

Abstract Submitted  
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**Single-molecule manipulation of genomic DNA in extensional flow for haplotyping applications** REBECCA DYLLA-SPEARS, LYDIA SOHN, SUSAN MULLER, University of California, Berkeley — We have developed a method amenable to haplotyping and manipulation of single molecules of double-stranded genomic DNA. Fluorescent polystyrene beads that are surface-functionalized with site-specific probes are incubated with fluorescently labeled double-stranded lambda-DNA. The solution is introduced into a microfluidic cross slot where the DNA molecules are trapped and elongated at the stagnation point of the planar extensional flow. The degree of elongation can be controlled using the flow strength in the device, as demonstrated by Perkins, Smith, and Chu (Science 1997). Beads bound along the stretched DNA may be directly observed and their locations along the backbone determined using fluorescence microscopy.

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