安荣 (博士，教授)

温州大学数理学院
浙江温州, 325035
✉ anrong702@gmail.com, anrong@wzu.edu.cn

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. 浙江省高校中青年学科带头人 (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] 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] Rong An and Weiwei Sun, Analysis of projection finite element methods for the Landau-Lifshitz equation, **IMA Journal of Numerical Analysis**, 42(2022), pp.2336–2360.

[3] 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.

[4] 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.

[5] Shuaifei Hu, Guomei Zhao and Rong An, Temporal convergence of extrapolated BDF-2 scheme for the Maxwell-Landau-Lifshitz equations, **Computers & Mathematics with Applications**, 119(2022), pp.278-287.

[6] Zheqian Tang and Rong An, Error analysis of the second-order BDF finite element scheme for the thermally coupled incompressible magnetohydrodynamic system, **Computers & Mathematics with Applications**, 118(2022), pp.110-119.

[7] Yanhua Mei and Rong An, Error estimates of second-order BDF Galerkin finite element methods for a coupled nonlinear Schrödinger system, **Computers & Mathematics with Applications**, 122(2022), pp.117-125.

[8] Rong An, Huadong Gao and Weiwei Sun, Optimal error analysis of Euler and Crank–Nicolson projection finite difference schemes for Landau–Lifshitz equation, **SIAM Journal on Numerical Analysis**, 59(2021), pp.1639-1662.

[9] Yuan Li and Rong An, Temporal error analysis of Euler semi-implicit scheme for the magnetohydrodynamics equations with variable density, **Applied Numerical Mathematics**, 166(2021), pp.146-167.

[10] Rong An, Chao Zhang and 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.

[11] Jingke Wu, Rong An and 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.

[12] Bolin Chen and Rong An, Unconditionally optimal convergence analysis of second-order BDF scheme for Landau-Lifshitz equation, **Journal of Applied Analysis and Computation**, 11(2021), pp.1391-1404.

[13] Guomei Zhao and Rong An, Optimal error analysis of partially-updated projection FEM scheme for the Landau-Lifshitz equation based on the Crank-Nicolson discretization, **Journal of Applied Analysis and Computation**, 11(2021), pp. 3115–3132.

[14] 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.

[15] 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.

[16] Rong An, Error analysis of a time-splitting method for incompressible flows with variable density, **Applied Numerical Mathematics**, 150(2020), pp.384-395.

[17] Rong An, Can Zhou and 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.

[18] Rong An and 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.

[19] Yuan Li, Yanjie Ma and Rong An, Decoupled, semi-implicit scheme for a coupled system arising in magnetohydrodynamics problem, **Applied Numerical Mathematics**, 127(2018), pp.142-163.

[20] Rong An and Yuan Li, Error analysis of first-order projection method for time-dependent magnetohydrodynamics equations, **Applied Numerical Mathematics**, 112(2017), pp.167-181.

[21] Rong An and Can Zhou, Error analysis of a fractional-step method for magneto-hydrodynamics equations, **Journal of Computational and Applied Mathematics**, 313(2017), pp.168-184.

[22] Hailong Qiu, Rong An, Liquan Mei and Changfeng Xue, Two-step algorithms for the stationary incompressible Navier-Stokes equations with friction boundary conditions, **Applied Numerical Mathematics**, 120(2017), pp.97-114.

[23] Caidi Zhao, Guowei Liu and 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.

[24] Rong An, Optimal error estimates of linearized Crank–Nicolson Galerkin method for Landau–Lifshitz equation, **Journal of Scientific Computing**, 69(2016), pp.1-27.

[25] Rong An and Kaitai Li, Accuracy analysis of the boundary integral method for steady Navier-Stokes equations around a rotating oObstacle, **Acta Mathematicae Applicatae Sinica, English Series**, 32(2016), pp.529-536.

[26] Rong An, Yuan Li and Yuqing Zhang, Error estimates of two-level finite element method for Smagorinsky model, **Applied Mathematics and Computation**, 274(2016), pp.786-800.

[27] An Liu, Yuan Li and 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.

[28] Yuqing Zhang, Yuan Li and 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.

[29] Rong An and Feng Shi, Two-Level iteration penalty methods for the incompressible flows, **Applied Mathematical Modelling**, 39(2015), pp. 630-641.

[30] Rong An and Xuehai Huang, A compact C0 discontinuous Galerkin method for Kirchhoff plates, **Numerical Methods for Partial Differential Equations**, 31(2015), pp.1265-1287.

[31] Yuan Li and 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.

[32] Rong An and 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.

[33] 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.

[34] Rong An and Xian Wang, Discontinuous Galerkin finite element method for Plate contact problem with frictional boundary conditions, **Journal of Numerical Mathematics**, 22(2014), pp.177-190.

[35] Rong An and 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.

[36] Rong An and 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.

[37] Rong An and 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.

[38] 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.

[39] Yuan Li and 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.

[40] Rong An and Kaitai Li, Approximation for Navier-Stokes equations around a rotating obstacle, **Applied Mathematics Letters**, 25(2012), pp.209-214.

[41] Yuan Li and 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.

[42] Rong An and Xuehai Huang. Constrained C0 Finite element methods for biharmonic problem, **Abstract and Applied Analysis**, 2012, Article ID 863125, 19pages.

[43] Yuan Li and 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.

[44] Yuan Li and 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.

[45] Rong An, Yuan Li and Kaitai Li, Fundamental solution of rotating generalized Stokes problem in R^3, **Acta Mathematicae Applicatae Sinica, English Series**, 27(2011), pp.761-768.

[46] Rong An and 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.

[47] Rong An and 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.

[48] 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.

[49] Rong An, Kaitai Li and 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.

[50] Rong An, Yuan Li and Kaitai Li, Solvability of Navier-Stokes equations with leak boundary conditions. **Acta Mathematicae Applicatae Sinica-English Series**, 25(2009), pp.225-234.

[51] Rong An, Discontinuous Galerkin Finite Element Method for the Fourth-Order Obstacle Problem, **Applied Mathematics and Computation**, 209(2009), pp.351-355.

[52] 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.

[53] 安荣, 李开泰, 混合边界条件下非齐次定常 Navier-Stokes 方程弱解的存在性, **应用数学学报**, 32(2009), pp.664-672.

[54] 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.

[55] Rong An and Kaitai Li, Variational inequality for the rotating Navier-Stokes equations with subdifferential boundary conditions, **Computers and Mathematics with Applications**, 55(2008), pp.581-587.

[56] Kaitai Li andRong An, On the rotating Navier-Stokes equations with mixed boundary conditions, **Acta Mathematica Sinica-English Series**, 24(2008), pp.577-598.

[57] Rong An, Yuan Li and Kaitai Li, Finite element approximation for fourth-order nonlinear problem in the plane, **Applied Mathematics and Computation**, 194(2007), pp.143-155.

[58] Yuan Li, Rong An and Kaitai Li, Some optimal error estimates of biharmonic problem using conforming finite element, **Applied Mathematics and Computation**, 194(2007), pp.298-308.

[59] 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

2010 级 邱海龙

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, 陈柏霖

2019 级　傅天添, 赵果玫

2020 级　唐哲谦, 胡帅飞, 梅燕华

2021 级　严乐祥, 万唯文, 赵云丹

2022 级　卢奕含, 田耕耘

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