Yi-Ju Chou (周逸儒)

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CURRENT POSITIONS: Professor: Institute of Applied Mechanics, National Taiwan University **HIGHEST DEGREE: PhD,** Environmental Fluid Mechanics Sep.2009, Stanford University **RESEARCH INTERESTS:** Numerical methods/Multiphase flow/Shock capturing scheme/Data-driven flow modeling/Hydrodynamic instability/Machine learning application

TEACHING EXPERIENCE: Numerical Methods in Engineering and Sciences /Introduction to Fluid Dynamic /Hydrodynamic instability /Applied Mathematics /Special Topics in Ocean and Offshore Engineering **MEMBERSHIPS**: American Geophysical Union /American Physical Society/Taiwan Society of Fluid Dynamics JOURNAL REFEREE: Journal of Fluid Mechanics /International Journal of Heat and Mass Transfer /Physics of Fluids /Computational Methods in Applied Mechanics and Engineering /Water Resources Research/International Journal for Numerical Methods in Fluids /Journal of Geophysical Research/International Journal of Multiphase Flow HONORS AND AWARDS

- Outstanding Paper Award for Young Scientists and Engineers, HKIE, Hong Kong, 2010
- Excellent Teaching Award, National Taiwan University, 2014, 2015, 2016, 2017, 2019
- Outstanding Teaching Award, National Taiwan University, 2020
- Paper Award for Young Researchers, Across-Strait Shock Wave/Complex Flow Symposium, Hong Kong, 2016, 2018
- Excellent Young Scholar Award, Ministry of Science and Technology (MoST), Taiwan, 2017
- Outstanding Research Award for young scholars, College of Engineering, National Taiwan University, 2020.
- Young Scholar Award, Society of Theoretical and Applied Mechanics of Taiwan, 2021

SELECTED PUBLICATIONS

- M.-J. Lee, Y.-J. Chang, Che-Jung Cheng, Y.-C. Yeh, C.-F. Chen, and Y.-J. Chou* (2023), A theoretical framework to determine the optimal centrifugation angle for separation of plasma from blood samples. Sensors and Actuators:
 A. Physical, 353, 114234.
- T.-Y. Chiu, H.-Y. Fang, H.-H. Fu, Y.-Y. Niu, and Y.-J. Chou* (2022), Bulge formation of liquid film at the trailing edge: Scaling laws and particle removal assessment. *Physics of Fluids*, 34, 123304.
- Y.-J. Chou, Y.-H. Mai, and C.-C. Tseng* (2021). Large-eddy simulation of coaxial powder flow for the laser direct deposition process. *Physics of Fluids*, 33, 125121
- Y.-J. Chang, R.-L. Chern, and Y.-J. Chou* (2021). Transient instability in long, tilted water columns with fast-settling, particle-laden layers *Journal of Fluid Mechanics*, 929, A42
- T.-Y. Chiu, Y.-Y. Niu, and Y.-J. Chou* (2021) Accurate hybrid AUSMD type flux algorithm with generalized discontinuity sharpening reconstruction for two-fluid modeling. *Journal of Computational Physics*, 443, 110540.
- C.-J. Cheng and Y.-J. Chou* (2021). Numerical study of instabilities of particle-laden fronts in continuously stratified environments. *Physics of Fluids*, 33(6), 064107.
- C.-Y. Hung, Y.-Y. Niu, and Y.-J. Chou* (2020). Numerical study of convective sedimentation in thermally stratified environments. *Journal of Fluid Mechanics*, 893, A27.
- Y.-J. Chou*, C.-Y. Hung, and C.-F. Chen (2020). Formation of drops and rings in double-diffusive sedimentation *Journal of Fluid Mechanics*, 884, A35.
- Y.-J. Chou*, C.-J. Cheng, R.-L. Chern, and C.-Y. Hung (2019). Instabilities of particle-laden layers in the stably stratified environment. *Physics of Fluids*, 31, 124101.
- Y.-C. Chang, T.-Y. Chiu, C.-Y. Hung, Y.-J. Chou* (2019). Three-dimensional Eulerian-Lagrangian simulation of particle settling in inclined water columns. *Powder Technology*, 348, 80-92.
- Y.-J. Chou*, et al. (2018). Three-dimensional modeling of fine sediment transport by waves and currents in a shallow estuary. *Journal of Geophysical Research-Oceans*, 123(6), 4177-4199.
- C.-Y. Tseng and Y.-J. Chou* (2018). Nonhydrostatic simulation of hyperpycnal river plumes on sloping continental shelves: flow structures and nonhydrostatic effect. *Ocean Modelling*, 124, 23-47.

- Y.-C. Shao, C.-Y. Hung, and Y.-J. Chou* (2017). Numerical study of convective sedimentation through a sharp density interface. *Journal of Fluid Mechanics*, 824, 513-549.
- Y.-J. Chou* and Y.-C. Shao (2016). Numerical study of particle-induced Rayleigh-Taylor instability: Effects of particle settling and entrainment. *Physics of Fluids*, 28, 043302, doi: 10.1063/1.4945652.
- Y.-J. Chou*, S.-H. Gu, and Y.-C. Shao (2015). An Euler-Lagrange model for simulating fine particle suspension in liquid flows. *Journal of Computational Physics*, 299, 955-973
- Y.-J. Chou*, F.-C. Wu, and W.-R. Shih (2014), Toward numerical modeling of fine particle suspension using a two-way coupled Euler-Euler model. Part 1: Theoretical formulation and implications. *International Journal of Multiphase Flow*, 64, 44-54
- Y.-J. Chou*, F.-C. Wu, and W.-R. Shih (2014), Toward numerical modeling of fine particle suspension using a two-way coupled Euler-Euler model. Part 2: Simulation of particle-induced Rayleigh-Taylor instability. *International Journal* of Multiphase Flow, 64, 35-43