

Abstract Submitted
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Targeted manipulation of single large DNA molecules ZUBAIR AZAD, ROBERT RIEHN, North Carolina State Univ — We have developed a technique to manipulate one or more strands of DNA independently inside junctions of nanochannels. The work extends the concept of controlling DNA configurations through confinement by adding deliberate real-time control. The technique is based on independent control of fluid flow or voltages in the channels leading to the nanochannel junctions. By mismatching the flows into each of the channels, we create flow gradients at the channel junctions that manipulate the DNA configuration. Specific examples of DNA configuration control are the folding single DNA molecules, and the colocation of two independent molecules in the same channel segment. We believe that these manipulation techniques aid the study of DNA-DNA interactions.

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