CURRICULUM VITAE
Jue Yan

Department of Mathematics
Iowa State University
Ames, Iowa 50011

Office:(515) 294-8166
Email: jyan@iastate.edu
https://faculty.sites.iastate.edu/jyan/

Education

2002	Ph.D. in Applied Mathematics, Brown University (Advisor: Chi-Wang Shu)
1998	M.Sc. in Computational Mathematics, Peking University/Jilin University, China
1995	B.Sc. in Mathematics, Jilin University, China

Professional Experience

Academic experience

6/2013 – present	Associate Professor, Department of Mathematics, Iowa State University
8/2006 – 5/2013	Assistant Professor, Department of Mathematics, Iowa State University
7/2002 -6/2006	PIC Assistant Adjunct Professor, Mathematics Department, University of California, Los Angeles (Mentor: Stanley J. Osher)
6/2002 – 9/2002	Visiting Scholar, Department of Mathematics, Stanford University

Courtesy Appointment

Computational Fluid Dynamics Center (faculty member)
Center for Advanced Host Defenses, Immunobiotics, and Translational Comparative Medicine (member)

Industrial experience: (consulting)

7 - 12/2004	Consultant, Hyper Comp, Inc. *Discontinuous Galerkin method for compressible Navier-Stokes equations*

Research Interests

Machine learning neural network methods for partial differential equations and image classification; High order discontinuous Galerkin finite element methods; Positivity-preserving high order methods for compressible Navier-Stokes equations; Elliptic interface problems; Mathematical modeling and computational issues in mathematical biology.

Awarded Grants

- Presidential interdisciplinary Research Initiative (Iowa State University), **co-PI** (PI: Sarkar Soumik and other 37 co-PIs), *Center for Translational AI*, 2021-2024, $450,000.
- National Science Foundation, DMS-2023264**, co-PI** (PI: Xiaoming He) *Collaborative research: Middle West Numerical Analysis Day 2020-2021 (extended to 2022 due to covlid-19)*, $5,000.
- Simons Foundation, Mathematics and Physical Sciences-Collaboration Grants for Mathematicians 637716, **sole PI**, *High order discontinuous Galerkin method and its applications,* $42,000, 2019-2024.
- National Science Foundation, DMS-1620335, **sole PI**, *Positivity preserving limiter and new development on elliptic interface problems,* $150,000, 2016-2019.
- National Science Foundation, DMS-0915247, **sole PI**, *Local' and 'Direct' discontinuous Galerkin Methods: New Algorithms and Applications*, $99,235, 2009-2012.

Pending Grants

- National Science Foundation, DMS-2111243, **sole PI**, *High order method for compressible Navier-Stokes equations and neural networks for PDEs,* $290,805, 2021-2024. (pending)

Citation Summary (taken on May 10, 2021)

Google Scholar	**American Mathematics Society**
H-index: 10	Total citations: 579
i10-index: 11	Cited by 444 authors
Total Citations: 1102	*Five papers cited more than fifty times*
Five papers cited more than a hundred times	

Awards

Dean's High Impact Award for spring 2020 (mentoring two undergraduate students), $3,400, *deep machine learning algorithms and its application to ODE solving (IsMART program).*

Publications

Under review:

1. C. Qiu and **J. Yan**, *Cell-average based neural network method for hyperbolic and parabolic partial differential equations*.
2. Danis and **J. Yan**, *A new direct discontinuous Galerkin method with interface correction for tow-dimensional compressible Navier-Stokes equations.* arXiv:2104.09767
3. C. Qiu, A. Bendickson, J. Kalyanapu and **J. Yan**, *Accuracy and architecture studies of residual neural network solving ordinary differential equations*, arXiv: 2101.03583.
4. X. Zhong, C. Qiu and **J. Yan**, High order *direct discontinuous Galerkin method for chemotaxis Keller-Segel equations*, submitted.

Appeared:

5. C. Qiu, Q. Liu and **J. Yan**, Third order positivity-preserving *direct discontinuous Galerkin method for chemotaxis Keller-Segel equations*, Journal of Computational Physics, 2021, doi.org/10.1016/j.jcp.2021.110191
6. Y. Miao, **J. Yan** and X. Zhong and, *Superconvergence study of the direct discontinuous Galerkin method and its variations for diffusion equations,* Communications on Applied Mathematics and Computation, 2020, doi:10.1007/s42967-020-00107-0.
7. H. Huang, Jin Li and **J. Yan**, *High order symmetric direct discontinuous Galerkin method for elliptic interface problems with fitted mesh*, Journal of Computational Physics, 2019, doi:10.1016/j.jcp.2020.109301
8. M. Zhang and **J. Yan**, *Fourier type super convergence study on DDGIC and symmetric DDG methods*, Journal of Scientific Computing, Volume 73, Issues 2-3 (2017),1276-1289.
9. H. Huang, Z. Chen, J. Li and **J. Yan**, *Direct discontinuous Galerkin method and its variations for second order elliptic equations*, Journal of Scientific Computing, Volume 70, Issue 2 (2017), 744-765.
10. Z. Chen, H. Huang and **J. Yan**, *Third order Maximum-principle-satisfying direct discontinuous Galerkin methods for time dependent convection diffusion equations on unstructured triangular meshes*, Journal of Computational Physics, Volume 308, (2016), 198 – 217.
11. **J. Yan**, *Maximum-principle-satisfying high order direct discontinuous Galerkin methods for time dependent convection diffusion equations*, Communications in Computational Physics, submitted.
12. C. Vidden and **J. Yan**, *A New Direct discontinuous Galerkin method with symmetric structure for nonlinear diffusion problems*, Journal of Computational Mathematics, Volume 54, Issue 2-3 (2013), 663-683.
13. **J. Yan**, *A new nonsymmetric discontinuous Galerkin method for time dependent convection diffusion equations*, Journal of Scientific Computing, Volume 54, Issue 2-3 (2013), 663-683.
14. M. Zhang and **J. Yan**, *Fourier type error analysis of the direct discontinuous Galerkin method and its variations for diffusion problems,* Journal of Scientific Computing, Volume 52, Issue 3 (2012), 638-655.
15. **J. Yan** and S. Osher, *A local discontinuous Galerkin method for directly solving Hamilton-Jacobi Equations*, Journal of Computational Physics, Volume 230, Issue 1, (2011), 232 - 244.
16. H. Liu and **J. Yan**, *The direct discontinuous Galerkin (DDG) methods for diffusion with interface corrections*, Communications in Computational Physics, Vol. 8, No. 3(2010), 541 - 564.
17. H. Liu and **J. Yan**, *The direct discontinuous Galerkin (DDG) methods for diffusion problems***,** Society of Industrial and Applied Mathematics: Journal on Numerical Analysis, 47, No 1(2009), 675 - 698.
18. H. Liu and **J. Yan**, *A local discontinuous Galerkin method for the KdV equation with boundary effect*, Journal of Computational Physics*,* 215, No 1(2006), 197 - 218.
19. D. Levy, C.-W. Shu and **J. Yan**, *Local discontinuous Galerkin methods for nonlinear dispersive equations*, Journal of Computational Physics, 196, No 2(2004), 751 - 772.
20. **J. Yan** and C.-W. Shu, *Local discontinuous Galerkin methods for partial differential equations with higher order derivatives*, Journal of Scientific Computing, 17**,** No 1(2002), 27 - 47.
21. **J. Yan** and C.-W. Shu, *A local discontinuous Galerkin method for KdV-type equations*, Society of Industrial and Applied Mathematics: Journal on Numerical Analysis, 40, No 2(2002), 769 - 791.

Non-refereed Papers/Reports:

22. **J. Yan** and S. Osher, *Discontinuous Galerkin level set method for interface capturing*, UCLA report, 2005.

Advising

Postdoc Mentor:

- Changxin Qiu, Aug 2019 - June 2021. (Job after ISU: associate professor at NingBo University, China)
- Zheng Chen, Aug 2014 – Dec 20, 2015. (Job after ISU: Oak Ridge National Lab. Now: tenure track assistant professor at University of Massachusetts, Dartmouth)

Graduate Students Advising:

- Tyler Kroells (temp advisor), Ph.D candidate (Joined Math Department Fall 2020)
- Stephanie Berg, Ph.D (expected 2024)
- Mustafa Danis, Ph.D (expected 2022, co-advised with Paul Durbin from Aerospace engineering)
- Heather Monkowski, Ph.D (expected 2021, co-advised with Ming-Chen Hsu from mechanical engineering)
- Waruni Wijayasinghe, Ph.D (dropped 2018)
- Jessica Hulzebos, M.S (2017)
- Heather Muchowski, M.S (2017)
- Chad Vidden, Ph.D (2012)
- Dong Yan, M.S (2013)
- Katie Craychee, M.S (2010)

Undergraduate Students Advising:

- Jacob Beattie (Jan-Aug, 2021)
- Anders Lie (Jan-May, 2021)
- Zheyao Xing (Jan-Aug, 2021)
- Zizheng Yang (Jan-Aug, 2021)
- Aaron T Bendickson (Jan-Nov, 2020)
- Jacob M Riesen (Jan-May, 2020)
- Joshua N Kalyanapu (Jan-Aug, 2020)
- Mingming Yue (Jan-Aug, 2020)

Program of Study Committee (Ph.D)

Ian Pelakh (Math); Yijing Gao (Math); Bowen Xie (Math); Manas Bhatnagar (Math); Mengying Zhang (Apparel M D); Hyoung Ji kim (Math); Jiangli Yin (AeroSpace); Christine Wiersma (Math); Caleb Logemann (Math); Alex Neal Riasanovsky (Math); Minwoo Shin (Math); Monalisa Munsi (Math); Yu Xie (Mechanics); Joshua Cardenzana (Physics); Saleh Albashrawi (Math); Cheng Zhou (Aerospace); Hui Yu (Math); Hari Kodali (Mechanics); Hui Xie (EECS); Meilin Yu (Aerospace); Zhen Li (Math); Ying Zhou (Aerospace); Fu-Gang Hu (EECS); Ying Xu (Mechanics)

Program of Study Committee (M.S.)

Samuel Van Fleet (Math); Bowen Xie (Math); Caleb Logemann (Math); Lindsey Peterson (Math); Erica Johhson (Math); Renjie Zhao (Physics); Diana Hay (Math); Anna Lischke (Math); Jose (Math); Laura Deloss (Math); John Batchelor (Math)

Service to the Mathematical Community

NSF proposal review panelist or foundation proposal reviewer:

- NSF, DMS, Focused Research Group in Mathematical Sciences (FRGMS) in Computational Mathematics, Oct 2020.
- Simons Foundation, Division of Mathematics and Physical Sciences, Collaboration Grants for Mathematicians program, April 2020.
- NSF, Computational Data-enabled Science & Engineering – Mathematical and Statistical Sciences (CDS&E-MSS) , March 14-16, 2018.
- NSF, DMS, Panel on Computational Mathematics, March 7-9, 2011.
- NSF, DMS, Panel on Computational Mathematics, March 15-17, 2010.

Editorial Work:

- Special issue editor-in-chief (2019-2020) for *Journal of Computational and Applied Mathematics*.
- Temporary editor (2020) for *Numerical Methods for Partial Differential Equations* (special issue for Middle West Numerical Analysis Day).

Referee Work: *(roughly 5 papers per year)*

Mathematics of Computation; Journal of Computational Physics; Journal of Scientific Computing; Applied Numerical Mathematics; Journal of Applied Numerical Mathematics; Communication in Computational Physics; Mathematics and Computers in Simulation;

SIAM Journal on Numerical Analysis; Applied Mathematics and Computation; Journal of Mathematical Analysis and Applications; Mathematics of Computation (AMS); Computer Methods in Applied Mechanics and Engineering; Mathematical Methods in Applied Sciences; Numerical Mathematics: Theory, Methods and Applications.

Conference Organization:

- "*Midwest Numerical Analysis Day 2021*", co-organized with Hailiang Liu and James Rossmanith, April, 2021, Ames, Iowa State University.
- *SIAM (Society for Industrial and Applied Mathematics) Central States Section Annual Meeting*, co-organized with Hailiang Liu and James Rossmanith, Iowa State University, Oct 19-20, 2019.
- "*Midwest Numerical Analysis Day 2010*", co-organized with Fritz Keinert, Hailiang Liu and Steven Hou, April 24-25 2010, Iowa State University.

Conference mini-symposium organizer:

- "Modeling, analysis, numerical methods, and applications for interface problems", , International Conference On Spectral And High Order Methods (ICOSAHOM 2020), Vienna, July 6-10, 2020.
- "Recent Developments in Discontinuous Galerkin Methods for Partial Differential Equations" in the 3rd Annual Meeting of SIAM Central States Section, Colorado State University, Sep 29 - Oct 1, 2017.
- "*International Conference on Interdisciplinary Applied and Computational Mathematics*", Minisymposium on discontinuous Galerkin methods, June 17-21 2011, HangZhou, China.
- "Recent Developments in Discontinuous Galerkin Methods for Partial Differential Equations" in the 3rd Annual Meeting of SIAM Central States Section, Colorado State University, Sep 29 - Oct 1, 2017.

Plenary or Invited Talks

1. *Lecture Series on high order numerical methods*, School of Mathematical Sciences, University of Science and Technology of China, July 27th – Aug 14th, 2020.
2. *High order symmetric DDG method for elliptic interface problems with body-fitted mesh*, Department of Mathematics, University of science and technology China, Hefei, China, July 15th, 2019.
3. *Numerical methods for ordinary differential equations*, ***Keynote lecturer for QiuShi summer school***, Department of Mathematics, ZheJiang University, Hangzhou, July 8-13, 2019.
4. *High order symmetric DDG method for elliptic interface problems with body-fitted mesh*, Department of Mathematics, ZheJiang University, Hangzhou, July 8, 2019.
5. *Third order positivity-preserving DDG method for Keller-Segel equations,* ***plenary speaker*** *in* 7th Midwest Women in Mathematics Symposium, University of Iowa, Iowa City, April 13th 2019.
6. *High order symmetric DDG method for elliptic interface problems with body-fitted mesh,* Michigan Technological University, Houghton, March 29th, 2019.
7. *Recent development of Direct DG methods,* Department of Mathematics, Nanjing University, Nanjing, June 5, 2018.
8. *DDG methods for chemotaxis Keller-Segel equations*, Department of Mathematics, University of science and technology China, Hefei, China, June 7th, 2018.
9. *DDG methods for chemotaxis Keller-Segel equations*, Department of Mathematics, ZheJiang University, HangZhou, China, May 28th 2018.
10. *Recent developments of Direct DG methods*, Department of Mathematics, Harbin Institute of Technology, Harbin, China, July 17th 2017.
11. *DDG methods for chemotaxis Keller-Segel equations*, Department of Mathematics, Harbin Institute of Technology, Harbin, China, July 18th 2017.
12. *Recent development of Direct discontinuous Galerkin methods,* ***plenary speaker*** *in* Middle west numerical analysis day, University of Nebraska, Omaha, April 22nd 2017.
13. *Direct discontinuous Galerkin method and its variations,* Department of Mathematics, University of California Riverside, March 8th 2017.
14. *Direct discontinuous Galerkin method and its variations*, ***plenary speaker*** *in* The 7th International Congress of Chinese Mathematicians, Aug 6-11 2016, Beijing, China.
15. *Third order M-P-S DDG methods for convection diffusion equations,* University of Science and Technology of China, Hefei, June 6th 2016.
16. *Third order M-P-S DDG methods for convection diffusion equations,* Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, Apr 4th 2016.

17. *Third order M-P-S Direct DG methods for convection diffusion equations on unstructured triangular meshes,* Department of Mathematics, Zhejiang Ocean University, Zhoushan, China, Jan 5th 2016.
18. *Maximum Principle Satisfying high order Direct DG method for convection diffusion equations,* Department of Mathematics, Shanghai Jiao Tong University, Shanghai, June 18th 2013.
19. *Direct DG methods and its variations to diffusion problems,* Department of Mathematics, University of Kansas, Lawrence, Oct 31st 2011.
20. *Direct DG methods and its variations to diffusion problems,* Department of Mathematics, Illinois Institute of Technology, Chicago, Oct 3rd 2011.
21. *Direct DG methods and its variations to diffusion problems,* Department of Mathematics, Colorado State University. April 15th 2011.
22. *Direct DG methods and its variations*, Department of Mathematics, University of Science and Technology of China. Dec 22nd 2009.
23. *Direct DG methods for diffusion equation with interface corrections*, Department of Applied Mathematics, Brown University. March 12th 2009.
24. *LDG methods for dispersive equation and level set method for interface capturing,* Department of Mathematics, University of Hong Kong. March 27th 2006.
25. *LDG methods for dispersive equation and level set method for interface capturing*, Department of Mathematics, George Mason University. Feb 20th 2006.
26. *LDG methods for dispersive equation and level set method for interface capturing*, Department of Mathematics, Iowa State University. Jan 26th 2006.
27. *LDG methods for dispersive equation and level set method for interface capturing,* Department of Mathematics, Michigan State University, Nov 8th 2005.

Conference Talks

1. *High order symmetric DDG method for elliptic interface problems with body-fitted mesh,* the fifth SIAM central states section annual meeting, Iowa State University, Ames, Oct 19-20, 2019.
2. *Third order positivity-preserving DDG method for Keller-Segel chemotaxis equations,* Middle West Numerical Analysis Day, Illinois Institute of Technology, Chicago, April 20th 2019.
3. *High order symmetric DDG method for elliptic interface problems,* SIAM conference on computational science and engineering (CSE19), Spokane, Feb 25-28, 2019.
4. *Direct discontinuous Galerkin methods for Keller-Segel chemotaxis equations,* AMS Sectional meeting, University of Michigan, Oct 19 - 20, 2018.
5. *Direct discontinuous Galerkin methods for Keller-Segel chemotaxis equations,* AMS Sectional meeting, University of Delaware, Sep 29 - 30, 2018.
6. *Fourier type super convergence study on direct DG Methods,* International Conference On Spectral And High Order Methods (ICOSAHOM 2018), Imperial College, London, July 9-13, 2018.
7. *Third order positivity-preserving direct DG Methods for chemotaxis Keller-Segel equations,* International Conference On Spectral And High Order Methods (ICOSAHOM 2018), Imperial College, London, July 9-13, 2018.
8. *Recent development of direct DG method,* Middle West Numerical Analysis Day, University of Kansas, Apr 14-15, 2018.
9. *DDG methods for chemotaxis Keller-Segel equations,* AMS Sectional meeting, University of North Texas, Sep 9-10, 2017.
10. *DDG methods for chemotaxis Keller-Segel equations,* SIAM central states section annual meeting, Colorado State University, Sep 29 - Oct 1, 2017.
11. *DDG methods for chemotaxis Keller-Segel equations,* the 3rd international workshop on development and applications of high-order numerical methods, University of Science and Technology, China, Hefei, Dec 16 - 19, 2016.
12. *DDGIC methods for Keller-Segel chemotaxis equations,* 20th IMACS World Congress, Xiamen China, Dec 10 - 14, 2016.
13. *Fourier type super convergence study on solution's gradient with DDGIC and symmetric DDG methods,* 2nd annual meeting of SIAM central states, Little Rock, Sep 30 – Oct 2, 2016.
14. *Third order M-P-S Direction DG methods for convection diffusion equations on unstructured triangular meshes,* 11th AIMS conference on dynamical systems, differential equations and applications, Orlando, July 1-5, 2016.
15. *Direction DG methods for 2nd order elliptic equations,* 11th AIMS conference on dynamical systems, differential equations and applications, Orlando, July 1-5, 2016.
16. *Third order M-P-S DDG methods for convection diffusion equations,* Middle West Numerical Analysis Day, La Crosse, WI. April 23rd 2016.
17. *Third order M-P-S Direction DG methods for convection diffusion equations on unstructured triangular meshes,* fall 2015 Finite Element Circus, University of Massachusetts, Dartmouth, Oct 16-17, 2015.

18. *Third order M-P-S Direction DG methods for convection diffusion equations on unstructured triangular meshes,* 8th International Congress on Industrial and Applied Mathematics, Beijing, Aug 10-15, 2015.
19. *Dispersion and dissipation error of DG method and its application to level set equations for interface capturing,* SIAM meeting on computational science, Salt Lake City, March 14-18, 2015.
20. *Maximum-principle-satisfying high order DDG methods for convection diffusion equations,* 2014 AMS Sectional Meeting, University of Tennessee, Knoxville, TN, March 21-23, 2014. Special session on Discontinuous Galerkin Finite Element Methods for Partial Differential Equations.
21. *Maximum-principle-satisfying high order DDG methods for convection diffusion equations,* Association for Woman in Mathematics Research Symposium 2013, Special session on numerical methods for PDEs, Santa Clara University, March 16 -17, 2013.
22. *Maximum-principle-satisfying direct discontinuous Galerkin method for convection diffusion equations,* 2012 Barrett Lectures on "Recent Developments in Discontinuous Galerkin Finite Element Methods for Partial Differential Equations" May 9-12, 2012, University of Tennessee, Knoxville.
23. *Maximum-principle-satisfying direct discontinuous Galerkin method for convection diffusion equations,* 8th International Conference on Scientific Computing and Applications (SCA2012), April 1 - 4, 2012, University of Nevada, Las Vegas.
24. *Local discontinuous Galerkin method for directly solving Hamilton-Jacobi equations,* AMS sectional meeting, March 30 - 31, 2012, University of Kansas, Lawrence.
25. *Local discontinuous Galerkin method for Hamilton-Jacobi equations,* International Conference on Applied Mathematics, Modeling & Computational Science, July 25-29, 2011, Laurier University, Waterloo, Canada.
26. *Direct discontinuous Galerkin methods for convection diffusion problems with symmetric or nonsymmetric structure,* International Conference on Industrial and Applied Mathematics (ICIAM20101), mini-symposium on DG methods, July 18-22, 2011, Vancouver, Canada.
27. *Direct discontinuous Galerkin methods and its variations for diffusion problems*, International Conference on Interdisciplinary Applied and Computational Mathematics, June 17-21, 2011, ZheJiang University, China.
28. *Local discontinuous Galerkin method for Hamilton-Jacobi equations,* AMS sectional meeting, March18-22, University of Iowa, Iowa City.
29. *Weighted essentially non-oscillatory scheme for conservation laws*, Pre-AMS workshop lecture on Numerical Analysis and Scientific Computing, March 17-18, 2011, University of Iowa.
30. *Direct discontinuous Galerkin methods and its variations,* SIAM conference on Dynamic Systems and Partial Differential Equations, mini-symposium on DG methods, May 31-June 4, 2010, Barcelona, Spain.
31. *Local discontinuous Galerkin method for Hamilton-Jacobi equations* , SIAM Conference on Analysis of Partial Differential Equations, mini-symposium on Kinetic Description, Hyperbolic Dynamics, and Wave Propagation, December 7-10, 2009, Miami, Florida.
32. *Discontinuous Galerkin method for Hamilton-Jacobi equations*, AFOSR Workshop on Computational Issues in Nonlinear Control, Nov 9-10, 2009, Monterey, CA.
33. *DG method for convection diffusion and Hamilton-Jacobi equations*, Iowa Partial Differential Equation Seminar Day, Oct 10th 2009, Iowa State University.
34. *Direct discontinuous Galerkin method for convection diffusion equation with interface corrections*, 10th US National Congress on Computational Mechanics, mini-symposium on DG Methods, July16-19, 2009, The Ohio State University, Columbus, Ohio.
35. *Local discontinuous Galerkin method for Hamilton-Jacobi equations*, 13th Conference on the Mathematics of Finite Elements and Applications, mini-symposium on DG Methods, June 9-12, 2009, Brunel University, London, England.
36. *Direct discontinuous Galerkin method for convection diffusion equation with interface corrections*, Joint Midwest Numerical Analysis Day & SIAM Great Lakes Numerical Partial Differential Equations Spring Conference, April 17-18, 2009, Wayne State University, Detroit, Michigan.
37. *Direct discontinuous Galerkin method for convection diffusion equation*, Workshop: Discontinuous Galerkin Methods for Partial Differential Equations., Nov 25 -30, 2007. BIRS facility at The Banff Centre in Banff, Alberta, Canada.
38. *Direct discontinuous Galerkin method for convection diffusion equation*, The 9th US National Congress on Computational Mechanics (USNCCM-9), mini-symposium on DG Methods, July 22-26, 2007, San Francisco, California.
39. *A new DG method for Hamilton-Jacobi equations*, International Conference on Spectral and High Order Methods (ICOSAHOM07), mini-symposium on DG Method, June 18-22, 2007, Beijing, China.
40. *Direct discontinuous Galerkin method for diffusion equations*, Workshop on discontinuous Galerkin Method and Its Applications, Beijing International Center for Computational Physics (BICCP), June 13-17, 2007, Beijing, China.
41. *DG method for nonlinear PDEs and level set applications*, Computational Methods and Applied Partial Differential Equations Workshop, Nov 4-5, 2005, Iowa State University.
42. *LDG method for KDV Equation with boundary effect*, 8th US National Congress on Computational Mechanics, mini-symposium on DG Methods, July 25-27, 2005, University of Texas, Austin.

43. *LDG method for nonlinear dispersive equations*, Third M.I.T. Conference on Computational Fluid and Solid Mechanics, mini-symposium on DG Methods for PDEs, June 14-17, 2005, MIT, Boston.
44. *LDG method for KdV equation with boundary effect*, Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, April 11-14, 2005, University of Georgia, Athens.
45. *DG level set method for interface tracking*, International Conference on Numerical and Applied PDEs, June 23-28, 2004, Jilin University, Changchun, China.
46. *DG level set method for interface tracking*, International Conference on Spectral and High Order Methods (ICOSAHOM04), mini-symposium on DG Methods, June 21-25, 2004. Providence, RI.
47. *LDG method for KdV type equations*, 7th US National Congress on Computational Mechanics (USNCCM7), July 27-31, 2003, Albuquerque, New Mexico.
48. *LDG method for KdV type equations*, 5th International Congress on Industrial and Applied Mathematics (ICIAM2003), July 7-11, 2003, Sydney, Australia.

Conferences and Workshops

1. Topical Workshop: Advances and Challenges in Hyperbolic Conservation Laws (virtual only), The Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, May 17-21, 2021.
2. Recent advances and challenges in discontinuous Galerkin methods and approaches, Institute for Mathematics and its Applications (IMA): University of Minnesota, June 29-July 1, 2017.
3. *Poster presented at ICERM workshop:* Frontiers in Applied and Computational Mathematics, Brown University, providence, Jan 4 – 6, 2017.
4. *Poster presented at MBI Workshop*: Multiple Faces of Biomolecular Electrostatics, The Ohio State University, Oct 12-16, 2015.
5. IMA special workshop: Structure-Preserving Discretization of Partial Differential Equations, Institute for Mathematics and it's Applications, University of Minnesota, October 22-24, 2014.
6. Workshop on Theory and Applications of Stochastic PDEs, Jan 14-18, 2013, IMA, University of Minnesota.
7. Advances in Scientific Computing, Imaging Science and Optimization, April 4 - 6, 2012, UCLA.
8. Workshop on Numerical Solutions of Partial Differential Equations: Novel Discretization Techniques, Nov 1-5, 2010. IMA, University of Minnesota.
9. The Seventh International Conference on Computational Physics (ICCP7), May 17-20, 2010, Beijing, China.
10. The 2010 Iowa PDE Conference, April 30-May 2, 2010, Iowa City, Iowa.
11. Workshop on Analysis and Computation of Incompressible Fluid Flow, Feb 22-26, 2010. IMA, University of Minnesota.
12. International Conference on Advances in Scientific Computing in the Memory of David Gottlieb, Dec 6-8, 2009, Brown University, Providence, RI.
13. IMA program on Nonlinear Conservation Laws, July 13-31 2009, University of Minnesota.
14. Computational and Mathematical Aspects of Materials and Fluids, April 13-14, 2007, ISU.
15. Midwest Partial Differential Equations Seminar, University of Iowa. Sep22-24, 2006, Iowa City.
16. IMA Tutorial/Workshop on New Paradigms in Computation, March 28 – 30 2005, Minneapolis.
17. International Conference on the Research Trends for PDE Modeling and Computation. On the Occasion of David Gottlieb's 60th Birthday, Nov 10 –12 2004, Brown University, Providence, RI.
18. Workshop: International Forum on Multiscale Methods and Partial Differential Equations. Aug 26 – 27, 2004, UCLA.

ISU Department Talks

1. *Research introduction (previous and current Ph.D students, and current research work)*, Math Department, Graduate Seminar, Feb 5th, 2020.
2. *High order symmetric DDG method for elliptic interface problems with body-fitted mesh*, Math Department, CAM seminar, Nov 5 2018.
3. *Introduction to discontinuous Galerkin finite element method,* Math Club, Apr 22nd, 2018.
4. *Introduction to discontinuous Gakerin finite element method*, Math Department, Graduate student seminar, Jan 25, 2017.
5. *Introduction to discontinuous Galerkin finite element method,* Math Department graduate student seminar, Apr 27, 2016.
6. *Direct DG methods for second order elliptic equations,* CAM seminar, Math Department, Sep 21, 2015.
7. *An introduction to discontinuous Galerkin finite element method,* Graduate Students Seminar, Math Department, April 18, 2015.
8. *Maximum-Principle-Satisfying direct discontinuous Galerkin method for convection diffusion equations*, CAM seminar, Math Department, April 30, 2012.
9. *Introduction to discontinuous Galerkin Finite Element method*, Graduate student seminar talk, Math Department, Feb 1, 2012.
10. *Fourier analysis on DDG method and its variations,* Math Department CAM seminar, Sep 12, 2011.
11. *Direct DG methods for diffusion equation with interface corrections*, Department of Aerospace Engineering, Computational Fluid Dynamics Center, Feb 3, 2009.

12. *DDG method with interface correction*, Math Department CAM seminar, Nov 17, 2008.
13. *DDG method for diffusion problems*, Math Department CAM seminar, Sep 24, 2007.
14. *Numerical methods solving partial differential equations*, Graduate student seminar talk, Math Department, Feb 7, 2007.
15. *DG level set method for Hamilton-Jacobi equations*, Math Department CAM seminar, Oct 9, 2006.

Teaching

Curriculum development at ISU:

- Math 481, Numerical Methods for Differential Equations (Spring 2010)
- Math 373, Introduction to Scientific Computing (Fall 2010)

Special topic classes taught at ISU:

- Math 492 – Undergraduate Research, Finite difference method for ODE and its application to Bio-Math models (Fall 2019)
- Math 590 – Recent advances of discontinuous Gakerkin method (Spring 2019)

Classes Taught at ISU:

- Math 165 – Calculus I (Fall 2006 (two sections), Fall 2007, Fall 2009, Spring 2015)
- Math 207 – Linear Algebra (Fall 2013, Fall 2016, Spring 2017, Spring 2019, Fall 2019)
- Math 265 – Calculus III (Fall 2013, Spring 2014, Fall 2014, Fall 2016, Fall 2017, Fall 2021)
- Math 266 – Elementary Differential Equations (Fall 2011)
- Math 267 – Elementary Differential Equations and Laplace Transform (Spring 2020, Spring2021)
- Math 373 – Introduction to Scientific Computing (Fall 2010, Fall 2011, Fall 2012, Fall 2020)
- Math 481 – Numerical Methods for Differential Equations (Spring 2010, Spring 2011, Spring 2012, Spring 2013, Spring 2018)
- Math 517 – Finite Difference Methods (Fall 2007, Spring 2017, Spring 2020)
- Math 519 – Methods of Applied Mathematics I (Fall 2014)
- Math 561 – Numerical Analysis I (Fall 2008(Math502), Fall 2018)
- Math 562 – Numerical Analysis II (Spring 2009(Math503))
- Math 666 – Finite Element Method (Fall 2010, Fall 2012, Fall 2020)
- Math 667 – Computational methods for Hyperbolic Conservation Laws (Spring 2014, Fall 2017, Fall 2021)

University and Department Service

College Committee:

- Executive committee of LAS College Representative Assembling (Aug 2020 - present)
- Math representative in LAS College Assembling Committee (Aug, 2017 – Dec, 2017; Aug 2018 - present)
- BCBIO undergraduate major supervisory committee (2014 - 2018)

Department Committee:

- Department Chair search committee (2021-2022)
- Tenure track assistant professor 3-year review committee (one faculty, 2020)
- Ph.D Numerical Analysis qualify exam committee (2016-2019); committee chair (2018-2019)
- Tenure track assistant professor 3-year review committee (one faculty, 2018)
- Lecturers review committee (three lecturers, 2018)
- BioMath tenure track search committee (four candidates, 2018)
- Applied Math graduate students admission committee (2017-present)
- Tenure promotion committee (one faculty, 2017)
- Graduate committee (Aug 2017 – May 2018)
- Ph.D Numerical Analysis qualify exam committee (2016,)
- Tenure track assistant professor review committee (two faculties, 2016-2017)
- Math Matters Essay (Math Department Journal, 2016)
- Lecturer review committee (three lecturers, 2016)
- Tenure track 3-year review committee(two faculties, 2015)
- Math department outside review (self-study committee, 2015)
- Department Advisory Committee(2013-2015)
- Ph.D Applied Math qualify exam committee (2014 – spring 2015)
- Tenure Track assistant professor review committee (one faculty, 2013)
- Lecturer review committee (one lecturer, 2012)
- Undergraduate Committee (2007 - 2013), committee Chair (2010-2012, 2013)
- Ph.D Numerical Analysis qualify exam committee (2008-2011, 2012- 2014); committee chair (2009 – 2010, 2013-2014)
- Computational and Applied math tenure track search committee (four candidates, 2012)
- Lecturer review committee (2009)

- Lecturer review committee (two lecturers, 2011)
- Tenure-track faculty search committee (fall 2011)

Computational and Applied Math Seminar Chair (Fall 2013 – Spring 2015), duties include inviting outside speakers, serving as local host, scheduling and organizing weekly CAM seminar talks.