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王海丰

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基本信息 The basic information

姓名: 王海丰

学院: 材料学院

学历: 博士研究生毕业

学位:

博士

职称: 教授

职务:

学科: **工作经历 Work Experience**

邮箱:

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2014年 学校首批“翱翔新星”

2015年 学校“翱翔青年学者”；陕西省“青年科技新星”

2017年 陕西省杰出青年基金

科学研究 Scientific Research

☆ 研究方向

非平衡理论：多元多相合金非平衡凝固理论；非平衡固态相变理论

非平衡材料：耐磨及润滑材料设计、制备及其性能表征；亚稳金属材料设计、制备及其力学性能研究

☆ 研究项目

主持国家自然科学基金面上项目、青年项目等10余项，参与国家自然科学基金重点项目、国家“973”计划、总装预研共用技术项目等多项。主要主持国家基金情况如下：

[1] 2012/01-2014/12, 国家自然科学基金青年项目 (51101122) : “基于宏观-微观方法的多元合金枝晶非平衡凝固动力学研究”

[2] 2014/01-2017/12, 国家自然科学基金面上项目 (51371149) : “二元共晶凝固中三相交界线热力学与动力学研究”

[3] 2016/03-2018/02, 霍英东青年教师基金 (151048) : “损伤容限型钛基非晶-枝晶复合材料制备及力学性能研究”

学术成果 Academic Achievements

在非平衡界面动力学、界面稳定性、枝晶生长、共晶生长，扩散控制生长，热力学极值原理应用及非晶-枝晶复合材料制备方面取得了创新性研究成果，累计发表学术论文50余篇，其中本学科TOP期刊Acta Materialia论文20篇（一作或通讯15篇，二作3篇）

☆ 2018年学术论文

[1] Jianbao Zhang, **Haifeng Wang***, Wangwang Kuang, Yachan Zhang, Shu Li, Yuhong Zhao*, D.M. Herlach*. Rapid solidification of non-stoichiometric intermetallic compounds: Modeling and experimental verification. *Acta Materialia*, 2018, 148: 86-99.

- [2] Wangwang Kuang, **Haifeng Wang***, Xin Li, Jianbao Zhang, Qing Zhou, Yuhong Zhao*. Application of the thermodynamic extremal principle to diffusion controlled phase transformations in Fe-C-X alloys: Modeling and applications. *Acta Materialia* 2018, 159: 2018 16-30.
- [3] Yuhao Xu, Qing Zhou*, Yin Du, Yue Ren, Haimin Zhai*, Qiang Li, Jialin Chen*, **Haifeng Wang***, Modulating mechanical properties of Ti-based bulk metallic glass composites by tailoring dendrite composition with Sn addition. *Journal of Alloys and Compounds*, 2018, 745: 16-25.
- [4] Yin Du, Qing Zhou*, Yue Ren, Wangwang Kuang, Weichao Han, Shang Zhang, Haimin Zhai, **Haifeng Wang***. Tailoring shear banding behaviors in high entropy bulk metallic glass by minor Sn addition: A nanoindentation study. *Journal of Alloys and Compounds* 2018, 762: 422-430.
- [5] Xin Li, Wangwang Kuang*, Jianbao Zhang, Qing Zhou, **Haifeng Wang***. Application of the Thermodynamic Extremal Principle to Massive Transformations in Fe-C Alloys. *Metallurgical and Materials Transactions A* 2018, 49: 4484-4494.
- [6] Fan Zhang, Cun Lai, Jianbao Zhang, Yachan Zhang, Qing Zhou, **Haifeng Wang***. Anomalous eutectics in intermediately and highly undercooled Ni-29.8at.%Si eutectic alloy. *Journal of Crystal Growth* 2018, 495: 37-45.

☆ 2017年学术论文

- [1] Xiao Zhang, **Haifeng Wang***, Wangwang Kuang, Jianbao Zhang. Application of the thermodynamic extremal principle to phase-field modeling of non-equilibrium solidification in multi-component alloys. *Acta Materialia* 128, 2017: 258-269.
- [2] Haimin Zhai, Yuhao Xu, Fan Zhang, Yue Ren, **Haifeng Wang***, Feng Liu*. Effect of transition metal elements (Cu, Ni, Co and Fe) on the mechanical properties of Ti-based bulk metallic glass composites. *Journal of Alloys and Compounds*. 2017, 694: 1-9.
- [3] Cun Lai, Jianbao Zhang, Fan Zhang, Yachan Zhang, **Haifeng Wang***, Wei Yang, Feng Liu*. Growth velocities and growth orientations in an undercooled melt of Ni₃₁Si₁₂ intermetallic compound. *Journal of Alloys and Compounds*. 2017, 712: 241-249.
- [4] Haimin Zhai, Yuhao Xu, Yin Du, **Haifeng Wang***, Feng Liu*. Strain rate sensitivity and deformation behavior in a Ti-based bulk metallic glass composite. *Journal of Non-Crystalline Solids* 2017, 471: 128-136.
- [5] R. Kobold, W.W. Kuang, **H. Wang**, W. Hornfeck, M. Kolbe, Dieter M. Herlach*. Dendrite growth velocity in the undercooled melt of glass forming Ni₅₀Zr₅₀ compound. *Philosophical Magazine Letters* 2017, 97:249-256.

☆ 2016年学术论文

- [1] Cun Lai, **Haifeng Wang***, Qian Pu, Tingting Xu, Jinsong Yang, Xi Zhang, Feng Liu*. Phase selection and re-melting-induced anomalous eutectics in undercooled Ni–38 wt% Si alloys. *Journal of Materials Science*, 2016, 51: 10990–11001.
- [2] Wangwang Kuang, **Haifeng Wang***, Jianbao Zhang, Feng Liu. Application of the thermodynamic extremal principle to diffusion-controlled phase-transformations in multi-component substitutional alloys: Modeling and applications. *Acta Materialia* 2016, 120: 415-425.
- [3] Haimin Zhai, **Haifeng Wang***, Feng Liu*. Effects of Sn addition on mechanical properties of Ti-based bulk metallic glass composites. *Materials and Design* 2016, 110: 782-789.
- [4] Haimin Zhai, **Haifeng Wang***, Feng Liu*. A strategy for designing bulk metallic glass composites with excellent work-hardening and large tensile ductility. *Journal of Alloys and Compounds* 2016, 685: 322-330.
- [5] Wangwang Kuang, **Haifeng Wang***, Feng Liu, S. L. Sobolev. Modeling of eutectic dendrite growth in undercooled binary alloys. *Journal of Materials Science* 2016, 51: 2141-2152.

☆ 2016年以前主要学术论文

- [1] **H.F. Wang***, P.K. Galenko et al. Phase-field modeling of an abrupt disappearance of solute drag in rapid solidification. *Acta Materialia* 2015, 90: 282-291.
- [2] W.W. Kuang, K. Christian, **H.F. Wang*** et al. Eutectic dendrite growth in undercooled Fe₈₃B₁₇ alloy: Experiments and modeling. *Scripta Materialia* 2015, 105: 34-37.
- [3] K. Wang, **H.F. Wang** et al. Morphological stability analysis for planar interface during rapidly directional solidification of concentrated multi-component alloys. *Acta Materialia* 2014, 67: 220~231.
- [4] **H.F. Wang***, F. Liu, G.J. Ehlen et al. Application of the maximal entropy production principle to rapid solidification: A multi-phase-field model. *Acta Materialia* 2013, 61: 2617~2627.
- [5] K. Wang, **H.F. Wang** et al. Modeling dendrite growth in undercooled concentrated multi-component alloys. *Acta Materialia* 2013, 61: 4254~4265.
- [6] K. Wang, **H.F. Wang** et al. Modeling rapid solidification of multi-component concentrated alloys. *Acta Materialia* 2013, 61: 1359~1372.

- [7] **H.F. Wang***, F. Liu et al. Application of the maximal entropy production principle to rapid solidification: A sharp interface model. **Acta Materialia** 2012, 60: 1444~1454.
- [8] **H.F. Wang**, F. Liu et al. Modeling grain refinement for undercooled single-phase solid-solution alloy melt. **Acta Materialia** 2011, 59: 4787~4797.
- [9] **H.F. Wang**, F. Liu et al. Oscillatory morphological stability for rapidly directional solidification: Effect of nonlinear liquidus and solidus. **Acta Materialia** 2011, 59: 5859~5867.
- [10] **H.F. Wang**, F. Liu et al. Modeling the overall solidification kinetics for undercooled single-phase solid-solution alloys-I: Model derivation. **Acta Materialia**. 2010, 58: 5402~5410.
- [11] **H.F. Wang**, F. Liu et al. Modeling the overall solidification kinetics for undercooled single-phase solid-solution alloys-II: Model application. **Acta Materialia**. 2010, 58: 5411~5419.
- [12] **H.F. Wang**, F. Liu et al. Kinetics of diffusion-controlled transformations: Application of probability calculation. **Acta Materialia**. 2009, 57: 3072~3083.
- [13] **H.F. Wang**, F. Liu et al. Solute trapping model incorporating diffusive interface. **Acta Materialia**. 2008, 56: 746~753.
- [14] **H.F. Wang**, F. Liu et al. An extended morphological stability model for a planar interface incorporating the effect of nonlinear liquidus and solidus. **Acta Materialia**. 2008, 56, 2592~2601.
- [15] **H.F. Wang**, F. Liu et al. Analysis of non-equilibrium dendrite growth in bulk undercooled alloy melt; model and application. **Acta Materialia**. 2007, 55: 497~506.
- [16] **H.F. Wang**, F. Liu et al. Effect of non-linear liquidus and solidus in undercooled dendrite growth: A comparative study in Ni-0.7 at.% B and Ni-1 at.% Zr systems. **Scripta Materialia**. 2007, 57: 413~416.

团队信息 Team Information

本人隶属于先进润滑与密封材料研究中心刘维民院士团队。

西北工业大学先进润滑与密封材料研究中心成立于2017年3月,以中国科学院院士、“摩擦学最高成就奖”获得者刘维民教授为首席科学家,按照西北工业大学人才特区政策进行建设管理。中心依托学校材料科学与工程国家一级重点学科,以“建设一流科研环境,培养一流科技人才,做出一流科研成果”为最高目标。中心瞄准润滑材料及密封材料研究的国际前沿,面向国家重大需求,围绕材料学的基础科学问题,将材料学与润滑密封结合在一起,重点开展四个方向的研究:先进润滑材料、特种密封材料、材料表面/界面、功能纳米材料及应用。以期建设成为在国际润滑与密封领域具有重要影响、引领国际润滑与密封材料研究、支撑国家高技术装备及国防工业发展的润滑与密封材料及技术的研究中心。

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