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## 教育背景

2004 年 9 月 -2009 年 12 月 **博士研究生**, 西安交通大学理学院, 理学博士 (硕博连读).

2000 年 9 月 -2004 年 7 月 **本科**, 山西大学数学科学学院, 理学学士.

## 经历

### 工作经历

2011 年 11 月 -现在 **副教授, 硕士生导师**, 温州大学数理学院.

2010 年 1 月 -2011 年 10 月 **讲师**, 温州大学数学与信息科学学院.

### 教学经历

2010 年 1 月 -至今 **讲授课程**.

- 高等数学
- 常微分方程
- 微分方程基础
- 概率论与数理统计

## 研究方向

- 1 偏微分方程数值解
- 2 Navier-Stokes 方程的数值算法
- 3 有限元方法

## 主持科研项目

2023 年 1 月  
–2025 年 12 月

变密度不可压缩磁流体力学方程组的高效稳定解耦算法研究, 浙江省自然科学基金 (探索一般项目), (LY23A010002).

主持

2018 年 1 月  
–2020 年 12 月

不可压缩磁流体力学方程组具有保结构形式的高效数值算法研究, 浙江省自然科学基金 (一般项目), (LY18A010021).

主持

2014 年 1 月  
–2016 年 12 月

大雷诺数下 Navier-Stokes 型变分不等问题若干数值方法的研究, 浙江省自然科学基金 (一般项目), (LY14A010020).

主持

2011 年 1 月  
–2013 年 12 月

不可压缩粘性流体中变分不等问题高性能算法的研究, 国家自然科学基金 (青年项目), (11001205).

主持

## 论文

### 学术论文

- [1] Yuan Li and Rong An, Error analysis of a unconditionally stable BDF2 finite element scheme for the incompressible flows with variable density, **Journal of Scientific Computing**, 95(2023) # 73.
- [2] Yuan Li and Xuewei Cui, Unconditionally optimal error analysis of the second-order BDF finite element method for the Kuramoto-Tsuzuki equation, **Journal of Computational Mathematics**, 41(2023), pp.211-223.
- [3] Min Cao and Yuan Li Optimal Error Analysis of Linearized Crank-Nicolson Finite Element Scheme for the Time-Dependent Penetrative Convection Problem, **Communications on Applied Mathematics and Computation**, doi: 10.1007/s42967-023-00269-7, 2023.
- [4] Yuan Li and Rong An, Unconditionally optimal error analysis of a linear Euler FEM scheme for the Navier–Stokes equations with mass diffusion, **Journal of Scientific Computing**, 90(2022) # 47.
- [5] Yuan Li and Rong An, Temporal error analysis of a new Euler semi-implicit scheme for the incompressible Navier–Stokes equations with variable density, **Communications in Nonlinear Science and Numerical Simulation**, 109(2022) # 106330.
- [6] Chenyang Li and Yuan Li, Optimal  $L^2$  error analysis of first-order Euler linearized finite element scheme for the 2D magnetohydrodynamics system with variable density **Computers & Mathematics with Applications**, 128(2022), pp.96-107.
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- [8] Rong An, Chao Zhang, Yuan Li, Temporal convergence analysis of an energy preserving projection method for a coupled magnetohydrodynamics equations, **Journal of Computational and Applied Mathematics**, 386(2021), 113236.
- [9] Jingke Wu, Rong An, Yuan Li, Optimal  $H^1$  error analysis of a fractional step finite element scheme for a hybrid MHD system, **Journal of Applied Analysis and Computation**, 11(2021), pp.1535-1556.
- [10] Yuan Li, Chunfang Zhai, Unconditionally optimal convergence analysis of second-order BDF Galerkin finite element scheme for a hybrid MHD system, **Advances in Computational Mathematics**, 46(2020), Article number: 75
- [11] Yuan Li, Xuelan Luo, Second-order semi-implicit Crank-Nicolson scheme for a coupled magnetohydrodynamics system, **Applied Numerical Mathematics**, Vol. 145, pp.48-68, 2019.
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- [14] Rong An, Yuan Li, Yuqing Zhang, Error estimates of two-level finite element method for Smagorinsky model, **Applied Mathematics and Computation**, Vol. 274, pp.786-800, 2016.
- [15] An Liu, Yuan Li, Rong An, Two-level defect-correction method for steady Navier-Stokes problem with friction boundary, **Advances in Applied Mathematics and Mechanics**, Vol. 8(6), pp.932-952, 2016.
- [16] Yuqing Zhang, Yuan Li, Rong An, Two-Level iteration penalty and variational multiscale method for steady incompressible flows, **Journal of Applied Analysis and Computation**, Vol. 6(3), pp.607-627, 2016.
- [17] Yuan Li, Rong An, Two-level variational multiscale finite element methods for Navier-Stokes type variational inequality problem, **Journal of Computational and Applied Mathematics**, Vol. 290, pp.656-669, 2015.
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- [19] 安荣, 李媛, 具有梯度限制的四阶障碍问题的增广 Lagrange 迭代方法, **计算数学**, Vol. 35(1), pp.11-20, 2013.
- [20] Yuan Li, Rong An, Two-level iteration penalty methods for Navier-Stokes equations with friction boundary conditions. **Abstract and Applied Analysis**, Vol. 2013, Article ID 125139, 17 pages, 2013.
- [21] Yuan Li, Rong An, Penalty finite element method for Navier-Stokes equations with nonlinear slip boundary conditions. **International Journal for Numerical Methods in Fluids**, Vol. 69(3), pp.550-566, 2012.
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- [34] Yuan Li, Kaitai Li, Penalty finite element method for Stokes problem with nonlinear slip boundary conditions, **Applied Mathematics and Computation**, Vol. 204(1), pp.216-226, 2008.
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## 指导硕士生

2016 级 马炎杰

2017 级 罗雪兰

2018 级 翟春芳  
2019 级 崔雪微  
2020 级 曹敏, 李晨阳  
2021 级 孟裕, 李世仁  
2022 级 王镜涵, 王姝衡