

John LaGrone

Curriculum Vitae

Department of Mathematics
Tulane University
Tulane University 6823 St. Charles Avenue
New Orleans, LA 70118
☎ +1 (817) 366 3238
✉ jlagrone@tulane.edu

Educational History

- 2016 **Ph.D. Computational and Applied Math**, Southern Methodist University, Dallas, Texas,
Optimization and Application of Complete Radiation Boundary Conditions.
Advisor: Prof. Thomas Hagstrom
- 2013 **M.S. Computational and Applied Math**, Southern Methodist University, Dallas, Texas.
- 2010 **B.S. Mathematics**, Texas Christian University, Fort Worth, Texas.

Employment History

- 2016–Present **Postdoctoral Fellow**, Tulane University, New Orleans, Louisiana.
- 2012–2016 **Research Assistant**, Southern Methodist University, Dallas, Texas.
- 2011–2012 **Teaching Assistant**, Southern Methodist University, Dallas, Texas.

Scholarly Achievements

Publications

- 1 John LaGrone and Thomas Hagstrom. *Double Absorbing Boundaries for Finite Difference Time Domain Electromagnetics*. Journal of Computational Physics 326 (2016): 650-665.

Software

- 2 John LaGrone and Thomas Hagstrom. RBCPack: The Radiation Boundary Condition Package. rbcpack.org. Initial Release, October 2015

Proceedings

- 3 John LaGrone, Lisa Fauci and Ricard Cortez. *Influence of Driving Mechanisms on Bacterial Motility*, Abstract, SMB Annual Meeting 2017
- 4 John LaGrone and Thomas Hagstrom. *High Order Radiation Boundary Conditions For Elastic Waves*, Abstract, ICOSAHOM 2016
- 5 Thomas Hagstrom, John LaGrone and Daniel Appelö. *Optimal Radiation Boundary Conditions and Absorbing Layers for Elastic Waves*, Abstract, ECCOMAS Congress 2016
- 6 John LaGrone and Thomas Hagstrom. *Double Absorbing Boundaries for Finite Difference Time Domain Electromagnetics*, Extended Abstract, Waves 2015, July 2015
- 7 John LaGrone, Fritz Juhnke, and Thomas Hagstrom. *Stable Implementation of Complete Radiation Boundary Conditions in Finite Difference Time Domain Solvers for Maxwell's Equations*, Abstract, SIAM AN14, July 2014

Presentations at Professional Meetings

- *Simulating Bacterial Motility in Confined Environments*. SCALA, Louisiana State University, Baton Rouge, February 2018

- *Simulating Bacterial Motility in Confined Environments*. TAMES, University of Texas, Austin, September 2017
- *Influence of Driving Mechanisms on Bacterial Motility*. SMB, University of Utah, Salt Lake City, July 2017
- *Bacterial Motility in Confined Environments*. SCALA, Tulane University, New Orleans, March 2017
- (Poster) *Bacterial Motility in Confined Environments*. Sixth Annual Winter Workshop on Neuromechanics and Dynamics of Locomotion, Tulane University, New Orleans, January 2017
- *High Order Radiation Boundary Conditions For Elastic Waves*. ICOSAHOM 2016, Rio de Janeiro, Brazil, June 2016
- *Double Absorbing Boundaries for Finite Difference Time Domain Electromagnetics*. Waves 2015, Karlsruhe, Germany, July 2015
- *Double Absorbing Boundaries for Finite-Difference Time-Domain Electromagnetics*, Finite Element Rodeo, Southern Methodist University, Dallas, February 2015
- (Poster) *Stable Implementation of Complete Radiation Boundary Conditions in Finite Difference Time Domain Solvers for Maxwell's Equations*. SIAM AN14, Chicago, July 2014
- *Applications of Complete Radiation Boundary Conditions to Electromagnetic and Elastic Problems*, CCS Seminar, October 2016, Tulane University
- *Applications of Complete Radiation Boundary Conditions*, RTG Seminar, January 2016, Rensselaer Polytechnic Institute
- *Double Absorbing Boundaries for Finite-Difference Time-Domain Electromagnetics*, Applied Math Seminar, November 201, University of New Mexico

Conferences and Short Courses

- Finite Element Rodeo, Louisiana State University, March 2018
- Scientific Computing Across Louisiana, Louisiana State University, February 2018
- Texas Applied and Mathematics and Engineering Symposium, University of Texas at Austin, September 2017
- Society for Mathematical Biology Annual Meeting, University of Utah, July 2017
- Scientific Computing Across Louisiana, Tulane University, March 2017
- Sixth Annual Winter Workshop on Neuromechanics and Dynamics of Locomotion, Tulane University, January 2017
- International Conference on Spectral and High Order Methods, Rio de Janeiro, Brazil, June 2016
- 12th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Karlsruhe, Germany, July 2015
- Finite Element Rodeo, Southern Methodist University, February 2015
- SIAM Annual Meeting, Chicago, July 2014
- Finite Element Rodeo, University of Texas, March 2014
- SIAM Workshop on Exascale Applied Mathematics Challenges and Opportunities, Chicago, July 2014
- Weekend Workshop on Fast Analysis-Based Solvers for Elliptic PDE, Dartmouth College, June 2014
- CBMS-NSF Conference: Fast Direct Solvers for Elliptic PDEs, Dartmouth College, June 2014
- The 3rd SIAG/LA International Summer School on Numerical Linear Algebra, Shanghai, China, August 2013
- Gene Golub SIAM Summer School: Matrix Functions and Matrix Equations, Shanghai, China, July-August 2013
- Finite Element Rodeo, Louisiana State University, March 2013

- NSF-CBMS Conference on Mathematical Methods of Computed Tomography, University of Texas at Arlington, May-June 2012

Skills

- Programming Languages: C/C++, Fortran, Python
- High Performance Computing: MPI, OpenMP
- Applications: MATLAB, Maple, Visit, Paraview, MS Office, OpenOffice
- Version Control: Mercurial, Git
- Scientific Libraries: Eigen, PETSc (some experience), Trilinos (some experience), deal.II (some experience)