From micro-swimmer to continental motion: fluid-structure interaction across scales

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Fluid – structure interactions occur across vastly different temporal and spatial scales. In this talk, we will discuss two extreme cases in which mobile structures interact with their surrounding fluids: at the micrometer scale and across thousands of kilometers. This research is inspired both by the swimming behavior of bacteria in fluids and by the restless internal dynamics of the Earth. Insights gained from these experimental studies may help us better understand the natural phenomena we observe.

Bio: Jun Zhang studied in Europe—in Israel and Denmark—during the 1990s and completed a postdoctoral fellowship at Rockefeller University. Around 1999, as a research scientist, he built the Applied Math Lab (AML), an experimental fluid dynamics laboratory within the Courant Institute of Mathematical Sciences. He later joined the faculty of New York University with appointments spanning both the Courant Institute and the Department of Physics. Today, he works between NYU Shanghai and New York City, where he also serves as Co-Director of the NYU-ECNU Institute of Physics. He earned his PhD in physics from the Niels Bohr Institute and has been elected both a Fellow of the American Physical Society (APS) and a foreign member of the Academia Europaea (MAE).