Pulling a Polymeric Chain through Tiny Grommets XIAORONG
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of Science and Technology, HongKong — In this model, the N beads of mass m
are connected in a chain by entropy springs. The friction of the chain is described
by a viscous-force for energy dissipation. The interaction of the chain with the
grommets is represented by a narrow Gaussian potential. The equations of motion
for this model are Langevin type. It is shown that in this model the chain displays
oscillated motions under a constant pulling condition. This stick-slip dynamics in
a polymer system has not been discussed previously, but may really exist in some
systems such as polymer nano-composites and polymer-entangled fluids.

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