

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Statistics of work done by flow on a polymer MICHAEL
CHERTKOV, LANL — We study polymer immersed in a flow and subjected to
thermal fluctuations. Shear flow as well as chaotic flows are considered. Flow does
work on the polymer while the polymer in its turn releases excess of energy into
heat. Statistics of work/heat production is analyzed in this non-equilibrium (off
detailed balance) but steady problem theoretically and numerically. Analogs of fluc-
tuation theorem and Jarzynski equality for annealed/quenched averaging procedures
applied to the system are established. We also discuss possible generalization of this
approach/study to more complex non-equilibrium problems, like turbulence. This is
a joint work with A. Puliafito (INLN, Nice) and K. Turitsyn (Landau Inst., Moscow).

Michael Chertkov
LANL

Date submitted: 04 Dec 2005

Electronic form version 1.4