LIQUID CRYSTAL MATERIALS RESEARCH CENTER

SPECIAL SEMINAR SERIES

Polymer Motion in Shear Flow

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Abstract: A polymer in planar shear flow shows an interesting tumbling motion. The distribution of random time intervals between tumbling, is a first-passage property for a non-Markovian process. We have shown that analytical progress can be made by considering the flexible (Rouse) chain limit of the problem, and the decay constant τ associated with the exponential tail of the tumbling time distribution can be estimated, for high shear rate: $\tau \sim 0.324$. The estimate helps us understand a result from the experiments.

Dr. Dibyendu Das is an associate professor in the physics department of IIT Bombay India. He is a theoretical physicist who works on non-equilibrium statistical mechanics.

Thursday, May 12th 4:00 p.m.
Duane Physics G1B31

Sponsored by the Liquid Crystal Materials Research Center
Department of Physics, University of Colorado.

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