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Pre-stretching a Polymer to Reduce the Variance on Mean Translocation Times DAVID SEAN, University of Ottawa, HENDRICK DE HAAN, University of Ontario Institute of Technology, GARY SLATER, University of Ottawa — Recent theoretical developments in driven polymer translocation highlight the importance of the polymer conformation before translocation. The rate of the propagation of tension arising from the application of a driving force is highly dependent upon the initial position of the monomers due to the separation of time scales between the polymer relaxation time and the translocation time. In this high Péclet number limit, we use Langevin Dynamics computer simulations and Tension-Propagation theory to investigate how pre-stretching the polymer controls translocation time distributions. Motivated by the influence of monomer crowding on the trans-side, we explore the contrast between applying a driving force inside the pore and applying a pulling force on the polymer end.

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