

RESUME

LI WU

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Current Position: Full Professor

EDUCATION:

Ph.D. , University of Wyoming (December, 1998), Mathematics.

M.S. , Graduate School of University of Science and Technology and Academia Sinica, Beijing, China (1995), Applied Mathematics.

B.S. , Nankai University, Tianjin, China (1988), Computational Mathematics.

RESEARCH AREAS:

Partial Differential Equations, Mathematical Modeling and Numerical Analysis.

WORKING EXPERIENCE:

July, 2012-present: Full Professor at University of Rhode Island.

July, 2005-2012: Associate professor at University of Rhode Island.

July, 1999-2005: Assistant professor at University of Rhode Island.

Spring, 1999 Postdoc associate in Civil Engineering Dept at Univ. of Vermont.

August, 1995-December, 1998: Teaching Assistant at University of Wyoming.

1988-1995: Researcher at Computing Center, Academia Sinica, Beijing, China.

TEACHING:

Course taught at URI: (111(2) means two sections of MTH111.)

Fall 99	141, 142	Spring 00	243, 107	Summer	099
Fall 00	111(2), 437	Spring 01	438, 572	Summer	244
Fall 01	131(2), 437	Spring 02	438, 572	Summer	
Fall 02	131(2), 441	Spring 03	362, 572	Summer	131
Fall 03	243(2), 513	Spring 04	362, 572	Summer	131,244
Fall 04	243(2), 441	Spring 05	243, 572	Summer	131,244
Fall 05	215, 362	Spring 06	142, 572	Summer	141,244
Fall 06	243(2), 441	Spring 07	362,572	Summer	131,244
Fall 07	142(2), 362	Spring 08	131,243	Summer	
Fall 08	sabbatical leave	Spring 09	131(3), ♣	Summer	141
Fall 09	131(2), 441	Spring 10	132,572	Summer	141
Fall 10	131(2), 437	Spring 11	132,438	Summer	141
Fall 11	131(2), 437	Spring 12	438,572	Summer	131,142
Fall 12	131(3), 141	Spring 13	131(2), ♣, 441	Summer	131,142
Fall 13	131(2), ♣, 437	Spring 14	131, ♣, 572	Summer	131(2)
Fall 14	131, ♣, 437	Spring 15	131, ♣, 441	Summer	131(2),391
Fall 15	131, ♣, 437	Spring 16	131, ♣, #	Summer	131(3)
Fall 16	131, ♣, 243	Spring 17	131, ♠, 572	Summer	131(3)
Fall 17	131*, 437, 441	Spring 18	131*, 244, 438	Summer	131(3)
Fall 18	131*, 243, 437	Spring 19	131*, 244, 438	Summer	131(2)
Fall 19	131*, 243, 437	Spring 20	131*, 244, 481/581	Summer	131(4)
Fall 20	244*, 244, 441, 591	Spring 21	244*, 244, 572	Summer	131(4)
Fall 21	131*, 243, 441	Spring 22	sabbatical leave	Summer	

(#) One course release due to the development of remedial projects PCE, AEP and CAE.

(♣) Coordinator of MTH131 without TA assistant. Fully responsible for course syllabus, all exams, HWs with WileyPlus, and Remedial projects.

(♠) Coordinator of MTH131 with one TA assistant.

(*) over load courses

- I have offered independent studies for several students.
- I have modified the following courses: MTH131, MTH437, MTH438, MTH441, and MTH572.
- I have served as the course coordinator for MTH131 for many semesters.
- I have designed, implemented and run two remedy projects: CAE for MTH111, PCE for MTH131. I have also designed the third remedy project, AEP for MTH101.
- I have conducted the work to modify three remedial projects to summer modules to prepare incoming freshmen for taking Fall courses.
- I have designed a new course: MTH481, Introduction to Optimization.
- I had offered the newly designed courses: MTH481/581, in Spring 2020.

REMEDIAL PROJECTS:

In summer 2013, Professor Thoma and I had designed and developed the first online just-in-time remedial project (PCE) for MTH131. This project was first implemented to MTH131 in Fall 2013, and has been included in the course syllabus since then. PCE has been successfully tamed the high DFW rate for MTH131, it became the blue print for two more similar projects.

In summer of 2015, with two graduate TAs, we designed and developed the second online remedial project, CAE for MTH111. CAE has been implemented in MTH111 since Fall 2015.

In Spring 2016, with two graduate TAs and one lecture, we developed the third online remedial project, AEP for MTH101. We also modified all three remedial projects into three summer modules, which have been used to prepare incoming students at URI before Fall semester starts.

Currently, all three remedial projects have been applied to MTH101, MTH111, MTH131 correspondingly. A modified version of AEP has been implemented to MTH103 (I did not work on this modification).

I am a recipient of A&S Excellence Award in 2016.

STUDENTS ADVISING:

- I was the UC math advisor in 2013, now the math department advising coordinator.
- I served as committee members for numerous MS and PhD students.
- I advise several undergraduate students per year, especially for international students who pursue double majors in math and finance.

SERVICES:

- Organizing New England NA (Numerical Analysis) Day in 2009.
- I am one of the founders and organizers of URI Calc Bowl, which has been running as the departmental major outreach program since 2006.
- I have been serving as Faculty Senator representing the math department since Spring 2010 - 2011.
- I was a graduate committee member 2005-2008.
- I have been a undergraduate committee member for years.
- Being the founder and organizer for "our little corner" – a social event for all female math graduate students for several years.
- Being a mentor for one part-time faculty and two graduate students on their teaching, 2011-2012.

- I have been search committee member for several lecture positions.
- I have done classroom observation for lectures in the past three years.
- I was a search committee member for department chairperson.
- I have been a member for undergrad assessment committee.
- I have served one term on one URI Special Committee.
- I have been a committee member for URI Chinese Culture Club since Fall 2011. I served as the President of this Club in 2016-2018, also as the principal of the URI Chinese School for one year.
- I have served as departmental undergraduate advising coordinator for multiple years.

GRANTS and PROPOSALS

(PI) URI Faculty Development Research grant: \$6,856., 2000. (granted)

Visiting Scholar Grants (URI Honors Program): \$200., 2001. (granted)

(Junior PI) NIH BRIN grant: \$82,110., 2001-2004. (granted)

(PI) Proposal to NSF: “Application of Mathematical Modeling to Investigations of Hormonal Control of Cardiac Metabolism”, \$577,208., March 2003. (return without review due to technique reasons)

(PI) Proposal to NSF: “Application of Mathematical Modeling to Investigations of Hormonal Control of Cardiac Metabolism”, \$300,220., October 2003. (not funded)

(Co-PI) Proposal to NSF: “Scholarships to Promote Multidisciplinary Partnership in Computer Science, Engineering and Math”, \$400,000., January 2004. (not funded)

(PI) Proposal to URI Advance Program: “Domain Decomposition ELLAM Method for Advection-Diffusion Equations”, \$4150., February 2004. (granted)

(PI) Proposal to NSF: “Application of Mathematical Modeling to Investigations of Hormonal Control of Cardiac Metabolism”, to NSF, 2005. (not funded)

(Co-PI) Proposal to URI Research council, “Regional Calc-Bowl Math Competition”, Spring 2007. (not funded)

(Co-PI) Proposal to URI Foundation, “Annual Regional Calc-Bowl Math Competition”, Fall 2007. (Funded)

Proposal to AMS/NSF: Travel Grant Application, 2009. (not funded)

Faculty Development funded from Provost Office, 2009. (funded)

Heritage fund from URI College of A&S, 2009. (funded)

Heritage fund from URI College of A&S, 2010. (funded)

Heritage fund from URI College of A&S, 2011. (funded)

(Co-PI) Proposal to URI Foundation, "Online General Education Math Courses", Fall 2011. (Funded)

(Co-PI) Proposal to URI Provost Office, "Going Mobile with Innovative Teaching Techniques for Online General Education Math Courses", Fall 2011. (not funded)

(Co-PI) Proposal to URI CEMS grant, "Online Pre-Calculus Implementation for Calculus", Summer 2013, (funded)

(Co-PI) URI CEMS grant, "Improvement of Online PCE Project for MTH131", Summer 2014. (funded)

(PI) URI College of Arts and Sciences, Math Depart, "Just-in-time Online College Algebra for MTH 111 Pre-Calculus", Summer 2015. (funded)

(Co-PI) URI College of Arts and Sciences, Event fund for supporting URI Calc Bowl, Spring 2019. (funded)

(Co-PI) Creep Compliance Tester for Effective Undergraduate Teaching in Renovated Bliss Hall for Advanced Combined Material Testing Laboratory for Engineering Education, Spring 2021. (not funded)

(Co-PI) "NRT-HDR: Promoting State-of-the-Art Research Tools to Train Next Generation Scientists and Engineers for Sustainable Infrastructure and Systems", National Science Foundation Research Traineeship(NSF-NRT). (pending)

PUBLICATIONS

Refereed Journal Articles (Published):

E. Bertrand, D. McArdle, L. Thoma, and L. Wu, Implementing Online Programs in Gateway Mathematics Courses for Students with Prerequisite Deficiencies, *PRIMUS*, ISSN 1051-1970, 1-16, 2019 .

S. Jang, J. Baglama, L. Wu, Dynamics of phytoplankton-zooplankton systems with toxin producing phytoplankton, *Applied Mathematics and Computation* 227 (2014) 717-740.

Li Wu, Two-grid mixed finite element methods for nonlinear Schrödinger equations, *Numerical Methods for Partial Differential Equations*. Vol. 28, Issue 1, 63-73, January 2012.

L. Wu and Kaixin Wang, A single-node characteristic collocation method for unsteady-state convection-diffusion equations in three-dimensional spaces, *Numerical Methods for Partial Differential Equations*, Vol. 27, Issue 4, 786-802, July 2011.

L. Wu, Two-Grid Strategy for Unsteady State Nonlinear Schrödinger Equations, *International Journal of Pure and Applied Mathematics*, Vol. 68, No. 4, 465-475, 2011.

- T. Kukulka, T. Hara, and L. Wu, Computations of Wind-Wave Coupling *Annals of Differential Equations*, Vol. 26, No. 3, 322-331, 2010.
- S. Jang, J. Baglama, and L. Wu, Random dispersal in a predator-prey-parasite system *Journal of Biological Systems*, Vol. 18, No. 4, 825-845, 2010.
- E. Camouzis, G. Ladas, and L. Wu, On the Global Character of the system $x_{n+1} = \frac{\alpha_1 + \gamma_1 y_n}{x_n}$ and $y_{n+1} = \frac{\beta_2 x_n + \gamma_2 y_n}{B_2 x_n + C_2 y_n}$ *International Journal of Pure and Applied Mathematics*, Volume 53, No. 1, (21-36), 2009.
- L. Wu, H. Wang, A Eulerian-Lagrangian Single-Node Collocation Method for Transient Advection-Diffusion Equations in Multiple Space Dimensions *Numerical Methods for Partial Differential Equations*, 20: 284-301, 2004.
- L. Wu, H. Wang, and G.F. Pinder, A non-conventional Eulerian-Lagrangian single-node collocation method with Hermite polynomials for unsteady-state advection-diffusion equations. *Numerical Methods for Partial Differential Equations*, 19: 271-283, 2003.
- J. Wu, L. Wu, R.L. Rodgers, Y. Sun, Modeling and Parameter Estimation of Biochemical Pathways. *Proc. of The IASTED International Conference: Applied Modelling and Simulation (AMS 2002)*, Nov. 4-6, 2002, Cambridge, USA.
- L. Wu and H. Wang, "A nonconventional Eulerian-Lagrangian single-node collocation method for transient advection-diffusion equations". *Proc. of the XIV International Conference on Computational Methods in Water Resources: Developments in Water Sciences*, Vol II, 1003-1009, June 23-28, 2002, Delft, The Netherlands.
- M. McKay, G.F. Pinder, F. Fedele, J. Guarnaccia, L. Wu, "Multiphase groundwater flow and transport using a new localized collocation method (LOCOM)". *Proc. of the XIV International Conference on Computational Methods in Water Resources: Developments in Water Sciences*, Vol I, 241-248, June 23-28, 2002, Delft, The Netherlands.
- L. Wu and G.F. Pinder, Single-degree freedom collocation method using Hermite polynomials. *Fluid flow and transport in porous media: mathematical and numerical treatment (South Hadley, MA, 2001)*, 489-499, Contemp. Math., 295, Amer. Math. Soc., Providence, RI, 2002.
- L. Wu and M.B. Allen, "A two-grid method for mixed finite-element solutions of reaction diffusion equations", *Numerical Methods for Partial Differential Equations*, 15: 317-332, 1999.
- L. Wu and M.B. Allen, "Two-grid methods for mixed finite-element solutions of coupled reaction-diffusion systems", *Numerical Methods for Partial Differential Equations*, 15: 589-604, 1999.
- L. Wu and M.B. Allen, "Mixed Finite-Element Solution of Reaction-Diffusion Equations Using a Two-Grid Method". *Proceedings, XII International Conference on Computational Methods in Water Resources*, Crete, Greece, 15-19 June, 1998.

Published Abstracts:

Li Wu, "Two-Grid Strategy for Unsteady State Nonlinear Schrödinger Equations", 2011 International Conference on Applied Mathematics and Interdisciplinary Research, June 13-15, 2011, Tianjin, China.

T. Kukulka, and L. Wu, "Newton-Collocation Method for Solving Nonlinear Advance-Delay Differential Equations". International Conference on Scientific Computation and Differential Equations, May 25-29, Beijing, 2009.

J. Wu, L. Wu, Y. Sun, R.L. Rodgers, Parameter Estimation for Biochemical Pathways by Resolving Inconsistent Experimental Data, *30th Annual Northeast Bioengineering Conference*, April 17-18, 2004, Springfield, MA.

F.J. Vetter, H. Sui, H. Liu, L. Wu, Velocity Changes in a Model Study of Propagation in a Ring of Stretched Ventricular Myocytes, *30th Annual Northeast Bioengineering Conference*, April 17-18, 2004, Springfield, MA.

L. Wu, "Application of mathematical modeling to investigations of hormonal control of cardiac metabolism", BRIN, July 2003.

L. Wu, "An ELSCM method for unsteady-state advection-diffusion equations", The Seventh US National Congress on Computational Mechanics, July 2003.

CONFERENCE and TALKS :

E. Bertrand, D. McArdle, L. Wu, "The Implementation of Online Remedial Modules for Students with Prerequisite Deficiencies", the Center for Faculty Development, United States Military Academy, West Point, NY, April, 2019.

E. Bertrand, D. McArdle, L. Wu, "Designing and Implementing Online Programs in Mathematics Courses for Students with Prerequisite Deficiencies", Mathematics Education Research Seminar, University of Connecticut, November, 2017.

L. Thoma, L. Wu, "Online Pre-Calculus Enhancement (PCE) Project for Calculus - MTH131", URI CEMS 2015 Spring Conference, May 2015.

L. Wu, "Two-Grid Strategy for Unsteady State Nonlinear Schrödinger Equations", 2011 International Conference on Applied Mathematics and Interdisciplinary Research, June 13-15, 2011, Tianjin, China.

L. Wu, "Two grid strategy for time dependent nonlinear Schrödinger equations". Tenth International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2010, May 24-26, 2010, University of Wisconsin-Madison.

L. Wu, "Polynomials and Differential Equations", Applied Math Seminar, Math, URI, February 2010.

T. Kukulka, and L. Wu, "Newton-Collocation Method for Solving Nonlinear Advance-Delay Differential Equations". International Conference on Scientific Computation and Differential Equations, May 25-29, Beijing, 2009.

- L. Wu, “ A Nonconventional ELSCM Method for Unsteady-State Advection-Diffusion Equations”, Seventh U.S. National Congress on Computational Mechanics, July 27-31, 2003, Albuquerque, New Mexico.
- L. Wu, “ A Eulerian-Lagrangian Single-Node Collocation Method for Transient Advection-Diffusion Equations”, Dept. of Mathematics, University of Rhode Island, April 2003.
- L. Wu, “ A Nonconventional Eulerian-Lagrangian Single-Node Collocation Method for Unsteady-State Advection-Diffusion Equations”, Dept. of Applied Mathematics and Statistics, SUNY at Stony Brook, October 2002.
- L. Wu, “ A ELSCM method for transient advection-diffusion equations”, Dept. of Mathematics, Nankai University, Tianjin, China, June 2002.
- L. Wu, “ Two-Grid Methods for Solving Reaction-Diffusion Equations Using Mixed Finite Elements”, Dept. of Mathematics, University of Vermont, April, 1999.