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 access 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 fluctuation 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).