**Kyle Steven Fezi**

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**Objective:**

To secure a full time position related to my PhD level education in process metallurgy of high-performance alloys

**Education:**

 **PURDUE UNIVERSITY,** West Lafayette, IN

 **Ph.D., Materials Engineering** May 2016

 Areas of Study: Solidification Processing, Microstructure Development, Uncertainty Quantification

 Dissertation: Modeling Transport Phenomena and Uncertainty Propagation in Solidification Processes

 **PURDUE UNIVERSITY,** West Lafayette, IN

 **M.S., Materials Engineering GPA 3.74/4.0** May 2013

 Areas of Study: Solidification Processing, Metallurgy, Transport Phenomena

 MS Thesis: Modeling Transport Phenomena During Electroslag Remelting of Alloy 625

 **PURDUE UNIVERSITY,** West Lafayette, IN

**B.S., Materials Engineering GPA 3.61/4.0** May 2010

**Engineering Project Experience:**

**Ph.D. Dissertation Research** May 2013 – Present

Center for Metal Casting Research, School of Materials Engineering, Purdue University

Sponsor: Nanshan Group Co. Ltd. Advisor: Prof. Matthew Krane

* Predicting transport phenomena and microstructure development in direct chill casting of Al alloys
* Working to quantify the uncertainty in the simulation inputs to improve model predictions
* Developed fully transient direct chill casting model including shrinkage driven flow

**M.S. Thesis Research** May 2010 – May 2013

Center for Metal Casting Research, School of Materials Engineering, Purdue University

Sponsor: Special Metals Corporation Advisor: Prof. Matthew Krane

* Predicted transport phenomena in slag and metal in electroslag remelting of nickel superalloys
* Worked on process improvement to reduce segregation defects
* Contributed models of multicomponent solidification, solid grain transport, and columnar to equiaxed transition to in home process code
* Reported findings in monthly technical reports as well as teleconferences

**Summer Internship** June 2012 – Aug. 2012

Haynes International, Kokomo, IN

* Worked on a Design-of-Experiment (DOE) investigation of the effect of hot working and heat treating conditions on the elevated temperature mechanical properties of HAYNES® 242® alloy
* Presented findings to the research and development group

**Teaching Experience:**

**Teaching Assistant** Jan. 2015 – May 2015

MSE 230, Structure and Properties of Materials

* Conduct recitations and office hours
* Develop relevant quiz questions
* Administer and grade homework, quizzes, and examinations

**Teaching Assistant** Aug. 2010 – Dec. 2010

MSE 340, Transport Phenomena in Materials Processing

* Lead review sessions and instructed students on problem solving in heat, mass, and fluid flow
* Graded homework problems
* Helped administer examinations

**Other Professional Experience:**

**Assistant to the Technical Chair** Jan. 2011 – Oct. 2011

Liquid Metal Processing and Casting Symposium, Nancy, France

* Coordinated communication between authors, technical committee members, and conference organizers
* Organized review process, as well as abstract and paper submissions
* Copy edited final drafts of papers and proceedings for publication

**Publications and Presentations:**

1. K. Fezi, M. J. M. Krane, "Uncertainty quantification in solidification modeling," paper submitted to *Modeling of Casting, Welding and Advanced Solidification Processes - XIV*, H. Yasuda et al (eds.) (2015).
2. K. Fezi, M. J. M. Krane, “Quantification of Uncertainty in the Modeling of Alloy Solidification,” abstract submitted to *Proceedings of the 2015 International Symposium on Liquid Metal Processing and Casting*, A. Karicha et al (eds) (2015).
3. A.Plotkowski, K. Fezi, and M. J. M. Krane, “Estimation of transient heat transfer and fluid flow for alloy solidification in a rectangular cavity with an isothermal sidewall,” *Journal of Fluid Mechanics* (in review).
4. K. Fezi, J. Coleman, M. J. M. Krane, “Macrosegregation during direct chill casting of aluminum alloy 7050,” paper accepted for *Light Metals*, 2015 TMS Annual Meeting (2015).
5. A.Plotkowski, K. Fezi, M. J. M. Krane, “Scaling analysis of alloy solidification and flow in a rectangular cavity,” paper accepted for *Advances in the Science and Engineering of Casting Solidification*, 2015 TMS Annual Meeting (2015).
6. K. Fezi, J. Yanke, and M. J. M. Krane, “Modeling macrosegregation during electroslag remelting of alloy 625,” *Metallurgical and Materials Transactions B*, vol. 46, pp. 766-779, 2015.
7. J. Yanke, K. Fezi, R. W. Trice, and M. J. M. Krane, “Simulation of slag skin formation in electroslag remelting using a volume-of-fluid method,” *Numerical Heat Transfer, Part A: Applications*, **67**, pp. 268-292 (2015).
8. J. Yanke, K. Fezi, M. Fahrmann, M. J. M. Krane, “Predicting Melting Behavior of Industrial Electroslag Remelting Ingots,” in *Proceedings of the 2013 International Symposium on Liquid Metal Processing and Casting*, M. J. M. Krane, A. Jardy, R. Williamson, and J. Beaman (eds.), pp. 47-55 (2013).
9. K. Fezi, J. Yanke, M. J. M. Krane, “ Modeling Macrosegregation During Electroslag Remelting of Alloy 625,” in *Proceedings of the 2013 International Symposium on Liquid Metal Processing and Casting*, M. J. M. Krane, A. Jardy, R. Williamson, and J. Beaman (eds.), pp. 151-158 (2013).
10. M. J. M. Krane, M. Fahrmann, J. Yanke, E. Escobar de Obaldia, K. Fezi, J. Busch, “A comparison of predictions of transport phenomena in electroslag remelting to industrial data,” in *Proceedings of the 2011 International Symposium on Liquid Metal Processing and Casting*, M. J. M. Krane, R. Williamson, J.-P. Bellot, and A. Jardy (eds.), pp. 65-72 (2011).
11. “Thermodynamic Solidification Models,” Invited speaker at The University of Illinois at Urbana-Champaign- Purdue University Joint Symposium on Solidification, March 17, 2011.

**Awards and Memberships:**

* Bilsland Dissertation Fellowship Aug. 2015 – June 2016
* Tau Beta Pi Engineering Honors Society MemberDec. 2009 – Present
* Materials Advantage Member
* United States Steel Foundation, Inc. Scholarship Fall 2008 – Spring 2010
* Intel Scholar Fall 2008 – Spring 2010
* Academic semester honors (3.5 GPA or better) Spring 2007– Spring 2010

**Computer Skills:**

* FORTRAN Programming:
	+ Developed code for prediction of transport phenomena in electroslag remelting and direct chill casting