Abstract Submitted
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**Electrophoretic speed of a polyelectrolyte in a nanopore**[1] SANDIP GHOSAL, Northwestern University — A hydrodynamic model for determining the electrophoretic speed of a polyelectrolyte through a nanopore is presented. It is assumed that the speed is determined by a balance of electrical and viscous forces arising from within the pore in the presence of co and counter ions. Further, classical continuum electrostatics and hydrodynamics as well as the mean field description of Poisson-Boltzmann is assumed to be applicable after accounting for Manning condensation on the polyelectrolyte. An explicit formula for the translocation speed as a function of the pore geometry and other physical parameters is obtained and is shown to be consistent with recent experimental measurements on DNA translocation through nanopores in silicon membranes.

[1]Reference: Phy. Rev. E vol. 74, pg 041901

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