

Abstract Submitted
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Visualizing Chemical Interaction Dynamics of Confined DNA Molecules GILEAD HENKIN, DANIEL BERARD, FRANK STABILE, SABRINA LESLIE, McGill Univ — We present a novel nanofluidic approach to controllably introducing reagent molecules to interact with confined biopolymers and visualizing the reaction dynamics in real time. By dynamically deforming a flow cell using CLiC (Convex Lens-induced Confinement) microscopy, we are able to tune reaction chamber dimensions from micrometer to nanometer scales. We apply this gentle deformation to load and extend DNA polymers within embedded nanotopographies and visualize their interactions with other molecules in solution. Quantifying the change in configuration of polymers within embedded nanotopographies in response to binding/unbinding of reagent molecules provides new insights into their consequent change in physical properties. CLiC technology enables an ultra sensitive, massively parallel biochemical analysis platform which can access a broader range of interaction parameters than existing devices.

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