Canadian Association of Physicists
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Contribution ID: **4112** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) Enhanced Pulley Effect for Translocation

Monday 27 May 2024 17:00 (15 minutes)

Solid-state nanopore sensors continue to hold great potential in addressing the increasing worldwide need for genome sequencing. However, formation and translocation of folded conformations known as haripins poses readability and accuracy challenges. In this work, we investigate the impact of applying a pressure-driven fluid flow and an opposing electrostatic force as an approach to increase single-file capture probability. By optimizing the balance between forces, we show that the single-file capture can be amplified up to almost 95%. We find two mechanisms responsible for the increase in the single-file capture probability.

Keyword-1

Polymer Translocation

Keyword-2

Pulley Effect

Keyword-3

Molecular Dynamics

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