., Sabau, A.S., Fry A.T., and Wright I.G., "Managing Steam-Side Oxidation and Exfoliation in USC Boiler Tubes," **Advanced Materials & Processes,** Vol. 171, pp. 23-25, 2013.
2. Sabau A.S., I. G, Wright, and Shingledecker, J.P., "Oxide Scale Exfoliation and Regrowth in TP347H Superheater Tubes," **Materials and Corrosion**, Vol. 63, pp. 896-908, 2012.
3. Sabau, A.S. and Wright, I.G. "Influence of Oxide Growth and Metal Creep on Strain Development in the Steam-side Oxide in Boiler Tubes," **Oxidation of Metals**, Vol. 73, pp. 467-492, 2010.
4. Wright, Ian G.; Howe, Jane Y.; Sabau, Adrian S., Morphological evolution of oxide scales grown on ferritic steels in steam, **Materials at High Temperatures**, Vol. 26, 2009, pp. 105-111(7), DOI: 10.3184/096034009X464348.
5. Sabau, A.S. and Wright, I.G., "On the estimation of thermal strains developed during oxide growth, **J. Appl. Phys.** 106, 023503, 2009, DOI:10.1063/1.3157199.
6. Wright I.G., Sabau A.S., and Dooley R.B., "Development of Strain in Oxides Grown in Steam Tubes," **Materials Science Forum**, High Temperature Corrosion and Protection of Materials 7, Vols. 595-598, pp. 387-395, 2008.

Papers in Conference Proceedings

7. Kung S.C., Shingledecker J.P, Wright I.G., Sabau A.S., Tossey B., and Lolla T. Corrosion of Heat Exchanger Alloys in Open-Fired sCO2 Power Cycles, Paper 66, **6th International Supercritical CO2 Power Cycles Symposium**, Pittsburgh, PA, March 27-29, 2018.
8. Sabau A.S., Shingledecker J.P, Kung S.C., and Wright I.G., Exfoliation Propensity of Oxide Scale in Heat Exchangers Used for Supercritical CO2 Power Cycles, Paper 66, **5th International Supercritical CO2 Power Cycles Symposium**, San Antonio, TX, March 29 - 31, 2016.
9. Kung S.C., Shingledecker J.P, D. Thimsen, Wright I.G., Sabau A.S., Tossey, B.M. Oxidation/corrosion in materials for supercritical CO2 power cycles, Paper xx, **5th International Supercritical CO2 Power Cycles Symposium**, San Antonio, TX, March 29-31, 2016.
10. Sabau, A.S., and Wright I.G., Shingledecker, J.P., and Tortorelli, P.F., "Managing Oxide Scale Exfoliation In Boilers With TP347H Superheater Tubes," Proceedings of the **7th International Conference on Advances in Materials Technology for Fossil Power Plants**, Waikoloa, Hawaii, USA, October 22, 2013.
11. Sabau A.S., Shingledecker J.P., and Wright I.G., "Steam-Side Oxide Scale Exfoliation Behavior in Superheaters And Reheaters: Differences in the Behavior of Alloys T22, T91, And TP347 Based on Computer Simulation Results," **6th International Conference on Advances in Materials and Technology for Fossil Power Plants**, Santa Fe, NM, Aug. 31-Sept. 3, 2010.
12. Sabau A.S., Wright I.G., Zhang W., Pint B.A., Unocic K.A., and Mathews J., "Temperature Evolution and Oxide Growth in Waterwall Tubes of Supercritical Units," **Boiler Tube and HRSG Tube Failures and Inspections International Conference**, Baltimore, MD, April 19-22, 2010.
13. Sabau A.S. and Wright I.G., Prediction of Oxide Scale Exfoliation in Steam Tubes, **Boiler Tube and HRSG Tube Failures and Inspections International Conference**, Baltimore, MD, April 19-22, 2010.

Reports

14. I.G, Wright, A.S. Sabau, and Shingledecker, J.P., "Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation: 2011 Progress - Industry Experience & Model Refinement," EPRI, Palo Alto, CA, 2010, 1019793.
15. Sabau, A.S. and I.G. Wright, W. Zhang, and K.A. Unocic, "Growth Characteristics in Waterwall Tubes of Supercritical Units, Final Project Report," EPRI, Palo Alto, CA, 2010.
16. Sabau, A.S. and I.G. Wright, "Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation: Exfoliation Calculations for Ferritic, Austenitic, and Fine-Grained Austenitic Alloys - 2009 Progress," EPRI, Palo Alto, CA: 2009, 1017625.
17. Wright, I.G. and A.S. Sabau, "Comments on Factors Influencing Water-Side Oxide Growth in Waterwall Tubes," Interim report on EPRI Project, Oxide Scale Growth Characteristics in Waterwalls of Supercritical Steam Boilers, August 2007.
18. Wright, I.G., Pint, B.A., A.S. Sabau, and P.F. Tortorelli, "Materials Issues in Coal-Derived Synthesis Gas/Hydrogen-Fired Turbines," Annual Report to DOE Office of Fossil Energy Turbine Program, July 2007.
19. Sabau, A.S. and I.G. Wright, "Estimation of Thermal Strains Developed During Oxide Growth," Interim report on EPRI Project EP-P20513/C9989: Development of an Integrated Model to Predict and Control Oxide Scale Exfoliation, March 2007.

Invited presentations

20. A.S. Sabau, I.G, Wright, and Shingledecker J.P., (invited) "Growth and regrowth of multiple layered oxide films in a non-uniform temperature field," **2-nd EPRI-NPL Workshop on Scale Exfoliation from Steam-Touched Surfaces**, National Physical Laboratory, Teddington, London, UK, January 17-18, 2012.

Utility Power Plants: Thermodynamic Cycles, Blade Design, and Blade Cooling for Fuel Changes

1. Sabau, A.S. and Wright, I.G. "The effects of changing fuels on hot gas path conditions in syngas turbines," **Journal of Engineering for Gas Turbines and Power**, Vol. 13, Article no. 044501, 2009.

Papers in Conference Proceedings

2. Sabau, A.S. and Wright, I.G. "Numerical Simulations of The Effects of Changing Fuel for Turbines Fired by Natural Gas and Syngas," paper no. GT2007-27530, **ASME Turbo Expo** 2007, Montreal, Canada, May 14-17, 2007, Vol.2, pp. 413-422.
3. Sabau, A.S. and Wright, I.G. "Integration of Thermodynamic and Heat Transfer Models for Turbines Fired by Syngas and Hydrogen," **Materials in Clean Power Systems II: Fuel Cells, Solar, and Hydrogen-Based Technologies**, TMS Annual Meeting, Orlando, Florida, February 25-March 1, 2007, pp. 43-52.
4. Wright, I.G., Gibbons, T.B., Sabau, A.S., Pint, B.A., "High-Temperature Materials Issues in Syngas/Hydrogen-Fired Turbines," **TMS Materials in Clean Power Systems: Applications, Corrosion, and Protection: Hydrogen Separation, Delivery, and Materials Issues in Clean Power Plants**, TMS Annual Meeting, San Antonio, TX, March 12-16, 2006, pp. .

Powder Metallurgy

1. Chen W., Yamamoto Y., Peter W.H., Gorti S.B., Sabau A.S., Clark M.B., Nunn S.D., Kiggans J.O., Blue C.A., Williams J.C., Fuller B., Akhtar K., "Cold compaction study of Armstrong Process(R) Ti-6Al-4V powders," **Powder Technology**, Vol. 214, pp. 194-199, 2011.
2. Peter, W.H., Chen W., Yamamoto Y., Dehoff, R., Muth, T.R., Nunn, S.D., Kiggans J., Clark, M.B., Sabau, A.S., Gorti, S.B., Blue, C.A., and Williams, J.C., "Current Status of Ti PM: Progress, Opportunities and Challenges," **Key Engineering Materials**, Vol. 520, pp. 1—7, 2012.

Papers in Conference Proceedings

3. W.H. Peter, T. Muth, R. Dehoff, S. Nunn, Y. Yamamoto, W. Chen, A. Sabau, A. Liby, C. Blue, "Powder Metallurgy and Additive Manufacturing of Titanium Powders," TMS 2013 Annual Meeting, Cost Affordable Titanium IV Symposium.
4. Sabau, A.S., Gorti S.B., Peter W.H., Chen W., and Yamamoto Y., "Numerical Simulation of Cold Pressing of Armstrong CP-Ti Powders," **2012 TMS Annual Meeting**, Vol. 1, pp. 521-528, TMS 2012 – 141st Annual Meeting and Exhibition, Supplemental Proceedings, March 11- 15, Orlando, FL.
5. Gorti, S.B., Sabau A.S., Peter W.H., Nunn S.D., Yamamoto Y., and Chen W., Process simulation of cold pressing and sintering of Armstrong CP-Ti powders, Supplemental Proceedings Vol. 1, pp. 483-490, **2011 TMS Annual Meeting & Exhibition**, Febr. 27 - March 3, 2011, San Diego, CA.
6. Sabau A.S., Sarma B. Gorti, Peter W.H., Yamamoto Y., "Process Simulation of Cold Pressing of Armstrong CP-Ti Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
7. Sabau A.S., Sarma B. Gorti, Kiggans J.O., Peter W.H., Erdman D.L., "Material Properties for the Simulation of Cold Pressing of Armstrong CP-Ti Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
8. Yamamoto Y., Peter W.H., Sabau A.S., Sarma B. Gorti, Kiggans J.O., Nunn S.D., Blue C.A., Barnes J.E., Henry C., Capone J.A., Paliwal M., Fuller B., Akhtar K., "Low-Cost Titanium Near-Net-Shape Manufacturing Using Armstrong and/or Hydride-Dehydride CP-Ti/Ti-6Al-4V Powders," **International Conference on Powder Metallurgy & Particulate Materials**, Hollywood, FL, June 27-30, 2010.
9. Yamamoto Y., Kiggans J.O., Clark M.B., Nunn S.D., Sabau A.S., and Peter W.H., "Consolidation Process in Near Net Shape Manufacturing of Armstrong CP-Ti/Ti-6Al-4V Powders", Key Engineering Materials, Vol. 436, pp. 103-111, **Symposium Cost-Affordable Titanium III, 2010 TMS Annual Meeting & Exhibition**, Seattle, WA, Febr. 14-18, 2010.

Reports

10. Peter W., Yamamoto Y., Chen W., Dehoff R., Nunn S., Sabau A., Kiggans J., Muth T., Daehn G., Kabert B., Tallman C., Gorham R., Barnes J., Henry C., Capone J., Paliwal M., Smith R., Akhtar K., Peltier D., Everett R., and Imam A., "Near Net Shape Manufacturing of New, Low Cost Titanium Powders for Industry," Final project report, ORNL/TM-2012/510, 03/5/2013.
11. Peter W., Dehoff R., Blau P., Yamamoto Y., Chen W., Sabau A., Klarner A., Novatnak D., Lherbier L., DelCorsio G., Aprigliano L., VanHoosier C., and Moffett J., "Application of Wear-Resistant, NanoComposite Coatings Produced from Iron-Based Glassy Powders," Final project report, ORNL/TM-2013/134, 03/31/2013.

Nuclear Materials: Fusion and Fission

1. A.S. Sabau, J. Cook, A.M. Aaron, J.B. Tipton Jr., and A. Lumsdaine, Steady-state Mechanical Analysis for Target Assembly in the Material Plasma Exposure eXperiment Facility, **Fusion Science and Technology**, Accepted for publication, April, 2021. `https://doi.org/10.1080/15361055.2021.1920785`
2. Garrison, L.M.; Sabau, A.S.; Gregory, B.; Geringer, J.W.; Katoh, Y.; Hamaji, Y.; Hasegawa, A., Plasma-arc lamp high heat flux cycling exposure of neutron irradiated tungsten materials. **Physica Scripta** 2020, T171, 014077, `doi:10.1088/1402-4896/ab47b1`.
3. Sabau A.S., Tokunaga K., Littleton M.G., Kiggans Jr. J.O., Schaich C.R., Dinwiddie R.B., Moore D.T., Ueda Y., and Katoh Y., A 6 MW/m2 High Heat Flux Testing Facility of Irradiated Materials Using Infrared Plasma-Arc Lamps, **Fusion Science and Technology**, 2019, Vol. 75(7), pp. 690-701, `DOI:10.1080/15361055.2019.1623571`
4. Ibano K., Sabau A.S. , Tokunaga K., M. Akiyoshi, J.O. Kiggans, C.R. Schaich, Y. Katoh, and Y. Ueda, Surface morphology of Tungsten-F82H after High-Heat Flux Testing using Plasma-Arc Lamps, **Nuclear Materials and Energy**, 2018, Vol. 16, pp. 128-132.
5. Katoh Y., Clark D., Ueda Y., Hatano Y., Yoda M., Sabau A.S., Yokomine T., Garrison L.M., Geringer J.W., Hasegawa A., Hinoki T., Shimada M., Buchenauer D., Oya Y., and Muroga T. Progress in the U.S./Japan PHENIX Project for the Technological Assessment of Plasma Facing Components for DEMO Reactors, **Fusion Science and Technology**, Vol. 72, pp. 222-232, 2017.
6. Charry C.H., Abdel-Khalik S.I., Yoda M., Sabau A.S., and Snead L.L., "Evaluation of Cooling Conditions for a High Heat Flux Testing Facility based on Plasma-Arc Lamps," **Fusion Science and Technology**, Vol. 68, pp. 694-699, 2015.
7. Sabau A.S., Ohriner E.K., Kiggans J.O., Schaich C.R., Ueda Y., Harper D.C., Katoh Y., and Snead L.L., "High-Heat Flux Testing of Irradiated Tungsten based Materials for Fusion Applications using Infrared Plasma Arc Lamps," **Fusion Science and Technology**, Vol. 66, pp. 394-404, 2014.
8. Sabau A.S., Ohriner E.K., Kiggans J.O., Harper D.C., Snead L.L., and Schaich C.R., "Facility for high heat flux testing of irradiated fusion materials and components using infrared plasma arc lamps," **Physica Scripta**, T159, 014007 (4pp), doi:10.1088/0031-8949/2014/T159/014007, 2014.
9. Sabau AS, Ohriner EK, "Comments on americium volatilization during fuel fabrication for fast reactors," **Journal of Nuclear Materials**, 2008, Vol. 376, pp. 251-253.

Papers in Conference Proceedings

10. Y. Hatano, Y. Ueda, D. Clark, T. Yokomine, A.S. Sabau, M. Yoda, T. Hinoki, A. Hasegawa, Y. Katoh, L. Garrison, Y. Oya, M. Shimada, D. Buchenauer, M. Fukuda, T. Tanaka, T. Muroga, Japan-US Joint Research Project PHENIX (2013–2018); Heat Transfer Tests, Neutron Irradiation and Post-Irradiation Examinations for Development of He-Cooled Tungsten Divertor, **26th IAEA Fusion Energy Conference - IAEA CN-234**, Kyoto, Japan, October 17-22, 2016.

Reports

Presentations without conference proceedings

11. Sabau A.S., Ohriner E.K., Byun, T.S., Katoh, Y., Kiggans J.O, Ueda, Y., Snead L.L., and Harper D.C., "High-Heat Flux Testing of Irradiated W-based Materials for Fusion Applications using Infrared Plasma Arc Lamps," presentation at the **16-th International Conference on Fusion Reactor Materials - ICFRM16**, Beijing, China, Oct. 20-26, 2013.

12. Sabau A.S., Ohriner E.K., Kiggans J.O., Harper D.C., and Snead L.L., "Facility for high heat flux testing of irradiated fusion materials and components using infrared plasma arc lamps" poster presented at the **14th International Conference on Plasma-Facing Materials and Components for Fusion Applications**, 14-17 May, 2013, Julich, Germany.
13. G. Romanoski, L. Snead, J. Kelly, and A.S. Sabau, "Infrared Thermal Fatigue Test for IFE First Wall Materials," **Twelfth International Conference on Fusion Reactor Materials**, ICFRM-12 (poster).
14. G. Romanoski, L. Snead, J. Kelly, and A.S. Sabau, S.J. Zinkle, "Bonding Tungsten to Low Activation Ferritic Steel, "HAPL Workshop, Lawrence Livermore National Laboratory, June 20-21, 2005 (presentation).

Design of Components for Energy Recovery: Geothermal and Fossil Industries

1. E. Robey, S. Ramesh, A.S. Sabau, A. Abdoli, J. Black, D. Straub, J. Yip, Design Optimization of an Additively Manufactured Prototype Recuperator for Supercritical CO2 Power Cycles, Submitted to the **Energy**, June 2021.
2. M. Searle, J. Black, D. Straub, J. Yip, E. Robey, S. Ramesh, A. Roy, A.S. Sabau, and D. Mollot, Heat transfer coefficients of additively manufactured tubes with internal pin fins for supercritical carbon dioxide cycle recuperators, **Applied Thermal Engineering**, Vol. 181, 116030, 2020.
3. Sabau, A.S., Bejan A., Brownell D., Gluesenkamp, K.R., B.L. Murphy, List-III F.A., Carver K., Schaich C.R., and Klett J.W., Design, Additive Manufacturing, And Performance of Heat Exchanger With A Novel Flow-Path Architecture, 2020, Vol. 180, pp. 115775. `doi: 10.1016/j.applthermaleng.2020.115775`.
4. Nejad A.H., Kivanc E., Sabau A.S., Bejan A., and Arimilli R.V., Counter cross-flow evaporator geometries for supercritical organic Rankine cycles, **International Journal of Heat and Mass Transfer**, Vol. 135, pp. 425-435, 2019
5. Sabau A.S., A.H. Nejad, Klett J.W., Bejan A., and Kivanc E., Novel Evaporator Architecture with Entrance-Length Crossflow-Paths For Supercritical Organic Rankine Cycles, **International Journal of Heat and Mass Transfer**, Vol. 119, pp. 208-222, 2018.
6. Bejan A., Alalaimi M., Sabau A.S., Lorente A., Entrance-length Dendritic Plate Heat Exchangers, **International Journal of Heat and Mass Transfer**, Vol. 114, pp. 1350-1356, 2017.
7. Bejan A., Alalaimi M., Lorente A., Sabau A.S., and Klett J.W., Counterflow heat exchanger with core and plenums at both ends, **International Journal of Heat and Mass Transfer**, Vol. 99, pp. 622-629, 2016.
8. Bejan A., Almerbati A., Lorente A., Sabau A.S., and Klett J.W., Arrays of flow channels with heat transfer embedded in conducting walls, **International Journal of Heat and Mass Transfer**, Vol. 99, pp. 504-511, 2016.
9. Yin H., Sabau A.S., Conklin J.C., McFarlane J. and Qualls A.L., "Mixtures of SF6-CO2 as working fluids for geothermal power plants," **Applied Energy**, Vol. 106, pp. 243-253, 2013.
10. Vidhi R., Goswami Y., Chen J., Stefanakos E., Kuravi S., Sabau A.S., "Organic Fluids in a Supercritical Rankine Cycle for Low Temperature Power Generation," **J. Energy Resour. Technol.**, Vol. 135, 042002, 9 pages, 2013.

Papers in Conference Proceedings

11. Sabau A.S., Nejad A.H., Klett James W., Bejan A., and Ekici K., Novel evaporator geometries based on entrance-length flowpaths for geothermal binary power plants, paper IMECE2016-67660, **Proceedings of the ASME 2016 International Mechanical Engineering Congress and Exposition IMECE2016**, November 11-17, 2016, Phoenix, Arizona, USA.
12. Sabau A.S., Nejad A.H., Klett James W., Bejan A., and EKICI K., Multi-scale Evaporator Architectures for Geothermal Binary Power Plants,
https://pangea.stanford.edu/ERE/db/GeoConf/papers/SGW/2016/Sabau.pdf
41TH ANNUAL Stanford Geothermal Workshop, Stanford, CA, Febr. 22-24, 2016.
13. Vidhi R., Kuravi S., Besarati S., E.K. Stefanakos, D. Yogi Goswami, and A.S. Sabau, "Performance of working fluids for power generation in a supercritical organic Rankine cycle," Proceedings of the **ASME 2012 6th International Conference on Energy Sustainability & 10th Fuel Cell Science**, Engineering and Technology Conference, Paper 91473, ESFuelCell2012, July 23-26, 2012, San Diego, CA.

14. Sabau A.S., Yin, H., Mcfarlane J., Gruszkiewicz M., Conklin, J.C., Qualls L.A., And Pawel, S.J., "Mixtures of CO2-SF6 as Working Fluids for Geothermal Plants," submitted for the Proceedings of the **ASME 2011 International Mechanical Engineering Congress & Exposition**, IMECE2011, Nov. 11-17, 2011, Denver, CO.
15. Sabau A.S, Yin H., Qualls L.A., and McFarlane J., "Investigations of supercritical CO2 Rankine cycles for geothermal power plants," **2011 Supercritical CO2 Power Cycle Symposium**, Boulder, CO, May 24-25, 2011.
16. Vidhi R., Goswami Y., Chen J., Stefanakos E., Kuravi S., Sabau A.S., "Study of Supercritical Carbon Dioxide Power Cycle for Low Grade Heat Conversion," **2011 Supercritical CO2 Power Cycle Symposium**, Boulder, CO, May 24-25, 2011.
17. McFarlane J., Qualls L., Sabau A.S., Wright S., Yin H. "Air versus Water Cooling in Engineered Geothermal Systems," **Groundwater Protection Council Annual Forum**, Sept. 24-28, 2011, Atlanta, GA.

Reports

18. McFarlane J., Qualls K.J., Qualls L.A., Sabau A.S, Wright, S.A., Yin H., Anovitz, L.M., Kercher, A.K., "Ways to Minimize Water Usage in Engineered Geothermal Systems," ORNL/TM-2012/412.
19. Sabau, A.S. Gluesenkamp, K.R., Lafond, P. and Brownell, D., Certification and User Manual for A 5kW Heat Exchanger Test Loop at Low Temperatures and High-Pressures, 2020, ORNL/TM-2019/1403, doi:10.2172/1505324.

Energy Storage: Materials Development for Batteries

1. Sabau A.S, Contescu C.I., Jellison G.E, Howe J.Y., Armstrong B.L., Claus Daniel, and Babinec S., Evaporation due to infrared heating and natural convection, 2020, **Heat and Mass Transfer**, 56(8), 2585-2593, doi:10.1007/s00231-020-02875-0.
2. Kalnaus S., Tenhaeff W.E., Sakamoto J., Dudney N.J., Sabau A.S., Daniel C., and N.J Dudney, "Analysis of composite electrolytes with sintered reinforcement structure for energy storage applications," **Journal of Power Sources**, Vol. 241, pp. 178-185, 2013.
3. Kalnaus S., Sabau A.S., Tenhaeff W.E., Dudney N.J., and Daniel C., "Design of composite polymer electrolytes for Li ion batteries based on mechanical stability criteria," **Journal of Power Sources**, Vol. 201, pp. 280-287, 2012.
4. Kalnaus S., Sabau A.S., Newman S., Tenhaeff W.E., Daniel C., Dudney N.J., "Effective conductivity of particulate polymer composite electrolytes using random resistor network method," **Solid State Ionics**, Vol. 199-200, pp. 44-53, 2011.

Reports

5. Daniel C., Armstrong B., Maxey C., Sabau A.s., Wang H., Hagans, P., and Babinec, S., "Development and application of processing and process control for nano-composite materials for lithium ion batteries," Final Report - Recovery Act, ORNL/TM-2013/259.
6. Daniel C., Armstrong B., Maxey C., Sabau A., and Wang H., "Development and application of processing and process control for nano-composite materials for lithium ion batteries," Final project report, ORNL report TM-2012/613, December 15, 2012.

Presentations without conference proceedings

7. Dudney, Nancy J., Tenhaeff, Wyatt E. , Liang, Chengdu, Sabau, Adrian S. "Solid electrolytes to enable lithium, lithium-sulfur, and lithium-air batteries," 220th ECS Meeting, Boston, Massachusetts, USA, October 09—14, 2011.
8. S. Kalnaus, A. Sabau, W. Tenhaeff, N.J. Dudney, and C. Daniel, Analysis of Composite Polymer Electrolytes for Li Battery Applications, 2012 Spring MRS Meeting, April 9-13, San Francisco, CA.
9. Nancy J. Dudney, Wyatt E. Tenhaeff, Sergiy Kalnaus, Adrian S. Sabau, Erik G. Herbert, Kunlun Hong, Transport and Mechanical Properties of Pure and Composite Solid Lithium Electrolytes, Symposium on Scalable Energy Storage, Beyond Lithium Ion V.
10. W. Tenhaeff, E. Herbert, G. Pharr, S. Kalnaus, S. Newman, A. Sabau, C. Daniel, X. Yu, K. Hong, N.J. Dudney, "Characterizing the Electrochemical and Mechanical Properties of Glass and Polymer Electrolytes and Predicting the Effective Conductivity of Their Composite Structures by Random Resistor Networks," **2010 MRS Fall Meeting**, Boston, MA, Nov. 30-Dec. 3, 2010.
11. S. Kalnaus, A. Sabau, W. Tenhaeff, S. Newman, N. Dudney, C. Daniel, Effective conductivity and percolation threshold of polymer composite electrolyte by random resistor networks, **2010 MRS Fall Meeting**, Boston, MA, Nov. 30-Dec. 3, 2010.
12. A.S. Sabau and N.J. Dudney, "Predicting of Surface Morphology Defects in Electrochemical Storage Devices," **Symposium: Modeling of Multi-Scale Phenomena for Batteries**, 2010 TMS Annual Meeting & Exhibition, Seattle, WA, Febr. 14-18, 2010.

Free-surface flows, Moving Boundary Problems, and Solution Algorithms for Stiff Problems

1. Sabau, A. S. and Raad, P. E., "Comparisons of Compact and Classical Finite Difference Solutions of Stiff Problems on Nonuniform Grids," **Computer & Fluids**, 1999, Vol. 28, pp. 361-384.
2. Sabau, A. S. and Raad, P. E., "Oscillations in High-Order Finite Difference Solutions of Stiff Problems on Nonuniform Grids," **International Journal for Numerical Methods in Fluids**, 1999, Vol. 30, pp. 939-956.
3. Raad, P. E. and Sabau, A. S., "Dynamics of a Gas Permeable Contact Lens During Blinking," **ASME Journal of Applied Mechanics**, 1996, Vol. 63, pp. 411-418.
4. Sabau, A. S. and Raad, P. E., "Blink-Induced Motion of a Gas Permeable Contact Lens," **Journal of Optometry and Vision Science**, 1995, Vol. 72, pp. 378-386.

Papers in Conference Proceedings

5. Sabau, A. S. and Raad, P. E., "On Boundary Conditions for Free-surface Flows," **ASME Fluids Engineering Division Annual Summer Meeting**, San Francisco, CA, July 18-23, 1999, paper FEDSM99-7098.
6. Sabau, A. S. and Raad, P. E., "Numerical Modeling of Impact between Fluid and Solid Structures with One-fluid VOF Methods," **ASME Fluids Engineering Division Annual Summer Meeting**, Washington, D.C., June 21-25, 1998, paper FEDSM98-5221.
7. Sabau, A. S. and Tao, Y-X, 1997, "Parallel Implementation of the Projection Method for Solving Free-surface Flows," **ASME Fluid Engineering Division Summer Meeting**, Numerical Developments in CFD Proceedings, FEDSM'97. Part 20 (of 24), Vancouver, British Columbia, Canada, June 22-261997.
8. Sabau, A. S. and Raad, P. E., "Flow Over a Cylindrical Containment Dike," **ASME Fluids Engineering Division Annual Summer Meeting**, San Diego, CA, July 7-11, 1996, ASME FED-Vol238, Vol. 3, pp. 369-374.
9. Sabau, A. S. and Raad, P. E.,"A Study of Multidomain Compact Finite Difference Schemes for Stiff Problems," **ASME Fluid Engineering Division Summer Meeting**, San Diego, CA, July 7-11, 1996, ASME FED-Vol238, Vol. 3, pp. 217-224.
10. Sabau, A. S. and Raad, P. E.,"On Two-Dimensional Water-Solid Impact with VOF Methods," **ASME Winter Annual Meeting**, San Francisco, CA, November 12-17, 1995, ASME, FED-Vol. 234, pp. 113-123.
11. Sabau, A. S. and Raad, P. E., "On Numerical Oscillations in High-Order Finite Difference Solutions of Boundary Layer Problems on Nonuniform Grids," **ASME Fluids Engineering Division Annual Summer Meeting**, Hilton Head Island, SC, Aug. 13-18, 1995, FED-Vol. 215, pp. 89-96.
12. Raad, P. E. and Sabau, A. S., "Permeable Contact Lens Motion During Blinking," **Advances in Bioengineering**, ASME International Mechanical Engineering Congress and Exposition, Chicago, Il, 1994, Nov. 6-11, ASME BED-Vol. 28, pp. 75-76.