Tong (Tony) Gao

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Education and Training

University of Pennsylvania (Applied Mechanics)	Philadelphia, USA	Ph.D.	2012
University of Science and Technology of China	Hefei, P.R. China	M.S.	2007
University of Science and Technology of China	Hefei, P.R. China	B.S.	2004

Employment History

Associate Professor	Mechanical Engineering, MSU	2021-Present
Associate Professor	Computational Mathematics, Science, and Engineering, MSU	2021-Present
Assistant Professor	Mechanical Engineering, MSU	2015-2021
Assistant Professor	Computational Mathematics, Science, and Engineering, MSU	2015-2021
Research Scientist	Courant Institute of Mathematical Sciences	2012-2015

Selected Publications

1. Z. Lin, Z. Yu, J. Li, T. Gao*, "Anisotropic swimming and reorientation of an undulatory microswimmer in liquid-crystalline polymers", ***J. Fluid Mech.*** 946 (2022), A30.
2. B. Palmer, S. Chen, P. Govan, W. Yan, T. Gao*, "Understanding topological defects in fluidized dry active nematics", ***Soft Matter*** 18 (2022), 1013-1018.
3. B. Palmer, W. Yan, T. Gao*, "Hydrodynamic instabilities of activity-balanced binary suspensions", ***Phys. Rev. Fluids*** 7 (2022), 063101.
4. Z. Lin, S. Chen, T. Gao*, "Q-tensor model for undulatory swimming in lyotropic liquid-crystalline polymers", ***J. Fluid Mech.*** 921 (2021), A25.
5. A. Hess, X. Tan, T. Gao*, "CFD-based multi-objective controller optimization for soft robotic fish with muscle-like actuation", ***Bioinsp. Biomim.*** 15 (2020), 035004.
6. S. Hughey, A. Alsnayyana, H.M. Aktulga, T. Gao, B. Shanker, "Fast and scalable evaluation of pairwise potentials", ***Comput. Phys. Commun.*** 225 (2020), 107248.
7. Z. Lin, A. Hess, Z. Yu, S. Cai, T. Gao*, "A fluid-structure interaction study of soft robotic swimmer using a fictitious domain/active-strain method", ***J. Comput. Phys.*** 376 (2019), 1138-1155.
8. S. Chen, P. Gao, T. Gao*, "Dynamics and structure of an apolar active suspension in annulus", ***J. Fluid Mech.*** 835 (2018), 393-405.
9. T. Gao*, Z. Li, "Self-driven droplet powered by active nematics", ***Phys. Rev. Lett.*** 119 (2017), 108002.
10. T. Gao*, R. Blackwell, M. A. Glaser, M. D. Betterton, M. J. Shelley, "Multiscale polar theory of microtubule and motor-protein assemblies", ***Phys. Rev. Lett.*** 114 (2015), 048101.
11. T. Gao*, H. H. Hu, P. Ponte Castañeda, "Shape dynamics and rheology of soft elastic particles in a shear flow", ***Phys. Rev. Lett.*** 108 (2012), 058302.

Teaching Experience

ME332, ME433, ME891, CMSE201, CMSE890

Honor

NSF CAREER award, 2020