



Personnel Infos:

Homepage:

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ResearchGate:

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ORCID:

<https://orcid.org/0000-0003-1608-415X>

Language:

Mandarin: Maternal

English: Fluent

Computer skills:

●Programming Language:

C/Python/C++, Matlab, Mathematica

●Working Software:

Excel/PowerPoint/Word, PS, and AfterEffect

●Scientific Software:

Abaqus, COMSOL

Proficient in using \LaTeX and power user of LINUX

Qing XIA

EDUCATIONS

Sept 2021-Present **XI'AN JIAO TONG UNIVERSITY(XJTU), CHINA**

-Department of Applied Mathematics

-School of Mathematics and Statistics

-Ph.D candidate

Advisor: *Prof. Dr. Yibao Li*

Sept 2019-Jun 2021 **XI'AN JIAO TONG UNIVERSITY(XJTU), CHINA**

-Department of Applied Mathematics

-School of Mathematics and Statistics

-Master candidate

Advisor: *Prof. Dr. Yibao Li*

Sept 2015-Jun 2019 **XI'AN JIAO TONG UNIVERSITY(XJTU), CHINA**

-Department of Applied Mathematics

-School of Mathematics and Statistics

-Bachelor Degree

RESEARCH INTEREST

His research interests mainly lie in **Topology optimization** in additive manufacturing and **Multi-scale multi-physics coupled computation**. His research interests also include computer vision on the digital twin, entropy analysis and numerical analysis. His main work is to project the physical models from real space to digital space for equivalent experiments, which can eliminate the environment and material cost constraints of real physical experiment. Since 2019, he has published **19** SCI papers on the international academic journals such as *Comput. Methods Appl. Mech. Eng.*, *Comput. Phys.*, *Commun.*, *Phys. Fluids*, *J. Comput. Phys.*, *Pattern Recognit.*, **13** of them are included in **JCR Q1** journals.

MAGNUM OPUS

Remark: # is the first author, * is the corresponding author.

Multi-physical fields coupled computation

- **Qing Xia**#, Qian Yu, Yibao Li*, *A second-order accurate, unconditionally energy stable numerical scheme for binary fluid flows on arbitrary curved surfaces*, *Computer Methods in Applied Mechanics and Engineering*, 384 (2021) 113987. (JCR **Q1**, Impact Factor 6.756).
- **Qing Xia**#, Junxiang Yang, Yibao Li*, *On the conservative phase-field method with the N-component incompressible flows*, *Physics of Fluids*, 35 (2023) 012120. (JCR **Q1**, Impact Factor 4.980).
- **Qing Xia**#, Junseok Kim, Binhu Xia, Yibao Li*, *An unconditionally energy stable method for binary incompressible heat conductive fluids based on the phase-field model*, *Computers and Mathematics with Applications*, 123 (2023) 26-39. (JCR **Q1**, Impact Factor 3.440).
- **Qing Xia**#, Junseok Kim, Yibao Li*, *Modeling and simulation of multi-component immiscible flows based on a modified Cahn-Hilliard equation*, *European Journal of Mechanics-B/Fluids*, 95 (2022) 194-204. (JCR **Q2**, Impact Factor 2.598).
- Yibao Li#, Rui Liu, **Qing Xia**, Chenxi He, Zhong Li*, *First- and second-order unconditionally stable direct discretization methods for multi-component Cahn-Hilliard system on surfaces*, *Journal of Computational and Applied Mathematics*, 401 (2022)113778. (JCR **Q1**, Impact Factor 2.037).

Expertise field:

Phase field method,
Finite Difference Method,
Numerical analysis,
Hydrodynamic topology
optimization,
Computational Fluid
dynamics with ,
Image processing under
convection

Hobby:

Jogging, Traveling,
Photographing, Fitness,
Guitar

Teaching Assistant:

Master course, Xi'an Jiaotong
University.

- Numerical Analysis(A)
Instructor: Prof. Dr. Yibao Li,
Iharbour, Xi'an, Shaanxi
Province, China, Fall 2020.
- Numerical Analysis(B)
Instructor: Prof. Dr. Yibao Li,
Iharbour, Xi'an, Shaanxi
Province, China Fall 2019.

Chinese Patents:

- Yibao Li, Zhengyuan Shi,
Qing Xia, Bingheng Lu, A
rapid tooth - gum
segmentation method for
invisible braces.
- Yibao Li, Rui Liu, **Qing
Xia**, An automatic target
prediction algorithm based
on multiple detectors.

• **Qing Xia**#, Yuehan Liu, Junseok Kim, Yibao Li*, *Binary thermal fluids computation over arbitrary surfaces with second-order accuracy and unconditional energy stability based on phase-field model*, Journal of Computational and Applied Mathematics, (2023). (JCR **Q1**, Impact Factor 2.037).

Topology optimization & Additive manufacturing

- **Qing Xia**#, Gangming Sun, Junseok Kim, Yibao Li*, *Multi-scale modeling and simulation of additive manufacturing based on fused deposition technique*, Physics of Fluids, 35 (2023) 034116. (JCR **Q1**, Impact Factor 4.980, *Cover Article/Featured/Scilight Article of AIP publishing*).
- **Qing Xia**#, Xiaoyu Jiang, Yibao Li*, *A modified and efficient phase field model for the biological transport network*, Journal of Computational Physics, (2023). (JCR **Q1**, Impact Factor 4.645).
- **Qing Xia**#, Gangming Sun, Qian Yu, Yibao Li*, *Thermal-fluid topology optimization with unconditional energy stability and second-order accuracy via phase-field model*, Communications in Nonlinear Science and Numerical Simulation, 116 (2023) 106782. (JCR **Q1**, Impact Factor 4.186).
- Yu Qian#, **Qing Xia**, Yibao Li*, *A phase field-based systematic multiscale topology optimization method for porous structures design*, Journal of Computational Physics, 466 (2022) 111383. (JCR **Q1**, Impact Factor: 4.645).
- Yibao Li#, **Qing Xia**, Sungha Yoon, Chaeyoung Lee, Bingheng Lu, Junseok Kim*, *Simple and efficient volume merging method for triply periodic minimal structures*, Computer Physics Communications, 264 (2021) 107956. (JCR **Q1**, Impact Factor: 4.717).
- Bo You#, **Qing Xia**, *Continuous Data Assimilation Algorithm for the Two Dimensional Cahn–Hilliard–Navier–Stokes System*, Applied Mathematics & Optimization, 85 (2022) 1-19. (JCR **Q1**, Impact Factor: 3.582)
- Yibao Li#, Kunyang Wang, Qian Yu, **Qing Xia**, Junseok Kim, *Unconditionally energy stable schemes for fluid-based topology optimization*, Communications in Nonlinear Science and Numerical Simulation, 111 (2022) 106433. (JCR **Q1**, Impact Factor: 4.260)

Computer vision

- Yibao Li#, **Qing Xia**, Sungha Yoon, Junseok Kim*, *A simple and efficient fingerprint image restoration method based on a phase-field model*, Pattern Recognition, 123 (2020) 108405. (JCR **Q1**, Impact Factor 7.740).
- Jin Wang#, **Qing Xia***, Binhu Xia, *Fast Image Restoration Method Based on the L0, L1, and L2 Gradient Minimization*, Mathematics, 10 (2022) 3107. (JCR **Q2**, Impact Factor 2.884).
- Yibao Li#, Kang Qin, **Qing Xia**, Junseok Kim*, *A second-order unconditionally stable method for the anisotropic dendritic crystal growth model with an orientation-field*, Applied Numerical Mathematics, 184 (2022) 512-526. (JCR **Q1**, Impact Factor: 2.443)

HONOURS, AWARDS & PROJECTS

⇒Nov 2022	Outstanding Model for the Doctoral students(Top 0.1%)
⇒Oct 2022	National Scholarship for Doctoral students(Top 1%)
⇒May 2022	The Fundamental Research Funds for the Central Universities(No. XYZ022022005)(Top 0.1%)
⇒Oct 2021	Alumni Scholarship of 1987 Class(Top 5%)
⇒May 2020	Outstanding student cadre of Xi'an Jiaotong University(Top 5%)
⇒Oct 2019	Freshman Scholarship(Top 10%)
⇒Sep 2019	Outstanding Graduate of Xi'an Jiaotong University(Top 5%)