

# 安荣 (博士, 教授)

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## 教育背景

2005 年 3 月  
-2008 年 7 月 **博士研究生**, 西安交通大学理学院, 理学博士.

2002 年 9 月  
-2005 年 3 月 **硕士研究生**, 西安交通大学理学院, 理学硕士.

1998 年 9 月  
-2002 年 7 月 **本科**, 西安交通大学理学院, 理学学士.

## 经历

### 工作经历

2019 年 1 月  
-现在 **教授, 硕士生导师**, 温州大学数理学院.

2010 年 11 月  
-2018 年 12 月 **副教授, 硕士生导师**, 温州大学数学与信息科学学院 (数电学院, 数理学院).

2008 年 7 月  
-2010 年 10 月 **讲师**, 温州大学数学与信息科学学院.

### 学术交流经历

2009 年 7 月 **访问学者**, 中国科学院数学与系统科学研究院计算数学研究所.

2015 年 3 月  
-2015 年 9 月 **访问学者**, 香港城市大学.

2017 年 7 月 **访问学者**, 香港城市大学.

### 教学经历

2008 年 9 月  
-至今 **讲授课程**.

- 数学分析 (本科生)
- 高等数学 (本科生)
- 数学物理方程 (本科生)
- 微分方程基础 (研究生)

○ 应用微分方程 (研究生)

○ 有限元方法 (研究生)

## 研究方向

- 1 非线性抛物方程的数值算法
- 2 Navier-Stokes 方程的理论和数值算法
- 3 有限元方法

## 荣誉和奖励

- 1 浙江省高校优秀青年教师资助计划 (2009)
- 2 温州市“551 人才工程”第三层次 (2010)
- 3 温州市“551 人才工程”第二层次 (2012)
- 4 浙江省中青年学科带头人 (2013)
- 5 温州大学新湖青年学者 (2018)
- 6 温州大学瓯江特聘教授 CII 类 (2020)

## 主持和参与项目

### 学术项目

2018 年 1 月  
-2021 年 12 月

**变密度不可压缩 Navier-Stokes 方程具有保结构形式的若干高效分裂算法研究**, 国家自然科学基金 (面上项目), (11771337).

主持

2016 年 1 月  
-2018 年 12 月

**变密度不可压缩 Navier-Stokes 方程数值方法的研究**, 浙江省自然科学基金 (一般项目), (LY16A010017).

主持

2012 年 1 月  
-2013 年 12 月

**Navier-Stokes 型变分不等问题的两重网格及其后处理算法的研究**, 浙江省自然科学基金 (一般项目), (LY12A01015).

主持

2010 年 1 月  
-2012 年 12 月

**旋转障碍下不可压缩粘性流体数值方法的研究**, 国家自然科学基金 (青年项目), (10901122).

主持

## 教改项目

2012 年 -2015  
年

《数学物理方程》教学改革与探索, 温州大学教学改革项目.

主持

## 论文

### 学术论文

- [1] 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.
- [2] Rong An, Error analysis of a new fractional-step method for the incompressible Navier-Stokes equations with variable density, **Journal of Scientific Computing**, 84(2020), Article number:3.
- [3] Rong An, Iteration penalty method for the incompressible Navier-Stokes equations with variable density based on the artificial compressible method, **Advances in Computational Mathematics**, 46(2020), Article number:5, 29pages.
- [4] Rong An, Error analysis of a time-splitting method for incompressible flows with variable density, **Applied Numerical Mathematics**, 150(2020), pp.384-395.
- [5] Rong An, Can Zhou, Jian Su, A new higher order fractional-step method for the incompressible Navier-Stokes equations, **Advances in Applied Mathematics and Mechanics**, 12(2020), pp.362-385.
- [6] Rong An, Jian Su, Optimal error estimates of semi-implicit Galerkin method for time-dependent nematic liquid crystal flows, **Journal of Scientific Computing**, 74(2018), pp.979-1008.
- [7] Yuan Li, Yanjie Ma, Rong An, Decoupled, semi-implicit scheme for a coupled system arising in magnetohydrodynamics problem, **Applied Numerical Mathematics**, 127(2018), pp.142-163.
- [8] Rong An, Yuan Li, Error analysis of first-order projection method for time-dependent magnetohydrodynamics equations, **Applied Numerical Mathematics**, 112(2017), pp.167-181.
- [9] Rong An, Can Zhou, Error analysis of a fractional-step method for magnetohydrodynamics equations, **Journal of Computational and Applied Mathematics**, 313(2017), pp.168-184.
- [10] Hailong Qiu, Rong An, Liquan Mei, Changfeng Xue, Two-step algorithms for the stationary incompressible Navier-Stokes equations with friction boundary conditions, **Applied Numerical Mathematics**, 120(2017), pp.97-114.
- [11] Caidi Zhao, Guowei Liu, Rong An, Global well-posedness and Pullback attractors for an incompressible non-Newtonian fluid with infinite delays, **Differential Equations and Dynamical Systems**, 25(2017), pp.39-64.
- [12] Rong An, Optimal error estimates of linearized Crank–Nicolson Galerkin method for Landau–Lifshitz equation, **Journal of Scientific Computing**, 69(2016), pp.1-27.
- [13] Rong An, Kaitai Li, Accuracy analysis of the boundary integral method for steady Navier-Stokes equations around a rotating obstacle, **Acta Mathematicae Applicatae Sinica, English Series**, 32(2016), pp.529-536.

- [14] [Rong An](#), Yuan Li, Yuqing Zhang, Error estimates of two-level finite element method for Smagorinsky model, **Applied Mathematics and Computation**, 274(2016), pp.786-800.
- [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**, 8(2016), pp.932-952.
- [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**, 6(2016), pp.607-627.
- [17] [Rong An](#), Feng Shi, Two-Level iteration penalty methods for the incompressible flows, **Applied Mathematical Modelling**, 39(2015), pp. 630-641.
- [18] [Rong An](#), Xuehai Huang, A compact C0 discontinuous Galerkin method for Kirchhoff plates, **Numerical Methods for Partial Differential Equations**, 31(2015), pp.1265-1287.
- [19] Yuan Li, [Rong An](#), Two-level variational multiscale finite element methods for Navier–Stokes type variational inequality problem, **Journal of Computational and Applied Mathematics**, 290(2015), pp.656-669.
- [20] [Rong An](#), Yuan Li, Two-level penalty finite element methods for Navier-Stokes equations with nonlinear slip boundary conditions, **International Journal of Numerical Analysis and Modeling**, 11(2014), pp.608-624.
- [21] [Rong An](#), Comparisons of Stokes/Oseen/Newton iteration methods for Navier–Stokes equations with friction boundary conditions, **Applied Mathematical Modelling**, 38(2014), pp.5535-5544.
- [22] [Rong An](#), Xian Wang, Discontinuous Galerkin finite element method for Plate contact problem with frictional boundary conditions, **Journal of Numerical Mathematics**, 22(2014), pp.177-190.
- [23] [Rong An](#), Xian Wang, Two-level Brezzi-Pitk?ranta discretization method based on Newton iteration for Navier-Stokes equations with friction boundary conditions, **Abstract and Applied Analysis**, 2014, Article ID 474160, 14 pages.
- [24] [Rong An](#), Xian Wang, Two-level Brezzi-Pitk?ranta stabilized finite element methods for the incompressible flows, **Abstract and Applied Analysis**, 2014, Article ID 698354, 14 pages.
- [25] [Rong An](#), Hailong Qiu, Two-level Newton iteration methods for Navier-Stokes type variational inequality problem, **Advances in Applied Mathematics and Mechanics**, 5(2013), pp.36-54.
- [26] [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**, 35(2013), pp.11-20.
- [27] Yuan Li, [Rong An](#), Two-level iteration penalty methods for Navier-Stokes equations with friction boundary conditions. **Abstract and Applied Analysis**, 2013, Article ID 125139, 17 pages.
- [28] [Rong An](#), Kaitai Li, Approximation for Navier-Stokes equations around a rotating obstacle, **Applied Mathematics Letters**, 25(2012), pp.209-214.
- [29] Yuan Li, [Rong An](#), Penalty finite element method for Navier-Stokes equations with nonlinear slip boundary conditions. **International Journal for Numerical Methods in Fluids**, 69(2012), pp.550-566.
- [30] [Rong An](#), Xuehai Huang. Constrained C0 Finite element methods for biharmonic problem, **Abstract and Applied Analysis**, 2012, Article ID 863125, 19pages.

- [31] Yuan Li, Rong An, Semi-discrete stabilized finite element methods for Navier-Stokes equations with nonlinear slip boundary conditions based on regularization procedure, **Numerische Mathematik**, 117(2011), pp.1-36.
- [32] Yuan Li, Rong An, Two-level pressure projection finite element methods for Navier-Stokes equations with nonlinear slip boundary conditions, **Applied Numerical Mathematics**, 61(2011), pp.285-297.
- [33] Rong An, Yuan Li, Kaitai Li, Fundamental solution of rotating generalized Stokes problem in  $R^3$ , **Acta Mathematicae Applicatae Sinica, English Series**, 27(2011), pp.761-768.
- [34] Rong An, Kaitai Li, The boundary integral method for the steady rotating Navier-Stokes equations in exterior domain (I): the existence of solution, **Nonlinear Differential Equations and Applications NoDEA**, 17(2010), pp.95-108.
- [35] Rong An, Kaitai Li, The boundary integral method for the linearized rotating Navier-Stokes equations in exterior domain. **Applied Mathematics and Computation**, 216(2010), pp.2671-2678.
- [36] 安荣, 李开泰, Plate Contact 问题的混合有限元逼近, **数学物理学报**, 30(2010), pp.666-676.
- [37] Rong An, Kaitai Li, Yuan Li, Solvability of the 3D rotating Navier-Stokes equations coupled with a 2D biharmonic problem with obstacles and gradient restriction, **Applied Mathematical Modelling**, Vol. 33(6), pp.2897-2906, 2009.
- [38] Rong An, Yuan Li, Kaitai Li, Solvability of Navier-Stokes equations with leak boundary conditions. **Acta Mathematicae Applicatae Sinica-English Series**, 25(2009), pp.225-234.
- [39] Rong An, Discontinuous Galerkin Finite Element Method for the Fourth-Order Obstacle Problem, **Applied Mathematics and Computation**, 209(2009), pp.351-355.
- [40] 安荣, 张正策, 李媛, 李开泰, 具有指数增长的非线性 P-双调和问题解的存在性和非存在性, **数学年刊**, 30(2009), pp.1-12.
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- [42] 安荣, 李开泰, 四阶障碍问题的稳定化混合有限元方法, **应用数学学报**, 32(2009), pp.1068-1078.
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- [44] Kaitai Li, Rong An, On the rotating Navier-Stokes equations with mixed boundary conditions, **Acta Mathematica Sinica-English Series**, 24(2008), pp.577-598.
- [45] Rong An, Yuan Li, Kaitai Li, Finite element approximation for fourth-order nonlinear problem in the plane, **Applied Mathematics and Computation**, 194(2007), pp.143-155.
- [46] Yuan Li, Rong An, Kaitai Li, Some optimal error estimates of biharmonic problem using conforming finite element, **Applied Mathematics and Computation**, 194(2007), pp.298-308.
- [47] 李媛, 安荣, 李开泰, 一个新 Pohozaev 恒等式及其在四阶拟线性椭圆方程中的应用, **西安交通大学学报 (自然科学版)**, 41(2007), pp.1245-1247.

## 指导硕士生

- 2011 级 王贤
- 2012 级 刘安, 张雨晴
- 2015 级 周粲
- 2016 级 龚欢
- 2017 级 张超
- 2018 级 武静珂
- 2019 级 傅天添, 赵果玫
- 2020 级 唐哲谦, 胡帅飞, 梅燕华

## 指导本科生竞赛

- 2017 年 美国大学生数学建模竞赛二等奖
- 2011, 2018 年 全国研究生数学建模竞赛三等奖
- 2019 年 第十届全国大学生数学竞赛决赛 (数学类) 三等奖

## 科研获奖

- 王玮明, 赵才地, [安荣](#), 等 种群动力学和流体力学中若干偏微分方程问题的定性和算法研究, **浙江省自然科学奖三等奖**, 2015 年