

SOCIETY OF PHYSICS STUDENTS (SPS) EVENT

Modeling Macromolecular Microfluidics

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As the integrated circuit has revolutionized computation time, space and labor, miniturized fluidic “lab on a chip” systems hold a similar promise for automization in biology and chemistry. One of the central issues in microfluidics is the problem of mixing, since almost without exception flows in microchannels are wholly laminar. Several mixing schemes have been devised, such as the *staggered herringbone* chaotic mixer for continuous flow systems. An introduction to microfluidics will be presented, along with some examples of mixing schemes.

An important application of microfluidics is in the study of the effects of fluid flows on polymers. A simple polymer model of beads attached by Hookean springs is considered, with emphasis on the mechanical dynamics of the motion. The results of several computer simulations for polymer motion through two and three dimensional flows, as well as simulated *staggered herringbone* microchannels will be presented.

WHERE

SI – 117 (room next to Physics Computer Lab)

WHEN

Noon- 1pm
Thursday, April 30, 2009