Analysis of micro-fluidic tweezers in the Stokes regime[1]
LONGHUA ZHAO, Case Western Reserve University, YANG DING, Beijing Computational Science Research Center
— Nanowire fluidic tweezers have been developed to capture and manipulate micro objects. The fluidic trapping force and the fluid field are important to achieve accurate control, but have not been fully understood yet. Utilizing singularity method, we construct the exact velocity field to analyze flows induced by a spheroid nanowire tumbling in the Stokes regime. To further explore the trapping, we analyze the trajectories of rigid or deformable microspheres near the tumbling nanowire using regularized Stokeslet method. The fluid structure, the trapping phenomenon and mechanism, and precise relation about trapping with the geometry will be presented.

Longhua Zhao
Case Western Reserve University

Electronic form version 1.4