

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Role of small ion dynamics in driven translocation of polyelectrolytes through nanopores HARSHWARDHAN KATKAR, MURUGAPPAN MUTHUKUMAR, University of Massachusetts Amherst — Nanopores have been proposed to be used for a variety of applications such as in DNA sequencing and as molecular separation devices. In the present study, we focus on the dynamics of small ions (counterions and salt ions) while a charged polymer translocates through a finite-length nanopore under the action of an externally applied electric field. Coarse-grained molecular dynamics simulations are performed to study the translocation process, taking both the long-range hydrodynamics and the long-range electrostatics into consideration. We address the role of small ion dynamics on the properties of a DNA in a confined region.

Debasish Mondal
University of Massachusetts Amherst

Date submitted: 06 Nov 2015

Electronic form version 1.4