

---

CONTACT INFORMATION	Department of Mathematics Trinity College Hartford, CT 06106	<i>E-mail:</i> <a href="mailto:lina.ma@trincoll.edu">lina.ma@trincoll.edu</a>
EDUCATION	<p><b>Ph.D.</b> Applied Mathematics with specialization in Computational Science and Engineering Advisor: Prof Jie Shen</p> <p><b>M.S.</b> Computational Finance</p> <p><b>B.S.</b> Mathematics Scientific and Engineering Computing</p>	<p>Aug 2014 Purdue University</p> <p>May 2013 Purdue University</p> <p>Jul 2007 Peking University</p>
EMPLOYMENT	<p><b>Assistant Professor</b> Trinity College</p> <p><b>Visiting Assistant Professor</b> Trinity College</p> <p><b>Research Associate</b> Penn State University Mentors: Prof Xiantao Li, Prof Chun Liu</p>	<p>Jul 2018 - present</p> <p>Jul 2017 - Jun 2018</p> <p>Aug 2014 - Jun 2017</p>
RESEARCH INTERESTS	<p>Scientific Computing and Numerical analysis</p> <p>Numerical PDE and modeling</p> <p>Coarse-grained models</p> <p>Spectral Methods</p> <p>Spherical harmonics analysis</p>	

- 
- PUBLICATIONS
- [1] Cheng, T., Ma, L., and Shen, J. (2020). An efficient numerical scheme for a 3D spherical dynamo equation. *Journal of Computational and Applied Mathematics*, 370, 112628.
  - [2] Oh, M., Ma, L., and Wang, K. (2020). P 1 finite element methods for a weighted elliptic state-constrained optimal control problem. *Numerical Algorithms*, 1-17.
  - [3] Ma, L., Li, X. and Liu, C., 2018 Coarse-graining Langevin dynamics using reduced-order techniques, *Journal of Computational Physics*, 10.1016(2018).11.035.
  - [4] Ma, L., Li, X. and Liu, C., 2017 Fluctuation-dissipation theorem consistent approximation of the Langevin dynamics model, *Communications in Mathematical Sciences*, 15(4), 1171-1181.
  - [5] Ma, L., Shen, J., Wang, L.L. and Yang, Z., 2017. Wavenumber explicit analysis for time-harmonic Maxwell equations in a spherical shell and spectral approximations. *IMA Journal of Numerical Analysis*, p.drx014.
  - [6] Ma, L., Chen, R., Yang, X. and Zhang, H., 2017. Numerical Approximations for Allen-Cahn Type Phase Field Model of Two-Phase Incompressible Fluids with Moving Contact Lines. *Communications in Computational Physics*, 21(3), pp.867-889.
  - [7] Ma, L., Li, X. and Liu, C., 2016. The derivation and approximation of coarse-grained dynamics from Langevin dynamics. *The Journal of Chemical Physics*, 145(20), p.204117.
  - [8] Ma, L., Li, X. and Liu, C., 2016. From generalized Langevin equations to Brownian dynamics and embedded Brownian dynamics. *The Journal of Chemical Physics*, 145(11), p.114102.
  - [9] Hu, L., Ma, L. and Shen, J., 2016. Efficient Spectral-Galerkin Method and Analysis for Elliptic PDEs with Non-local Boundary Conditions. *Journal of Scientific Computing*, 68(2), pp.417-437.
  - [10] Ma, L., Shen, J. and Wang, L.L., 2015. Spectral approximation of time-harmonic Maxwell equations in three-dimensional exterior domains. *International Journal of Numerical Analysis & Modeling*, 12(2).
- PREPRINTS
- [11] Ma, L., Yang, X. SAV based numerical method for Allen-Cahn type phase field model of two-phase incompressible fluids with moving contact lines.

- 
- PRESENTATIONS/  
INVITED TALKS
- Coarse-graining Langevin Dynamics*  
Numerical Methods seminar, WPI, Nov 21, 2019
  - Coarse-graining Langevin Dynamics*  
Workshop on Ion Transport and Nanofluidics: Modeling, Analysis and Numerics, Fields Institute Toronto, ON, Aug 19-23, 2019,
  - Introduction on coarse-graining Langevin dynamics*  
Southern University of Science and Technology, Jun 18, 2019
  - Coarse-graining Langevin Dynamics*  
Applied Mathematics and Computation Seminar, University of Massachusetts Amerst, Nov 13, 2018
  - Coarse-Graining Langevin Dynamics using Reduction of Order Techniques*  
Workshop on Nonlinear Differential Equations, Dynamical Systems and Applications, University of Kansas, Lawrence, Oct 20-21, 2018
  - Model Reduction Technique on Langevin Dynamics*  
AMS sectional meeting, Special Session on Recent Analytic and Numeric Results on Nonlinear Evolution Equations, University of Delaware, Newark, Sep 29-30, 2018
  - Coarse Graining Langevin Dynamics*  
Advancing Women's Impact in Mathematics, New England (AWIMS), WPI, Mar, 2018
  - Coarse-grained dynamics from generalized Langevin equations to Brownian dynamics*  
SIAM conference on Computational Science and Engineering, Atlanta, Feb 2017
  - "Numerical methods for 3D dynamo model"*  
NASA-NJIT Workshop in Computational Heliophysics, NASA Ames, Jan 2016
  - "Dimension Reduction of Langevin Dynamics"* (Poster)  
IMA workshop on Mathematics of Biological Charge Transport: Molecules and Beyond. Minneapolis, Jul, 2015
  - "Efficient Spectral Methods for Partial Differential Equations in Spherical Domain"*  
Workshop on Transport of Ionic Particles in Biological Environments, Fields Institute, Jul 2014
  - "Fast and High Order method with applications to spherical region"*  
CSE/CLS Seminar, Purdue University, Mar 2014
  - "Spectral Method on Spherical domain"*  
Complex fluid seminar, Penn State University, Feb 2014
  - "Spectral Method for a 3D Spherical Interface Dynamo Equation"*  
Joint Mathematics Meetings, Baltimore, Maryland, Jan 2014
  - "3D Maxwell Equations on Exterior domain and multi-layer extension"*  
special session of the mathematics of computation: Differential Equations, Linear Algebra, and Applications II, Joint Mathematics Meetings, 1086-65-2497, San Diego, CA Jan 2013
  - "Transformed Field Expansion for 3D Maxwell Equations"*  
International Conference on Interdisciplinary Applied Mathematics & Computational Mathematics, Zhejiang, China, Jun 2011

- 
- WORKSHOP/  
CONFERENCE      Advanced Numerical Methods for Scientific Computation, Southern University of Science and Technology, Shenzhen, China, Jun 15-17, 2019
- ICERM, Jun 2018: Computational Aspects of Time Dependent Electromagnetic Wave Problems in Complex Materials
- IdeaLab 2014: Program for Early Career Researchers, *Toward a more realistic model of ciliated and flagellated organisms*, ICERM, Aug 11-15, 2014
- IMA Annual program year workshop: *Numerical Solutions of Partial Differential Equations: Novel Discretization Techniques*, Minnesota, Nov 1-5, 2010
- IMA PI Summer Graduate Student Program: *The Mathematics of Inverse Problem*, Delaware, June 15- Jul 3, 2009
- Optimization Methods and Applications* by Professor Groetschel Martin, Institution of Applied Mathematics, Chinese Academy of Sciences Sep, 2006
- HONORS/AWARDS      NSF Computational Mathematics, Award number: DMS-1913229: Consistent Multi-Scale Treatments of Ion Transport in Biological Environments. (\$100,000)
- Early career travel award for SIAM conference, 2017 (CSE17)
- 2012-13 Excellence in Teaching Award, Spring 2013
- Excellence Graduate Award, by School of Mathematical Sciences, Peking University, 2007
- Jiangzehan Mathematical Modeling competition, First Prize, Peking University, 2006
- Social Work Awards, by School of Mathematical Sciences, Peking University, 2006

TEACHING  
HISTORY*Trinity*

- *Senior Exercise* Fall 2019
- *Numerical Analysis* Spr 2019
- *Calculus I* Fall 2018
- *Differential Equations* Spr 2020, Spr 2019 Spr 2018
- *Math of Finance* Spr 2020, Fall 2018, Spr 2018
- *Multivariable Calculus* Fall 2019, Fall 2017
- *Introduction to Statistics* Fall 2019, Fall 2017

*Penn State*

- *Introduction to Numerical Analysis* Spr 2016
- *Ordinary and Partial Differential Equations* (Honor/Regular)  
Fall 2015, Fall 2015, Spr 2017
- *Plane Analytic Geometry and Calculus III* Spr 2015

*Purdue*

- *Introductory Analysis II* Fall 2011, Spr 2011
- *Plane Analytic Geometry and Calculus II* Spr 2010, Fall 2008, Spr 2008
- *Course Instructor, Algebra And Trigonometry I* Fall 2009
- *Plane Analytic Geometry and Calculus III* Fall 2007