# WORKING AND LITERATURE SEMINAR

**Topic:** **Fluid Ratchets and Biological Locomotion**

**Speaker:** **Jun Zhang, New York University**

Time: 14:30 - 15:30, 12 May 2014

Venue: Room 385, Geography Building, 3663 Zhongshan Road North, Shanghai
(华东师范大学中山北路校区，地理楼 385 室)

## ABSTRACT OF THE TALK

In this talk, I will discuss a few laboratory experiments that were carried out at the Courant Institute, NYU. There, solid structures were forced to interact with their surrounding fluid. These structures, or dynamic boundaries, interact with fluid in some asymmetric fashion - either because of their anisotropic geometry or by the spontaneous breaking of symmetry in their response to the fluid. When subject to reciprocal forcing, the coupled systems behave in ways that could be described as ratchets. The emerging motion of the fluid or structures can be related to locomotions in the biological world.

## BIOGRAPHY

Jun Zhang is Professor of Physics and Mathematics and Co-Director of the Applied Math Laboratory, NYU Courant Institute of Mathematics. His research interests include physics of fluids, which include biomechanics or bio-locomotion (organism swimming and flying), geological fluids (thermal convection, continental drift), solid-on-solid friction, and self-organization phenomena at microscopic scales.