

# Alex Plotkowski, Ph.D.

Senior Staff Scientist  
Materials Science & Technology Division  
Oak Ridge National Laboratory



✉ plotkowskiaj@ornl.gov    Google Scholar    ORNL Profile

## Employment History

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- 2017 – . . . . . ▶ **Staff Scientist** Oak Ridge National Laboratory
- 2016 – 2017 ▶ **Post-Doctoral Research Associate** University of Tennessee - Knoxville
- 2012 – 2016 ▶ **Graduate Research Assistant** Purdue University
- 2009 – 2012 ▶ **Mechanical Design Co-Op** JR Automation

## Education

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- 2012 – 2016 ▶ **Ph.D., Purdue University** Materials Engineering  
Thesis title: *Modeling fluid interactions with the rigid mush in alloy solidification*
- 2010 – 2012 ▶ **MSE, Grand Valley State University** Product Design and Manufacturing Engineering  
Thesis title: *Refinement of the cast microstructure of hypereutectic aluminum-silicon alloys with an applied electric potential*
- 2007 – 2012 ▶ **BSE, Grand Valley State University** Mechanical Engineering  
Graduation with honors, mathematics minor

## Professional Service

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



- 2012 – . . . . . ▶ **TMS Solidification Committee, AM Bridge Committee, Symposium Organizer**
- 2023 – . . . . . ▶ **ASM Historic Landmark Committee**
- 2010 – . . . . . ▶ **Tau Beta Pi MI-λ Chapter**
- 2021 – . . . . . ▶ **CM4QC Working Group 3**

## Awards

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- 2023 ▶ **R&D 100 Finalist - OpeN-AM R&D Magazine**  
▶ **Team Award – DuAlumin-3D DOE Vehicle Technologies Office**
- 2022 ▶ **Team Research Award ORNL MSTD**  
▶ **R&D 100 Award - DuAlumin-3D R&D Magazine**
- 2021 ▶ **R&D 100 Finalist - HTP Alloys R&D Magazine**
- 2020 ▶ **Innovation Award ORNL**
- 2019 ▶ **Outstanding Reviewer Acta Materialia**
- 2016 ▶ **Teaching Academy Graduate Teaching Award Purdue University**
- 2012 ▶ **Co-op Student of the Year GVSU**  
▶ **Neimeyer Award GVSU**

## Publications














- 1 S. Bahl, **A. Plotkowski**, T. R. Watkins, R. A. Michi, B. Stump, D. N. Leonard, J. D. Poplawsky, R. Dehoff, and A. Shyam, “3d printed eutectic aluminum alloy has facility for site-specific properties,” *Additive Manufacturing*, vol. 70, p. 103 551, Apr. 2023.  DOI: 10.1016/j.addma.2023.103551.
- 2 C. M. Fancher, S. Venkatakrisnan, T. Feldhausen, K. Saleeby, and **A. Plotkowski**, “Validating the use of gaussian process regression for adaptive mapping of residual stress fields,” *Materials*, vol. 16, p. 3854, 2023.
- 3 S. Kamat, X. Li, B. Stump, **A. Plotkowski**, and W. Tan, “Multi-physics modeling of grain growth during solidification in electron beam additive manufacturing of inconel 718,” *Modelling and Simulation in Materials Science and Engineering*, vol. 31, no. 1, p. 015 002, Jan. 1, 2023.  DOI: 10.1088/1361-651X/aca2c9.
- 4 G. Knapp, J. Coleman, M. Rolchigo, M. Stoyanov, and **A. Plotkowski**, “Calibrating uncertain parameters in melt pool simulations of additive manufacturing,” *Computational Materials Science*, vol. 218, p. 111 904, Feb. 2023.  DOI: 10.1016/j.commatsci.2022.111904.
- 5 R. A. Michi, J. J. Simpson, S. Bahl, Q. Campbell, P. Brackman, **A. Plotkowski**, R. R. Dehoff, J. Haynes, Q. Wang, and A. Shyam, “Additively manufactured al-ce-ni-mn alloy with improved elevated-temperature fatigue resistance,” *Additive Manufacturing*, vol. 66, p. 103 477, Mar. 2023.  DOI: 10.1016/j.addma.2023.103477.
- 6 A. E. Perrin, R. A. Michi, D. N. Leonard, K. D. Sisco, **A. Plotkowski**, A. Shyam, J. D. Poplawsky, L. F. Allard, and Y. Yang, “Effect of mn on eutectic phase equilibria in al-rich al-ce-ni alloys,” *Journal of Alloys and Compounds*, vol. 965, p. 171 455, Nov. 2023.  DOI: 10.1016/j.jallcom.2023.171455.
- 7 **A. Plotkowski**, K. Saleeby, C. M. Fancher, J. Haley, G. Madireddy, K. An, R. Kannan, T. Feldhausen, Y. Lee, D. Yu, C. Leach, J. Vaughan, and S. S. Babu, “Operando neutron diffraction reveals mechanisms for controlled strain evolution in 3d printing,” *Nature Communications*, vol. 14, no. 1, p. 4950, Aug. 16, 2023.  DOI: 10.1038/s41467-023-40456-x.
- 8 K. D. Sisco, **A. Plotkowski**, Y. Yang, L. Allard, C. Fancher, C. Rawn, J. D. Poplawsky, R. Dehoff, and S. Babu, “Heterogeneous phase transformation pathways in additively manufactured al-ce-mn alloys,” *Journal of Alloys and Compounds*, vol. 938, p. 168 490, Mar. 2023.  DOI: 10.1016/j.jallcom.2022.168490.
- 9 W. Tang, C. M. Fancher, P. Nandwana, K. An, A. Nycz, H. Wang, R. Kannan, A. Trofimov, D. Yu, D. N. Leonard, L. Meyer, and **A. Plotkowski**, “Temperature-dependent thermal and mechanical properties of a wire arc additively manufactured low transformation temperature steel,” *Metallurgical and Materials Transactions A*, vol. 54, pp. 854–868, 2023.  DOI: 10.1007/s11661-022-06933-6.
- 10 S. V. Venkatakrisnan, C. M. Fancher, M. Ziatdinov, R. Vasudevan, K. Saleeby, J. Haley, D. Yu, K. An, and **A. Plotkowski**, “Adaptive sampling for accelerating neutron diffraction-based strain mapping<sup>\*</sup>,” *Machine Learning: Science and Technology*, vol. 4, no. 2, p. 025 001, Jun. 1, 2023.  DOI: 10.1088/2632-2153/acc512.
- 11 S. Wells, A. Plotkowski, J. Coleman, M. Rolchigo, R. Carson, and M. J. M. Krane, “Uncertainty quantification for computational modelling of laser powder bed fusion,” *IOP Conference Series: Materials Science and Engineering*, vol. 1281, no. 1, p. 012 024, May 1, 2023.  DOI: 10.1088/1757-899X/1281/1/012024.
- 12 T. Wu, **A. Plotkowski**, A. Shyam, and D. C. Dunand, “Microstructure and mechanical properties of hypoeutectic al-6ce-3ni-0.7fe (wt.%) alloy,” *Materials Science and Engineering: A*, vol. 875, p. 145 072, Jun. 2023.  DOI: 10.1016/j.msea.2023.145072.
- 13 A. Ziabari, V. Singanallur, Z. Snow, A. Lisovich, M. Sprayberry, P. Brackman, C. Frederick, P. Bhattad, S. Graham, P. Bingham, R. Dehoff, **A. Plotkowski**, and V. Paquit, “Enabling rapid x-ray CT

characterisation for additive manufacturing using CAD models and deep learning-based reconstruction,” *npj Computational Materials*, 2023. [DOI: 10.21203/rs.3.rs-1808982/v1](#).

- 14 T. Ajantiwalay, R. Michi, C. Roach, A. Shyam, **A. Plotkowski**, and A. Devaraj, “Influence of microstructural heterogeneities on small-scale mechanical properties of an additively manufactured al-ce-ni-mn alloy,” *Additive Manufacturing Letters*, vol. 3, p. 100 092, Dec. 2022. [DOI: 10.1016/j.addlet.2022.100092](#).
- 15 M. Haines, F. List, K. Carver, D. Leonard, **A. Plotkowski**, C. Fancher, R. Dehoff, and S. Babu, “Role of scan strategies and heat treatment on grain structure evolution in fe-si soft magnetic alloys made by laser-powder bed fusion,” *Additive Manufacturing*, vol. 50, p. 102 578, Feb. 2022. [DOI: 10.1016/j.addma.2021.102578](#).
- 16 M. Haines, F. List, K. Carver, D. Leonard, **A. Plotkowski**, C. Fancher, R. Dehoff, and S. Babu, “Role of scan strategies and heat treatment on grain structure evolution in fe-si soft magnetic alloys made by laser-powder bed fusion,” *Additive Manufacturing*, vol. 50, p. 102 578, Feb. 2022. [DOI: 10.1016/j.addma.2021.102578](#).
- 17 X. Hu, S. Bahl, A. Shyam, **A. Plotkowski**, B. Milligan, L. Allard, J. A. Haynes, Y. Ren, and A. Chuang, “Repurposing the (al<sub>2</sub>cu) phase to simultaneously increase the strength and ductility of an additively manufactured al-cu alloy,” *Materials Science and Engineering: A*, vol. 850, p. 143 511, Aug. 2022. [DOI: 10.1016/j.msea.2022.143511](#).
- 18 R. Kannan, G. L. Knapp, P. Nandwana, R. Dehoff, **A. Plotkowski**, B. Stump, Y. Yang, and V. Paquit, “Data mining and visualization of high-dimensional ICME data for additive manufacturing,” *Integrating Materials and Manufacturing Innovation*, vol. 11, no. 1, pp. 57–70, Mar. 2022. [DOI: 10.1007/s40192-021-00243-2](#).
- 19 G. L. Knapp, M. Gussev, A. Shyam, T. Feldhausen, and **A. Plotkowski**, “Microstructure, deformation and fracture mechanisms in al-4043 alloy produced by laser hot-wire additive manufacturing,” *Additive Manufacturing*, vol. 59, p. 103 150, Nov. 2022. [DOI: 10.1016/j.addma.2022.103150](#).
- 20 R. A. Michi, S. Bahl, C. M. Fancher, K. Sisco, L. F. Allard, K. An, D. Yu, R. R. Dehoff, **A. Plotkowski**, and A. Shyam, “Load shuffling during creep deformation of an additively manufactured AlCuMnZr alloy,” *Acta Materialia*, vol. 244, p. 118 557, Nov. 2022. [DOI: 10.1016/j.actamat.2022.118557](#).
- 21 R. A. Michi, **A. Plotkowski**, A. Shyam, R. R. Dehoff, and S. S. Babu, “Towards high-temperature applications of aluminium alloys enabled by additive manufacturing,” *International Materials Reviews*, vol. 67, no. 3, pp. 298–345, Apr. 3, 2022. [DOI: 10.1080/09506608.2021.1951580](#).
- 22 R. A. Michi, K. Sisco, S. Bahl, L. F. Allard, K. B. Wagner, J. D. Poplawsky, D. N. Leonard, R. R. Dehoff, **A. Plotkowski**, and A. Shyam, “Microstructural evolution and strengthening mechanisms in a heat-treated additively manufactured al-cu-mn-zr alloy,” *Materials Science and Engineering: A*, vol. 840, p. 142 928, Apr. 2022. [DOI: 10.1016/j.msea.2022.142928](#).
- 23 R. A. Michi, K. Sisco, S. Bahl, Y. Yang, J. D. Poplawsky, L. F. Allard, R. R. Dehoff, **A. Plotkowski**, and A. Shyam, “A creep-resistant additively manufactured al-ce-ni-mn alloy,” *Acta Materialia*, vol. 227, p. 117 699, Apr. 2022. [DOI: 10.1016/j.actamat.2022.117699](#).
- 24 A. Perrin, S. Bahl, D. N. Leonard, R. Michi, K. Sisco, **A. Plotkowski**, A. Shyam, R. Dehoff, D. Shin, and Y. Yang, “Phase stability in cast and additively manufactured al-rich al-cu-ce alloys,” *Journal of Alloys and Compounds*, vol. 926, p. 166 984, Dec. 2022. [DOI: 10.1016/j.jallcom.2022.166984](#).
- 25 J. D. Poplawsky, R. A. Michi, L. F. Allard, S. Bahl, **A. Plotkowski**, and A. Shyam, “Using interfaces as templates for planar l<sub>12</sub> precipitation in AlCuMnZr alloys,” *Additive Manufacturing Letters*, vol. 3, p. 100 086, Dec. 2022. [DOI: 10.1016/j.addlet.2022.100086](#).
- 26 M. Rolchigo, S. T. Reeve, B. Stump, G. L. Knapp, J. Coleman, **A. Plotkowski**, and J. Belak, “ExaCA: A performance portable exascale cellular automata application for alloy solidification modeling,”

- Computational Materials Science*, vol. 214, p. 111 692, Nov. 2022.  DOI: 10.1016/j.commatsci.2022.111692.
- 27 F. Theska, Y. Yang, K. Sisco, **A. Plotkowski**, and S. Primig, "On the high-temperature stability of the al<sub>2</sub>cu<sub>3</sub>ce intermetallic in an additively manufactured al-cu-ce-zr alloy," *Materials Characterization*, vol. 191, p. 112 109, Sep. 2022.  DOI: 10.1016/j.matchar.2022.112109.
  - 28 J. A. Turner, J. Belak, N. Barton, M. Bement, N. Carlson, R. Carson, S. DeWitt, J.-L. Fattebert, N. Hodge, *et al.*, "ExaAM: Metal additive manufacturing simulation at the fidelity of the microstructure," *The International Journal of High Performance Computing Applications*, vol. 36, no. 1, pp. 13–39, Jan. 2022.  DOI: 10.1177/10943420211042558.
  - 29 T. Wu, **A. Plotkowski**, A. Shyam, and D. C. Dunand, "Microstructure and creep properties of cast near-eutectic al–ce–ni alloys," *Materials Science and Engineering: A*, vol. 833, p. 142 551, Jan. 2022.  DOI: 10.1016/j.msea.2021.142551.
  - 30 S. Bahl, **A. Plotkowski**, K. Sisco, D. N. Leonard, L. F. Allard, R. A. Michi, J. D. Poplawsky, R. Dehoff, and A. Shyam, "Elevated temperature ductility dip in an additively manufactured al-cu-ce alloy," *Acta Materialia*, vol. 220, p. 117 285, Nov. 2021.  DOI: 10.1016/j.actamat.2021.117285.
  - 31 S. Bahl, K. Sisco, Y. Yang, F. Theska, S. Primig, L. F. Allard, R. A. Michi, C. Fancher, B. Stump, R. Dehoff, A. Shyam, and **A. Plotkowski**, "Al-cu-ce(-zr) alloys with an exceptional combination of additive processability and mechanical properties," *Additive Manufacturing*, vol. 48, p. 102 404, Dec. 2021.  DOI: 10.1016/j.addma.2021.102404.
  - 32 **A. Plotkowski**, J. Ferguson, B. Stump, W. Halsey, V. Paquit, C. Joslin, S. Babu, A. Marquez Rossy, M. Kirka, and R. Dehoff, "A stochastic scan strategy for grain structure control in complex geometries using electron beam powder bed fusion," *Additive Manufacturing*, vol. 46, p. 102 092, Oct. 2021.  DOI: 10.1016/j.addma.2021.102092.
  - 33 M. Rolchigo, **A. Plotkowski**, and J. Belak, "Sensitivity of cellular automata grain structure predictions for high solidification rates," *Computational Materials Science*, vol. 196, p. 110 498, Aug. 2021.  DOI: 10.1016/j.commatsci.2021.110498.
  - 34 K. Sisco, **A. Plotkowski**, Y. Yang, D. Leonard, B. Stump, P. Nandwana, R. R. Dehoff, and S. S. Babu, "Microstructure and properties of additively manufactured al–ce–mg alloys," *Scientific Reports*, vol. 11, no. 1, p. 6953, Mar. 26, 2021.  DOI: 10.1038/s41598-021-86370-4.
  - 35 B. Stump, A. Plotkowski, and J. Coleman, "Solidification dynamics in metal additive manufacturing: Analysis of model assumptions \*," *Modelling and Simulation in Materials Science and Engineering*, vol. 29, no. 3, p. 035 001, Apr. 1, 2021.  DOI: 10.1088/1361-651X/abca19.
  - 36 S. Wells, **A. Plotkowski**, and M. J. M. Krane, "Propagation of input uncertainties in numerical simulations of laser powder bed fusion," *Metallurgical and Materials Transactions B*, vol. 52, no. 5, pp. 3016–3031, Oct. 2021.  DOI: 10.1007/s11663-021-02218-2.
  - 37 J. Zhang, K. Saleeby, T. Feldhausen, S. Bi, **A. Plotkowski**, and D. Womble, "Self-supervised anomaly detection via neural autoregressive flows with active learning," *NeurIPS*, p. 15, 2021.
  - 38 J. Coleman, **A. Plotkowski**, B. Stump, N. Raghavan, A. S. Sabau, M. J. M. Krane, J. Heigel, R. E. Ricker, L. Levine, and S. S. Babu, "Sensitivity of thermal predictions to uncertain surface tension data in laser additive manufacturing," *Journal of Heat Transfer*, vol. 142, no. 12, p. 122 201, Dec. 1, 2020.  DOI: 10.1115/1.4047916.
  - 39 W. Halsey, J. Ferguson, **A. Plotkowski**, R. Dehoff, and V. Paquit, "Geometry-independent microstructure optimization for electron beam powder bed fusion additive manufacturing," *Additive Manufacturing*, vol. 35, p. 101 354, Oct. 2020.  DOI: 10.1016/j.addma.2020.101354.

- 40 P. Mohammadpour, **A. Plotkowski**, and A. Phillion, "Revisiting solidification microstructure selection maps in the frame of additive manufacturing," *Additive Manufacturing*, vol. 31, p. 100 936, Jan. 2020. [DOI: 10.1016/j.addma.2019.100936](https://doi.org/10.1016/j.addma.2019.100936).
- 41 P. Nandwana, **A. Plotkowski**, R. Kannan, S. Yoder, and R. Dehoff, "Predicting geometric influences in metal additive manufacturing," *Materials Today Communications*, vol. 25, p. 101 174, Dec. 2020. [DOI: 10.1016/j.mtcomm.2020.101174](https://doi.org/10.1016/j.mtcomm.2020.101174).
- 42 **A. Plotkowski**, "Geometry-dependent solidification regimes in metal additive manufacturing," *Welding Journal*, vol. 99, no. 2, 59s–66s, Feb. 1, 2020. [DOI: 10.29391/2020.99.006](https://doi.org/10.29391/2020.99.006).
- 43 **A. Plotkowski**, K. Carver, F. List, J. Pries, Z. Li, A. M. Rossy, and D. Leonard, "Design and performance of an additively manufactured high-si transformer core," *Materials & Design*, vol. 194, p. 108 894, Sep. 2020. [DOI: 10.1016/j.matdes.2020.108894](https://doi.org/10.1016/j.matdes.2020.108894).
- 44 **A. Plotkowski**, K. Sisco, S. Bahl, A. Shyam, Y. Yang, L. Allard, P. Nandwana, A. M. Rossy, and R. Dehoff, "Microstructure and properties of a high temperature al–ce–mn alloy produced by additive manufacturing," *Acta Materialia*, vol. 196, pp. 595–608, Sep. 2020. [DOI: 10.1016/j.actamat.2020.07.014](https://doi.org/10.1016/j.actamat.2020.07.014).
- 45 M. Rolchigo, B. Stump, J. Belak, and **A. Plotkowski**, "Sparse thermal data for cellular automata modeling of grain structure in additive manufacturing," *Modelling and Simulation in Materials Science and Engineering*, vol. 28, no. 6, p. 065 003, Sep. 1, 2020. [DOI: 10.1088/1361-651X/ab9734](https://doi.org/10.1088/1361-651X/ab9734).
- 46 A. Shyam, **A. Plotkowski**, S. Bahl, K. Sisco, L. Allard, Y. Yang, J. Haynes, and R. Dehoff, "An additively manufactured AlCuMnZr alloy microstructure and tensile mechanical properties," *Materialia*, vol. 12, p. 100 758, Aug. 2020. [DOI: 10.1016/j.mtla.2020.100758](https://doi.org/10.1016/j.mtla.2020.100758).
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- 48 Y. Yang, S. Bahl, K. Sisco, M. Lance, D. Shin, A. Shyam, **A. Plotkowski**, and R. Dehoff, "Primary solidification of ternary compounds in al-rich al–ce–mn alloys," *Journal of Alloys and Compounds*, vol. 844, p. 156 048, Dec. 2020. [DOI: 10.1016/j.jallcom.2020.156048](https://doi.org/10.1016/j.jallcom.2020.156048).
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- 51 **A. Plotkowski**, J. Pries, F. List, P. Nandwana, B. Stump, K. Carver, and R. Dehoff, "Influence of scan pattern and geometry on the microstructure and soft-magnetic performance of additively manufactured fe-si," *Additive Manufacturing*, vol. 29, p. 100 781, Oct. 2019. [DOI: 10.1016/j.addma.2019.100781](https://doi.org/10.1016/j.addma.2019.100781).
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- 55 S. S. Babu, N. Raghavan, J. Raplee, S. J. Foster, C. Frederick, M. Haines, R. Dinwiddie, M. K. Kirka, **A. Plotkowski**, Y. Lee, and R. R. Dehoff, "Additive manufacturing of nickel superalloys: Opportunities for innovation and challenges related to qualification," *Metallurgical and Materials Transactions A*, vol. 49, no. 9, pp. 3764–3780, Sep. 2018.  DOI: 10.1007/s11661-018-4702-4.
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- 59 **A. Plotkowski**, P. Mohammadpour, A. Phillion, and S. Babu, "Corrigendum to "evaluation of an al-ce alloy for additive manufacturing" [acta mater. 126 (2017) 507–519]," *Acta Materialia*, vol. 159, pp. 439–441, Oct. 2018.  DOI: 10.1016/j.actamat.2018.08.016.
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- 61 **A. Plotkowski**, M. Kirka, and S. Babu, "Verification and validation of a rapid heat transfer calculation methodology for transient melt pool solidification conditions in powder bed metal additive manufacturing," *Additive Manufacturing*, vol. 18, pp. 256–268, Dec. 2017.  DOI: 10.1016/j.addma.2017.10.017.
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## Selected Presentations

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- 1 **A. Plotkowski**, "Modeling and simulation for additive manufacturing," in *SAMPE Additive Manufacturing Workshop and Tutorial*, SAMPE, 2021 **Invited**.
- 2 **A. Plotkowski**, "Process modeling for microstructure control in additive manufacturing," in *ORNL Computational Mechanics Seminar*, ORNL, Oak Ridge, TN, 2020 **Invited**.
- 3 **A. Plotkowski**, G. Knapp, B. Stump, J. Coleman, M. Rolchig, S. Reeve, M. Bement, L. Scime, V. Paquit, and W. Halsey, "Augmenting process data with simulations to assess additive manufacturing part quality," in *USNCCM, USACM*, Albuquerque, NM, 2023 **Invited**.
- 4 **A. Plotkowski**, F. List, J. Pries, P. Nandwana, B. Stump, K. Carver, and R. Dehoff, "Laser powder bed fusion of fe-si soft-magnetic materials," in *Additive and Advanced Manufacturing of Magnetic Materials Workshop*, Albuquerque, NM, 2019 **Invited**.
- 5 **A. Plotkowski**, K. Saleeby, C. Fancher, J. Haley, W. Tang, T. Feldhausen, J. Vaughan, S. Vankatakrishnan, K. An, D. Yu, G. Madireddy, Y. Lee, and K. Kannan, "Operando neutron characterization of metal additive manufacturing," in *TMS Annual Meeting & Exhibition*, San Diego, CA, 2023.
- 6 W. Wang, W. A., R. Ricchi, R. Petrus, D. Wilson, **A. Plotkowski**, A. Shyam, and A. Haynes, "Mechanical properties of additively manufactured dualumin-3d alloy pistons," in *AMPM, MPIF*, Las Vegas, NV, 2023.
- 7 **A. Plotkowski**, R. Dehoff, A. Shyam, Y. Yang, K. Sisco, P. Nandwana, and A. Rossy, "Al-cu-ce alloys for additive manufacturing," in *TMS Annual Meeting & Exhibition*, TMS, San Diego, CA, 2020.
- 8 **A. Plotkowski**, J. Coleman, B. Stump, M. Krane, J. Heigel, R. Ricker, L. Levine, and R. Dehoff, "Sensitivity of thermal predictions to uncertain fluid properties in additive manufacturing of superalloys," in *TMS Annual Meeting & Exhibition*, 2019.

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- 11 **A. Plotkowski**, "Challenges and opportunities in solidification modeling for additive manufacturing," in *SIAM - Mathematical Aspects of Materials Science*, 2018.
- 12 **A. Plotkowski**, N. Farwell, M. Vorontsov, and R. Dehoff, "Microstructure and solidification conditions in metal additive using a multi-beam laser energy source," in *AMPM*, 2018.
- 13 **A. Plotkowski**, J. deBarbadillo, and M. J. Krane, "Characterization of structure and thermophysical properties of three esr slags," in *International Symposium on Liquid Metal Processing & Casting*, TMS, Leoben, Austria, 2016.
- 14 **A. Plotkowski**, K. Fezi, and M. Krane, "Scaling analysis of alloy solidification and fluid flow in a rectangular cavity," in *TMS Annual Meeting & Exhibition*, Nashville, TN, 2016.
- 15 **A. Plotkowski** and P. Anyalebechi, "Refinement of primary and eutectic silicon particles in hypereutectic al-si alloys using an applied electric potential," in *International Symposium on Liquid Metal Processing & Casting*, TMS, Austin, Tx, 2013.

## Patents

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- 1 P. Bhattad, P. Brackman, C. Frederick, M. B. Bauza, E. C. Santos, R. Dehoff, **A. Plotkowski**, A. Lisovich, J. J. Tenboer, *et al.*, *Method for rapid development of additive manufacturing parameter set*, US Patent 11,633,790, 2023.
- 2 J. Lawrence Allard, S. Bahl, R. Dehoff, H. Henderson, M. Kesler, S. McCall, P. Nandwana, R. Ott, **A. Plotkowski**, R. Orlando, *et al.*, *Aluminum-cerium-manganese alloy embodiments for metal additive manufacturing*, US Patent 11,608,546, 2023.
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- 6 **A. Plotkowski**, S. Bahl, R. R. Dehoff, J. A. Haynes, A. Shyam, K. D. Sisco, and Y. Yang, *Aluminum-copper-manganese-zirconium alloys for metal additive manufacturing*, US Patent App. 17/188,952, 2021.
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