SHANG-HUAN CHIU

Department of Mathematics
New York City College of Technology
Namm Hall, Room 726
300 Jay Street, Brooklyn, NY 11201
shang-huan.chiu40@citytech.cuny.edu

(updated: December 31, 2025)

EDUCATION

University of Houston, Houston, Texas *August 2017*
Ph.D. in Mathematics.
Thesis Advisor: Tsorng-Whay Pan
Title: "3D DLM/FD Methods for Simulating the Motion of Spheres in Bounded Shear Flows of Oldroyd-B fluids"

National Tsing Hua University, Hsinchu, Taiwan *June 2011*
Master of Science in Applied Mathematics
Thesis Advisor: Shuh-Jye Chern
Title: "Electromechanical System: Formulation and Stability "

National Central University, Taoyuan, Taiwan *January 2007*
Bachelor of Science in Mathematics
Education program—Secondary Education

ACADEMIA APPOINTMENT

Assistant Professor, New York City College of Technology *2024-present*
Department of Mathematics.

Visiting Scholar, Lehigh University *2024-present*
Department of Mathematics.

C.-C. Hsiung Visiting Assistant Professor, Lehigh University *2022-2024*
Department of Mathematics.

Postdoctoral Fellow, Texas A&M-San Antonio *2021-2022*
Department of Mathematical, Physical, and Engineering Sciences.

Postdoctoral Fellow, New Jersey Institute of Technology *2019- 2021*
Department of Mathematical Sciences.

Postdoctoral Fellow, Florida State University *2018-2019*
Department of Scientific Computing.

Postdoctoral Fellow, University of Houston *2017-2018*
Department of Mathematics.

Instructor, University of Houston *2017-2018*
Department of Mathematics.

Research Assistant, University of Houston *2014-2017*
Department of Mathematics.

Teaching Assistant, University of Houston *2012-2017*
Department of Mathematics

Teaching Assistant, National Tsing Hua University *2009-2011*
Department of Mathematics

PUBLICATIONS AND PREPRINTS

1. T.-W. Pan, A. Li, **S.-H. Chiu**. Numerical study of transitions in lid-driven flows in semicircular cavities. (2025) Fluid Dynamics Research 57(1), 015504.

2. **S.-H. Chiu**, T.-W. Pan. A 3D DLM/FD method for simulating the motion of an ellipsoid in a bounded shear flow of viscoelastic fluids. Annals of Mathematical Sciences and Applications Vol. 9, No. 1 (2024), pp. 91-121. (Special Issue Dedicated to the Memory of Professor Roland Glowinski).

3. T.-W. Pan, **S.-H. Chiu**. A DLM/FD method for simulating balls settling in Oldroyd-B viscoelastic fluids. Journal of Computational Physics 484 (2023), 112071.

4. T.-W. Pan, **S.-H. Chiu**, A. Guo, J. He, Numerical study of lid-driven flow in shallow cavities. Comptes Rendus Mécanique 351 (S1) (2023), 1-17.

5. M. N. J. Moore, J. Cherry, **S.-H. Chiu**, B. D. Quaife, How fluid-mechanical erosion creates anisotropic porous media. Physica D: Nonlinear Phenomena (2022), 133634.

6. **S.-H. Chiu**, M. N. J. Moore, B. D. Quaife, Viscous Transport in Eroding Porous Media. Journal of Fluid Mechanics, 893, 2020, (Cover Image).

7. T.-W. Pan, **S.-H. Chiu**, R. Glowinski, Numerical study of two balls settling in viscoelastic fluids from an initial vertical configuration. Physics of Fluids 31 (2019), 123104 (Featured Article).

8. **S.-H. Chiu**, T.-W. Pan, R. Glowinski, A 3D DLM/FD method for simulating the motion of spheres in an Oldroyd-B fluid under creeping flow conditions. Computers and Fluids 172 (2018), 661-673.

9. T.-W. Pan, A. Guo, **S.-H. Chiu**, R. Glowinski, A 3D DLM/FD method for simulating the motion of spheres and ellipsoids under creeping flow conditions. Journal of Computational Physics 352 (2018), 410-425.

10. **S.-H. Chiu**, T.-W. Pan, J. He, A. Guo, R. Glowinski, Transition from steady to oscillatory for 3D lid-driven cubic cavity flow: A numerical study. (2016) arXiv:1604.06926.

11. S.-H. Chiu, H. You, J. Wang, Y. Bazilevs, and Y. Yu. An immersogeometric framework coupling fluid and peridynamic shell for fluid-induced damage on thin structures. In preparation.

12. E. Lushi, S.-H. Chiu, N, Netznik, K. Wall, Aligning self-propelling particles in confinement. In Preparation.

13. E. Lushi, S.-H. Chiu, F. Zumpano, Separating motile and immotile bacteria through confined chemotaxis. In Preparation.

TEACHING

New York City College of Technology, Department of Mathematics

MAT2540: Discrete Structures and Algorithms II	*Sp2026*
MAT1372: Statistics with Probability	*F2025*
MAT1375: Precalculus	*F2024, F2025*
MAT2440: Discrete Structures and Algorithms I	*Sp2025*
MAT1274: College Algebra and Trigonometry	*F2024*

Lehigh University, Department of Mathematics

MATH 409: Mathematics Seminar	*Sp2024*
MATH 205: Linear Methods	*F2023, F2022*
MATH 023: Calculus III (guest speaker)	*F2022*

Texas A&M-San Antonio, Department of Mathematics, Physical, and Engineering Sciences

Math2312: Precalculus	*Su2022, Sp2022*

University of Houston, Department of Mathematics

Math2331: Linear Algebra	*Sp2018, F2017*
Math2331: Linear Algebra Online Class	*Sp2018, F2017*
Math2131: Linear Algebra Labs with MATLAB (Instructor, developer)	*Su2017, Sp2017*
Math1450: Honors Calculus I Recitation	*F2016, F2015*
Math1451: Honors Calculus II Recitation	*Sp2016*
Math1431: Calculus I Recitation	*F2012, F2013, Sp2015*
Math1432: Calculus II Recitation	*Sp2013, Sp2014, Su2014*

CONFERENCES AND WORKSHOPS ATTENDED

The Fall 2025 Finite Element Circus. Center for Mathematics and Artificial Intelligence at George Mason University, Fairfax, VA. *October 17-18, 2025*

The first SIAM NNP Conference 2023. New Jersey Institute of Technology, Newark, NJ. *October 20-22, 2023*

APS March Meeting 2021. Virtual. *March 15-19, 2021*

Viscoelastic Flow Instabilities and Elastic Turbulence Zoom conference. Princeton University, Princeton, NJ (Virtual). *January 4-7, 2021*

The 73Th Annual Meeting of the APS Division of Fluid Dynamics. Chicago, IL (Virtual). *November 22-24, 2020*

The 13th Northeast Complex Fluids and Soft Matter Workshop . City College of New York, New York, NY. *June 19, 2020*

The 12th Northeast Complex Fluids and Soft Matter Workshop . Manhattan College, Riverdale, NY. *January 17, 2020*

The 72Th Annual Meeting of the APS Division of Fluid Dynamics. Seattle, WA. *November 23-26, 2019*

Mid-Atlantic Numerical Analysis Day. Temple University, Philadelphia, PA.*November 15, 2019*

The 43rd Annual Meeting of SIAM Southeastern Atlantic Section. University of Tennessee, Knoxville, TN. *September 21-22, 2019*

71Th Annual Meeting of the APS Division of Fluid Dynamics. Atlanta, GA. *November 18-20, 2018*

2018 Shanks Workshop on Mathematical Aspects of Fluid Dynamics. Vanderbilt University, Nashville, TN. *March 24-25, 2018*

70Th Annual Meeting of the APS Division of Fluid Dynamics. Denver, CO. *November 19-21, 2017*

69Th Annual Meeting of the APS Division of Fluid Dynamics. Portland, OR. *November 20-22, 2016*

TALKS

The Motions of Particles and the Interactions with Fluid in Confinement. Math Seminar. Department of Mathematics, New York City College of Technology. *October 24, 2024*

The Motions of Particles and the Interactions with Fluid in Confinement. NCTS Seminar on PDE and Machine Learning. National Center for Theoretical Sciences (NCTS). *June 13, 2024*

Nonlocal RANS Model with Data-Driven Learning. SIAM NNP Conference 2023. New Jersey Institute of Technology, Newark, New Jersey. *October 22, 2023*

The Motions of Particles and the Interactions with Fluid in Confinement. Postdoctoral Day. Department of Mathematics, Lehigh University. *September 2, 2022*

Viscous Transport in Eroding Porous Media. Applied Mathematics Seminar. Department of Mathematics and Statistics, Texas Tech University. *March 24, 2021*

Separating Motile and Immotile Bacteria through Confined Chemotaxis. APS March Meeting 2021 (Virtual). *March 16, 2021*

Binary Encounters and Erosion of Bodies in Stokes Flows. The Complex Flow Laboratory, Purdue University, West Lafayette, IN. *October 29, 2020*

The Wave Instability in Two-Phase Flows of Non-Newtonian Fluids. The Northeast Complex Fluids and Soft Matter Workshop. City College of New York, New York, NY. *June 19, 2020*

Erosion and Binary Encounters of Bodies in Stokes Flows. Applied Mathematics Colloquium. New Jersey Institute of Technology, Newark, NJ. *April 24, 2020*

Viscous Transport in Eroding Porous Media. The Northeast Complex Fluids and Soft Matter Workshop. Manhattan College, Riverdale, NY. *January 17, 2020*

Viscous Transport in Eroding Porous Media. Annual Meeting of the APS Division of Fluid Dynamics. Seattle, WA. *November 26, 2019*

Viscous Transport in Eroding Porous Media. Mid-Atlantic Numerical Analysis Day. Temple University, Philadelphia, PA. *November 15, 2019*

Viscous Transport in Eroding Porous Media. Annual Meeting of SIAM Southeastern Atlantic Section. University of Tennessee, Knoxville, TN. *September 21, 2019*

Spheres settling in an Oldroyd-B fluid. Annual Meeting of the APS Division of Fluid Dynamics. Atlanta, GA. *November 19, 2018*

Three Dimensional DLM/FD Methods for Simulating the Motion of Spheres in Bounded Shear Flows of Oldroyd-B Fluids. Scientific Computing Seminar. Florida State University, Tallahassee, FL. *September 12, 2018*

Sphere interactions in bounded shear flow of Oldroyd-B fluid. Shanks Workshop on Mathematical Aspects of Fluid Dynamics. Vanderbilt University, Nashville, TN. *March 24, 2018*

Sphere interactions in bounded shear flow of Oldroyd-B fluid. Annual Meeting of the APS Division of Fluid Dynamics. Denver, CO. *November 19, 2017*

Dynamics of two balls in bounded shear flow of Oldroyd-B fluid. Finite Element Rodeo. University of Houston, Houston, TX. *March 3, 2017*

Dynamics of two balls in bounded shear flow of Oldroyd-B fluid. Annual Meeting of the APS Division of Fluid Dynamics. Portland, OR. *November 22, 2016*

POSTERS

Viscous Transport in Eroding Porous Media. 7th Annual Postdoctoral Symposium. Florida State University, FL. *September 20, 2019*

Dense Packing of Eroding Bodies. Computational Expostion 2019. Florida State University, Tallahassee, FL *April 19, 2019*

ADVISING EXPERIENCES

New York City College of Technology, Brooklyn, NY

Emerging Scholars Program

Fall 2025: Christopher Chow (Applied Mathematics Major), Shiu Wong (Computer Systems Major). Hybrid Deep Learning Models for PTM Prediction

Spring 2025: Christopher Chow (Applied Mathematics Major). Combining machine learning with Predicting Post Translational Modifications Using Protein Sequence

SERVICE

New York City College of Technology, Brooklyn, NY

Professional Development-Research Committee. *since Fall 2025.*

Curriculum Committee. *since Fall 2024.*

Math Education Committee. *since Fall 2024.*

Instructional Support Committee. *since Fall 2024.*

Articulation Committee. *2024-2025.*

References

Tsorng-Whay Pan, Professor — pan@math.uh.edu
(713)743-3448

Yue Yu, Professor — yuy214@lehigh.edu
(610) 758-3752

Terrence Napier, Professor/Department Chair at Lehigh University — tjn2@lehigh.edu
(610)758-3755

Bryan Quaife, Associate Professor — bquaife@fsu.edu
(512)436-1148

Vincent Coll, Professor of Practice — vec208@lehigh.edu
(610) 758-3741

Jiwen He, Professor/Department Chair at University of Houston — jhe4@central.uh.edu
(713)743-3481