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## Breaking Bonds: Double-Helix Unzipping Reveals DNA Physics

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The translocation of polymers through nanopores has long studied as a fundamental theoretical problem as well as for its several practical ramifications, e.g. for genome sequencing. We recall that the latter involves driving a DNA filament through a pore so narrow that only one of the double-helical strands can pass, while the other strand is left behind. As a result, the translocated DNA double helix will necessarily split and unwind, an effect known as unzipping.

The research team, which also includes Antonio Suma from the University of Bari, first author, and Vincenzo Carnevale from Temple University, used a cluster of computers to simulate the process with different driving forces keeping track of the DNA's unzipping speed, a type of data that has rarely been studied despite being directly accessible in experiments.

Using previously developed theoretical and mathematical models, researchers were able to

work “backwards”, using the information on the speed to accurately reconstruct the thermodynamics of the formation and rupture of the double-helix structure.

Read the [original article](#) on International School for Advanced Studies (SISSA).