



GTIIT MECHANICAL ENGINEERING SEMINAR

Thursday, November 20, 2025, at 13:30

Online: <https://technion.zoom.us/j/97660555083> **

Smart and Soft Interfacial Phenomena: From Smart Surfaces Design to Droplet-Microstructure Interaction

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Hosted by: Prof. Pinhas Bar-Yoseph

Almost every solid object has a surface that interacts with the surrounding liquids and this interaction-related behaviors and physics are termed Interfacial Phenomena. Specifically, how the microstructures of a superhydrophobic surface affect the dynamics and mobility of a water droplet play a critical role in various applications spanning from energy, water, to health. However, current studies were mostly conducted using rigid and passive surface microstructures and hence, a surface with stimuli-responsive, flexible, and superhydrophobic microstructures, denoted as smart ciliated surface, is an emerging topic in Interface Engineering and Science. Nevertheless, engineering challenges regarding mechanical fragility and mass production of smart microwires, scientific questions regarding the microscopic breakdown of surface superhydrophobicity and droplet-flexible microstructure coupling are the bottleneck for the application of smart ciliated surfaces. To address these challenges and questions, Dr. Jiang will introduce his research thrust, that is, Smart and Soft Interfacial Phenomena, with three interrelated directions: (1) scalable fabrication of robust smart ciliated surfaces, (2) microscopic superhydrophobicity breakdown, and (3) droplet mobility on flexible microstructures with emphasis on the second direction.

Dr. Jiang received his M.S. and Ph.D. degrees from Stevens Institute of Technology in 2014 and 2018, respectively, followed by postdoctoral training at Northwestern University. He joined the Mechanical Engineering Department of Guangdong Technion as the Assistant Professor in Oct. 2020 and has been serving as the deputy department head for teaching infrastructure development since 2022. He developed a distinctive research thrust termed Smart and Soft Interfacial Phenomena with emphasis on surface engineering for stimuli-responsive flexible surfaces, droplet dynamics and mobility on (soft) superhydrophobic surfaces. Since joining GTIIT, Dr. Jiang has authored more than 20 peer-reviewed papers as the corresponding authors mainly at the leading journals in Interfacial Phenomena, including *ACS Nano*, *JPCL*, *PR-Fluids*, *JCIS*, *ACS AMI*, *Soft Matter*, and *Langmuir*. Prof. Jiang has received multiple grants and awards, including NSFC (once), NSF-Guangdong (three times), and the Outstanding Young Talents of Guangdong (normal track). Moreover, Dr. Jiang is serving as the editorial member of *Surface Innovations* and the reviewer for NSFC.

** The Seminar will be recorded and available upon request