Abstract Submitted
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Carbon Nanotube-Based Devices and the Study of Fluid Transport through Them
HAIM BAU, University of Pennsylvania — Experimental data pertaining to liquid transport through carbon nanotubes with diameters ranging from a few to hundreds of nanometers is briefly reviewed. A hybrid fabrication technique of carbon nanotube-based devices is described. The fabrication technique combines dielectrophoretic positioning of nanotubes and photolithography. The devices facilitate the introduction and control of fluid flow through the carbon nanotubes. Preliminary experimental results pertaining to capillary filling of, condensation in, evaporation from, particle flow into, and ionic current transmission through the nanotubes are discussed and compared with theoretical predictions. Although many of the observations indicate that the liquids behave classically, a few observations are still puzzling and await explanation. Finally, electron microscopy of controlled liquid flow is proposed as a new paradigm in fluid physics.

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