

Abstract Submitted  
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**The integration of optical tweezers and nanopores for DNA-protein interaction studies** XU LIU, DEREK STEIN, Brown University — Nanopore technology offers an electronic means of studying the structure of single linear polymers, such as DNA molecules, during their voltage-driven translocation. We seek to study the genetic information along DNA by coating molecules with sequence-sensitive protein, which should also increase conductance blockade signals at the targeted sequences. Our nanopore studies will be facilitated by optical tweezers, which can arrest individual DNA molecules tethered to a trapped bead, detect the positions of protein binding sites with nanometer precision, and measure their binding forces with piconewton sensitivity. Finally, a fluorescence microscopy imaging system will enable the simultaneous study of DNA conformations and dynamics. This poster will describe the development of the experimental apparatus.

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