

Curriculum Vitae

Mingzhi Xu, Ph.D.

Assistant Professor

Department of Mechanical Engineering

Georgia Southern University

Statesboro, GA 30460

Phone: (912) 478-8449

Email: mxu@georgiasouthern.edu

EDUCATION

Ph.D., Metallurgical Engineering, 2015, Missouri University of Science and Technology, Rolla, MO.

B.S., Materials Science and Engineering, 2010, Xi'an Jiaotong University, Xi'an, Shaanxi, China.

PROFESSIONAL EXPERIENCE

- 2018-present** Assistant Professor, Department of Mechanical Engineering, Georgia Southern University, Statesboro, GA 30458
- 2015-2018:** Assistant Research Professor, Department of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO 65409
- 2010-2015:** Graduate Research and Teaching Assistant, Department of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO 65409

HONORS AND AWARDS

- 2016:** Best paper award, American Foundry Society cast iron division
- 2013:** Outstanding Graduate Student at Missouri S&T
- 2012-2015:** Chubb Fellowship for high temperature materials
- 2009:** Student Leadership Award at Xi'an Jiaotong University

TEACHING

Terms	Course title	Level	Enrollment	Evaluation
SP18	ME2653: Introduction to Manufacturing	Sophomore	135	3.4/4
FS17	ME2653: Introduction to Manufacturing	Sophomore	135	3.14/4

RESEARCH

CURRENT RESEARCH THRUST AREAS

Metalcasting, Steel Making, Metallurgy, Investment Casting, Materials Science

RESEARCH GRANTS

- PSMRC 2018** 07/01/2018-06/30/2021
Title: Peritectiv behavior measurement and prediction Fe-C-Mn-Al-Si system
Role: Co-PI (Xu's share: 30%), Total funding: \$330,000
- PSMRC 2018** 07/01/2018-06/30/2020
Title: Inclusion evolution & behavior in liquid steel
Role: Co-PI (Xu's share: 30%), Total funding: \$220,000
- Nucor Castrip, LLC 2017** 04/01/2017-03/31/2019
Title: Castrip Product Support and Development
Role: Co-PI (Xu's share: 30%), Total funding: \$550,000
- CATERPILLAR INC 2017** 02/01/2017-01/31/2018
Title: Long life component
Role: PI (Xu's share: 70%), Total funding: \$60,670
- CATERPILLAR INC 2017** 03/01/2017-12/15/2017
Title: High toughness steel
Role: Co-PI (Xu's share: 30%), Total funding: \$60,501

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| 6. | American Foundry Society 2017
Title: Prefiring Time/Temperature Effect on Investment Shells Thermo-Mechanical Properties
Role: PI (Xu's share: 90%), Total funding: \$33,100 | 01/01/2017-12/31/2017 |
| 7. | CATERPILLAR INC 2016
Title: Cleanliness of Steel
Role: Co-PI (Xu's share: 20%), Total funding: \$35,000 | 11/01/2016-07/31/2017 |
| 8. | CATERPILLAR INC 2016
Title: Premium Wear Parts
Role: Co-PI (Xu's share: 50%), Total funding: \$77,460 | 02/01/2016-01/31/2017 |
| 9. | PSMRC 2016
Title: Non-Metallic Inclusion Engineering
Role: Co-PI (Xu's share: 30%), Total funding: \$110,000 | 07/01/2017-06/30/2018 |
| 10. | MRC Seed grant 2016
Title: Investment Cast High Strength Aluminum Alloy under Pressure with Accelerated Water/Air Spray Cooling
Role: PI (Xu's share: 100%), Total funding: \$7,500 | 10/25/2016-06/30/2017 |

PUBLICATIONS

BOOK CHAPTERS

2018

1. J. Qing, M. Xu, "Graphite in Metallic Materials - Growth, Structure and Defects of Spheroidal Graphite in Ductile Iron", **Graphene- Growth, Synthesis and Integration Methods**, ASM WILEY-Scrivener, 2018, *in review*

2012

1. M. Xu, S. Lekakh, V. Richards, S. Dutler, "Inverse Modeling for Determination of Thermal Properties of the Investment Casting Ceramic Mold," **CFD Modeling and Simulation in Materials Processing**, TMS WILEY, 2012. Pp.235-242

REFEREED ARTICLES:

2018

1. J. Wan, J. Qing, M. Xu, "Designing a Graphitic White Iron for Seal Applications", Metallurgical and Materials Transactions B, *in review*.
2. M. Xu, J. Govro, M. Wooley, S. Vogel, W. Pugh, "Firing Time/Temperature Effect on Investment Shells Thermo-Mechanical Properties," **Transaction of American Foundry Society** (2018) *accepted*.
3. S. Chakraborty, R. O'Malley, L. Bartlett, M. Xu, "Efficiency of Solid Inclusion Removal from the Steel Melt by Ceramic Foam Filter: Design and Experimental Validation " **Transaction of American Foundry Society** (2018) *accepted*.

2017

4. Z. Huo, S. Anandan, M. Xu, K. Chandrashekhara, "Investigation of Three-Dimensional Moisture Diffusion Modeling and Mechanical Degradation of Carbon/Bismaleimide Composites Under Seawater Conditioning," **Journal of Composite Materials** 0(0) pp. 1-13, 2017
5. M. Xu, D. Field, J. Qing, V. Athavale, D. Van Aken, "Controlling Nitrogen Pick-Up during Induction Melting Low Alloy Steels," **Transaction of American Foundry Society** (2017)
6. J. Qing, V. Richards, D. Van Aken, M. Xu, "Staged Growth of Spheroidal Graphite in Ductile Irons," **Transaction of American Foundry Society** (2017)
7. M. Xu, S. Lekakh, V. Richards, "Impact of Firing Temperature on Phase Transformations and Properties of Silica-Based Investment Shell Molds," **Transaction of American Foundry Society** (2017)

2016

8. M. Xu, S. Lekakh, V. Richards, "Thermal property database for investment casting shells," **International Journal of Metalcasting** vol. 10, pp. 329-337, 2016

2015

9. H. Li, J. Chen, K. Chandrashekhara, M. Xu, S. Lekakh, V. Richards, " Characterization and modeling of anisotropic SL pattern during investment casting process," ***The International Journal of Advanced Manufacturing Technology***, vol. 80, Issue 9-12, pp. 1933-1943, 2015.
10. M. Xu, S. Lekakh, V. Richards, "Low Thermal Diffusivity Investment Casting Molds using Cenospheres," ***Transaction of American Foundry Society*** 2015.

2014

11. M. Xu, S. Lekakh, V. Richards, " Thermal property database for investment casting shells," ***Transaction of American Foundry Society*** 2014

2013

12. M. Xu, H. Li, K. Chandrashekhara, S. Lekakh, V. Richards, "Thermo-Mechanical Properties of SLA Pattern Materials and Their Effect on Stress in Investment Shell Molds," ***Transaction of American Foundry Society***, P281-288, 2013.

2012

13. M. Xu, S. Lekakh, V. Richards, S. Dutler, "Measurements and Confirmation of Thermal Properties of Investment Ceramic Shell by Multiple Methods," ***Transaction of American Foundry Society***, vol. 120, pp. 229-236, 2012.

2010

14. G. Zhang, Y. Guo, M. Xu, J. Zhang, "Feasibility of Efficiently Fabricating Al/Steel Bimetal Composite by Friction Stir Brazing," ***Journal of Xi'an Jiaotong University***, Vol. 12, pp. 19

OTHER CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. O. Adaba, R. OMalley, M. Xu, L. Bartlett, S. Lekakh, "Three-Dimensional Study of Inclusion Morphology and Size Distribution In Mn-Si Killed Steel", AIST 2018
2. M. Xu, "A Comprehensive Study of Thermo-Physical Properties of Investment Shells," Proceeding of Investment Casting Institute: 64th Annual Technical Conference & Equipment Expo, 2017
3. O. Adaba, L. Bartlett, M. Xu, R. OMalley, "Factors Affecting the Evolution of Inclusion Populations During Steelmaking and Casting Processes," 3rd International conference on "Science and Technology of Ironmaking & Steelmaking (STIS-2017)
4. V. Richards, M. Xu, "Combining Laser Flash Method and Inverse Method to Develop A Thermal Property Database for Investment Shell mold Materials," Proceeding of Investment Casting Institute: 61st Annual Technical Conference & Equipment Expo, 2014
5. H. Zhao, M. Xu, H. Li, W. Everhart, S. Lekakh, V. L. Richards, K. Chandrashekhara, P. Nam, "Characterization of low density polymer patterns for large steel investment casting," Proceeding of Investment Casting Institute: 58th Annual Technical Conference & Equipment Expo, 2011

PATENTS

1. J. Qing, J. Zhang, G. Zhang, M. Xu, "Large-diameter Multi-pass Pin-less Friction Stir Processing Method for Fabricating Fiber-reinforced Metal Matrix Composites", Patent Awarded January 2012 (CN102319954 A).

INVITED SEMINARS

1. M. Xu. "The Ceramic Side of the Foundry Metallurgy," Department of Material Science and Engineering, Missouri S&T, April 2017.

PROFESSIONAL SERVICES

REVIEWER FOR JOURNALS

- NSF-CMMI Panelist (2018)
- JOM
- International Journal of Metalcasting
- Metallurgical and Materials Transactions A
- Metallurgical and Materials Transactions B
- Materials Science and Engineering: A
- Materials Research letters.

REVIEWER FOR PROPOSALS

- NSF-CMMI Panelist (2018)
- Investment Casting Institute (2017)
- American Foundry Society 4L (2017)

INSTITUTIONAL SERVICES**CAMPUS LEVEL**

- FEF key professor backup
- Trainer for Missouri S&T foundry related facilities
- Advisor for Investment Casting Institute student activity
- Key contact for Ductile Iron Society university collaboration committee
- Foundry leader for ASM materials camp
- Interviewer for chancellor's scholarship

PROFESSIONAL MEMBERSHIPS

- Committee member, Investment Casting Institute
- Committee member, Member, American Foundry Society Investment Casting Committee (4L)
- Member, American Foundry Society (AFS)
- Member, American Foundry Society Steels Committee (Div.9)

ADVISEES**PH.D. STUDENTS**

- Jie Wan (in progress)
- Yizhou Du (in progress)

PH.D. DISSERTATION COMMITTEE

- Obinna Adaba (in progress)
- Viraj Athavale (in progress)
- Soumava Chakraborty (in progress)