Te-Sheng Lin (林得勝)

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Appointments

Professor, Department of Applied Mathematics, National Yang Ming Chiao Tung University, Taiwan.	Aug. 2024 - present
Visiting Scholar, Department of Mathematics, University of Pennsylvania, USA.	Aug. 2024 - present
Associate Professor, Department of Applied Mathematics, National Yang Ming Chiao Tung University, Taiwan.	Feb. 2021 - Jul. 2024
Joint Appointment Associate Professor, Institute of Data Science and Engineering, National Yang Ming Chiao Tung University, Taiwan.	Feb. 2022 - Jul. 2024
Associate Professor, Department of Applied Mathematics, National Chiao Tung University, Taiwan.	Aug. 2020 - Jan. 2021
Assistant Professor, Department of Applied Mathematics, National Chiao Tung University, Taiwan.	Aug. 2014 - Jul. 2020
Research Associate, Department of Mathematical Sciences, Loughborough University, UK.	Dec. 2012 - Jul. 2014
Marie Curie Experienced Researcher, Department of Mathematical Sciences, Loughborough University, UK.	Jun. 2012 - Dec. 2012

Education

New Jersey Institute of Technology, USA	
Ph.D. in Applied Mathematics	Sep. 2007 - May. 2012
National Chung-Cheng University, Taiwan	
M.S. in Applied Mathematics	Sep. 2002 - Jun. 2004
B.S. in Mathematics	Sep. 1998 - Jun. 2002

Research Interests

Scientific computation; Mathematical modeling; Scientific machine learning.

Prizes and Awards

Center scientist, NCTS	Aug. 2024-present
Excellent Teaching Award, NYCU	2023
Excellent Teaching Award, NYCU	2021
Excellent Teaching Award, NCTU	2020
Young Scholar Research Award, College of Science, NCTU	2019

Services

International and Domestic Committees:

Taiwan Society for Industrial and Applied Mathematics (TWSIAM)
Member of the council — Aug. 2022 - present

National Center for Theoretical Sciences (NCTS) - Mathematics Division
Scientific member - Interdisciplinary Studies — Jan. 2021 - present

Taiwan Society for Industrial and Applied Mathematics (TWSIAM)
Deputy secretary general — June 2018 - May 2020

Refereed Publications

32. Y.-C. Ho, T.-S. Lin, S.-C. Wang, C.-S. Chang and Y.-T. Lin, Variability of morphology in photoplethysmographic waveform quantified with unsupervised wave-shape manifold learning for clinical assessment, *Physiol. Meas.*, **45**, 095005 (2024).

31. C.-C. Chang, C.-Y. Dai, W.-F. Hu, T.-S. Lin and M.-C. Lai, A hybrid neural-network and MAC scheme for Stokes interface problems, *East Asian J. Appl. Math.*, **14**, 490–506 (2024).

30. W.-H. Ma, C.-C. Chang, T.-S. Lin and Y.-C. Chen, Distinguishing methicillin-resistant staphylococcus aureus from methicillin-sensitive strains by combining Fe3O4 magnetic nanoparticle-based affinity mass spectrometry with a machine learning strategy, *Microchimica Acta*, **191**, 273 (2024).

29. W.-F. Hu, Y.-J. Shih, T.-S. Lin and M.-C. Lai, A shallow physics-informed neural network for solving partial differential equations on static and evolving surfaces, *Comput. Methods Appl. Mech. Engrg.*, **418**, 116486 (2024).

28. A. Farutin, S. M. Rizvi, W.-F. Hu, T.-S. Lin, S. Rafai and C. Misbah, Motility and swimming: universal description and generic trajectories, *Eur. Phys. J. E*, **46**, 135 (2023).

27. Y.-H. Tseng, T.-S. Lin, W.-F. Hu and M.-C. Lai, A cusp-capturing PINN for elliptic interface problems, *J. Comput. Phys.*, **491**, 112359 (2023).

26. J.-J. Tsai, C.-C. Chang, D.-Y. Huang, T.-S. Lin and Y.-C. Chen, Analysis and classification of coffee beans using single coffee bean mass spectrometry with machine learning strategy, *Food Chemistry*, **426**, 136610 (2023).

25. W.-F. Hu, T.-S. Lin, Y.-H. Tseng and M.-C. Lai, An efficient neural-network and finite-difference hybrid method for elliptic interface problems with applications, *Commun. Comput. Phys.*, **33**, 1090-1105 (2023).

24. M. G. Blyth, T.-S. Lin and D. Tseluiko, On the transition to dripping of an inverted liquid film, *J. Fluid Mech.*, **958**, A46 (2023).

23. A. Farutin, S. M. Rizvi, W.-F. Hu, T.-S. Lin, S. Rafai and C. Misbah, A reduced model for a phoretic swimmer, *J. Fluid Mech.*, **952**, A6 (2022).

22. W.-F. Hu, T.-S. Lin, and M.-C. Lai, A discontinuity capturing shallow neural network for elliptic interface problems, *J. Comput. Phys.*, **469**, 111576 (2022).

21. M.-C. Lai, C.-C. Chang, W.-S. Lin, W.-F. Hu and T.-S. Lin, A shallow Ritz method for elliptic problems with singular sources, *J. Comput. Phys.*, **469**, 111547 (2022).

20. W.-F. Hu, T.-S. Lin, S. Rafai and C. Misbah, Spontaneous locomotion of phoretic particles in three dimensions, *Phys. Rev. Fluids*, **7**, 034003 (2022).

19. T.-S. Lin, J.A. Dijksman and L. Kondic, Thin liquid films in a funnel, *J. Fluid Mech.*, **924**, A26 (2021).

18. D. Tseluiko, M. Alesemi, T.-S. Lin, and U. Thiele, Effect of driving on coarsening dynamics in phase-separating systems, *Non.*, **33**, 4449–4483 (2020).

17. T.-S. Lin, W.-F. Hu, and C. Misbah, A direct Poisson solver in spherical geometry with an application to diffusiophoretic problems, *J. Comput. Phys.*, **409**, 109362 (2020).

16. T.-S. Lin, C.-Y. He and W.-F. Hu, Fast spectral solver for Poisson equation on an annular domain, *Ann. Math. Sci. App.*, **5(1)**, 65-74 (2020).

15. W.-F. Hu, T.-S. Lin, S. Rafai and C. Misbah, Chaotic swimming of phoretic particles, *Phys. Rev. Lett.*, **123**, 238004 (2019).

14. M. G. Blyth, D. Tseluiko, T.-S. Lin and S. Kalliadasis, Two-dimensional pulse dynamics and the formation of bound states on electrified falling films, *J. Fluid Mech.*, **855**, 210–235 (2018).

13. T.-S. Lin, D. Tseluiko, M. G. Blyth and S. Kalliadasis, Continuation methods for time-periodic travelling-wave solutions to evolution equations, *Appl. Math. Lett.*, **86**, 291–297 (2018).

12. T.-S. Lin, S. Rogers, D. Tseluiko and U. Thiele, Bifurcation analysis of the behavior of partially wetting liquids on a rotating cylinder, *Phys. Fluids*, **28**, 082102 (2016).

11. C. Honisch, T.-S. Lin, A. Heuer, U. Thiele and S. Gurevich, Instabilities of layers of deposited molecules on chemically stripe patterned substrates: Ridges vs. drops, *Langmuir*, **31**, 10618–10631 (2015).

10. M. A. Lam, L. J. Cummings, T.-S. Lin and L. Kondic, Three-dimensional coating flow of nematic liquid crystal on an inclined substrate, *Euro. J. Appl. Math.*, **26**, 647–669 (2015).

9. T.-S. Lin, M. Pradas, S. Kalliadasis, D. T. Papageorgiou and D. Tseluiko, Coherent structures in non-local dispersive active-dissipative systems, *SIAM J. Appl. Math.*, **75**, 538–563 (2015).

8. M. A. Lam, L. J. Cummings, T.-S. Lin and L. Kondic, Modeling flow of nematic liquid crystal down an incline, *J. Eng. Math.*, **94**, 97-113 (2015).

7. T.-S. Lin, L. J. Cummings, A. J. Archer, L. Kondic and U. Thiele, Note on the hydrodynamic description of thin nematic films: strong anchoring model, *Phys. Fluids*, **25**, 082102 (2013).

6. T.-S. Lin, L. Kondic, U. Thiele and L. J. Cummings, Modelling spreading dynamics of nematic liquid crystals in three spatial dimensions, *J. Fluid Mech.*, **729**, 214–230 (2013).

5. T.-S. Lin, L. Kondic and A. Filippov, Thin films flowing down inverted substrates: three dimensional flow, *Phys. Fluids*, **24**, 022105 (2012).

4. T.-S. Lin, L. Kondic and L. J. Cummings, Defect modelling in spreading nematic droplets, *Phys. Rev. E*, **85**, 012702 (2012).

3. L. J. Cummings, T.-S. Lin and L. Kondic, Modelling and simulations of the spreading and destabilization of nematic droplets, *Phys. Fluids*, **23**, 043102 (2011).

2. T.-S. Lin and L. Kondic, Thin films flowing down inverted substrates: two dimensional flow, *Phys. Fluids*, **22**, 052105 (2010).

1. M.-C. Lai, C.-Y. Huang and T.-S. Lin, A simple Dufort-Frankel type scheme for the Gross-Pitaevskii equation of Bose-Einstein condensates on different geometries, *Numer. Methods for Partial Diff. Eqs.*, **20**, 624–638 (2004).

Conference papers

1. T.-S. Lin, D. Tseluiko and S. Kalliadasis, Numerical study of a non-local weakly nonlinear model for a liquid film sheared by a turbulent gas, *Procedia IUTAM*, **11**, 98 (2014).