1056-Z1-1422 **Rachel R Roe-Dale*** (rroedale@skidmore.edu), Skidmore College, Mathematics and Computer Science Department, 815 North Broadway, Saratoga Springs, NY 12866, and **Emese Lipcsey-Magyar** and **Kimberly Frederick**. *A Biexponential Model of Electroosmotic Flow.* Preliminary report.

Electroosmotic flow (EOF) describes the induced fluid flow at the interface between a buffer solution and a charged surface upon application of an external potential. One of EOF's main applications is in capillary electrophoresis, an analytical chemistry separation technique. For sample reproducibility, a mathematical model of EOF in a dynamic buffer system would be advantageous. Several models exist, but these models do not capture the observed trends in real-time data. We examine a series of data sets, and ultimately conclude that EOF as a function of time, $v(t)$, is most appropriately modeled by the biexponential function, $v(t) = Ae^{r_1 t} + Be^{r_2 t}$. We reach this conclusion after fitting both experimental and simulated biexponential data with a single exponential function and observing a series of residual plots with polynomial shape which ultimately we show to be indicative of the Taylor series expansion for the missing exponential term. (Received September 21, 2009)