

Abstract Submitted
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A Theoretical Study of the Use of Electroosmotic Flow to Extend the Read-Length of DNA Sequencing by End Labeled Free Solution Electrophoresis LAURETTE MCCORMICK, GARY SLATER, University of Ottawa — End Labeled Free Solution Electrophoresis provides a means of separating DNA with free solution capillary electrophoresis, eliminating the need for gels and polymer solutions which increase the run-time and can be difficult to load into a capillary. In free solution electrophoresis, DNA is normally free-draining and all fragments elute at the same time, whereas ELFSE uses an uncharged label molecule attached to each DNA fragment in order to render the electrophoretic mobility size-dependent. We show how an electroosmotic flow could be used to extend the read-length of DNA sequencing with ELFSE. In particular, we demonstrate that the magnitude of the electroosmotic flow must be selected very carefully in order to gain both in speed and in read length. The possibility of having molecules moving in opposite directions is also examined.

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