

XIN-BO QI

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🎓 EDUCATION

Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China 2011.09 -- 2017.06

Ph.D. in Materials Science and Engineering, Supervisor: Professor Dian Zhong Li (GPA ranking: 7/103)

Shandong University, Jinan, China

2007.09 -- 2011.06

Bachelor in Materials Science, Supervisor: Professor Jing Yu Qin

(GPA ranking: 11/333)

🔬 RESEARCH PROJECTS HIGHLIGHTS

Quantitative phase-field modeling of the dendrite growth affected by melts flow and solid transport

July 2012 -- Present

Funded by National Natural Science Foundation of China

- A novel phase-field model incorporating dendrite-melt two-phase flow to predict dendritic growth of alloy solidification has been proposed and implemented.
- The model is able to predict quantitatively the complex dynamical interaction between polycrystalline growth, solutal convection and dendrite motion.

An analytical approach for predicting as-cast grain size of inoculated aluminum alloys January 2014 -- September 2015

Funded by National Natural Science Foundation of China

- An analytical tuning parameter free as-cast prediction model for inoculated aluminum alloys has been proposed and validated by the independent experimental measurements.
- The model unifies the two different nucleation termination mechanisms and applicable to both of isothermal and non-isothermal solidification conditions.

📄 PUBLICATIONS

- X.B. Qi, Y. Chen, X.H. Kang, D.Z. Li, Q. Du. An analytical approach for predicting as-cast grain size of inoculated aluminum alloys, **Acta Materialia**, 99 (2015) 337-346. (IF: 5.058)
- X.B. Qi, Y. Chen, X.H. Kang, D.Z. Li, T.Z. Gong. Modeling of coupled motion and growth interaction of equiaxed dendritic crystals in a binary alloy during solidification. **Scientific Reports**, 7 (2017) 45770. (IF: 5.228)
- X.B. Qi, Y. Chen, X.H. Kang, D.Z. Li. The Effect of Natural Convection on Equiaxed Dendritic Growth: Quantitative Phase-Field Simulation and Comparison with Synchrotron X-Ray Radiography Monitoring Data, **Advances in Materials Science and Engineering**, 2016 (2016) 10. (IF: 1.01)
- Y. Chen, X.B. Qi, D.Z. Li, X.H. Kang, N.M. Xiao. A quantitative phase-field model combining with front-tracking method for polycrystalline solidification of alloys, **Computational Materials Science**, 104 (2015) 155-161. (IF: 2.086)
- Y. Chen, X.B. Qi, D.Z. Li, X.H. Kang. Prediction of Melt Flow Effects on Dendrite Growth, **Materials Science Forum**, 850 (2016) 334-340.

✈ CONFERENCE PRESENTATIONS

- X.B. Qi, Y. Chen, D.Z. Li, Q. Du. An analytical approach for predicting as-cast grain size of inoculated aluminum alloys. **CSSCR2016**. Xi'an, China, 2016. Oral presentation
- X.B. Qi, Y. Chen, D.Z. Li. Effect of solutal natural convection on dendritic tip splitting instability investigated by a quantitative phase-field model. **CDSM2015**. Shenyang, China, 2015. Poster
- X.B. Qi, Y. Chen, D.Z. Li. Phase-field modeling of alloy solidification incorporating melt convection and solid motion. **Chinese Materials Conference 2015**. Guiyang, China, 2015. Oral presentation

⚙️ RESEARCH SKILLS

- **Phase-field method** to model the microstructural evolution
- **Finite-Element method** to model the process of material manufacturing, including using the commercial software **Abaqus** and programming by **C++**
- solidification and heat-treatment of metallic alloys
- **fluid mechanics**, able to analyze and solve the problem of natural and forced convection
- microstructure characterization: OM/TEM/SEM, synchrotron X-ray radiography

💻 PROGRAMMING SKILLS

- Experienced in **C/C++**, **Mathematica**
- Platform: **Linux/Windows**
- Simulation softwares: **AFEPack**, **deal.II**
- Other softwares: **L^AT_EX**, **OpenDX**, **ParaView**

Coding Projects

- Implemented the open-source Adaptive Finite-Element library -- AFEPack for Phase-field modeling
See: <http://qixinbo.info/gallery/>
- Implemented Mathematica to process pictures, solve equations, make a simple network crawler
See: <http://qixinbo.info/tags/mathematica/>
- Implemented the open-source Finite-Element library -- deal.II to solve partial differential equations
See: <http://qixinbo.info/tags/deal-II/>

♡ HONORS AND AWARDS

National Scholarship , Chinese Ministry of Education, <i>twice</i> (the highest prize awarded to the student with excellent performance)	2008/2012
Excellent Student Cadre , Shandong University & IMR, <i>four times</i> (awarded to the student who has good leadership in the teamwork)	2008/2009/2012/2013
Merit Student , Shandong University & IMR, <i>six times</i> (awarded to the student who has good performance in some aspects)	2008/2012/2013/2014/2015/2016
First-class Scholarship , Shandong University (awarded to the student who has excellent school record)	2008
Second-class Scholarship , Shandong University, <i>twice</i> (awarded to the student who has good school record)	2009/2010
Outstanding Graduate Student Achievement , Shandong University (awarded to the outstanding graduate in Shandong University)	2011
Outstanding Graduate Student Achievement , Shandong Province (awarded to the outstanding graduate in Shandong Province)	2011

🔍 MISCELLANEOUS

- **GitHub**: <https://github.com/qixinbo>
- **Google Scholar**: https://scholar.google.com/citations?user=H0wir_sAAAAJ
- **ResearchGate**: https://www.researchgate.net/profile/Xin_Bo_Qi
- **Languages**:
 - **English**: excellent written and oral communication skill
 - **Mandarin**: native
- **Computer level**: National Computer Rank Examination: Grade 4
- **Hobby**:
 - **Badminton** (Mixed doubles champion in college of Material Science and Engineering, Shandong University, Third Group in Institute of Metal Research)
 - **Developing small programs** (Developed web crawler and simple picture-processing programs)