Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Development of dumbbell model for the electrophoresis of end-labeled DNA HENRY LAU, LYNDEN ARCHER, School of Chemical and Biomolecular Engineering, Cornell University — The electrophoretic behavior of end-labeled DNA in free solution is investigated. This talk focuses on using a simple dumbbell model for the labeled DNA to study the effect of the applied field, label size, and chain stiffness on DNA conformation and electrophoretic mobility. Experimental results obtained via capillary electrophoresis are in general agreement with predictions. Extending our model to study high field dynamic behavior, a scaling approach is employed to account for the field-induced alignment of chain segments at progressively higher applied fields. We discuss our results in the context of optimizing the size-based separation of DNA.

Henry Lau
School of Chemical and Biomolecular Engineering, Cornell University

Date submitted: 27 Nov 2009 Electronic form version 1.4