Supplementary Material (ESI) for Lab on a Chip

Characterizing Dispersion in Microfluidic Channels: Caption for the video file included as supplementary data

Subhra Datta[a*] and Sandip Ghosal[b†]

[a] *201, W 19th Avenue, Mechanical Engineering, The Ohio State University, Columbus, OH 43210, USA*

[b] *2145 Sheridan Road, Mechanical Engineering, Northwestern University, Evanston, IL 60208-3111, USA*

(Dated: June 11, 2009)

Evolution in time of the concentration distribution of a neutral analyte suffering wall adsorption according to a linear kinetic law while being transported by an electroosmotic flow in a square microchannel of side $2b$, calculated from the 1-D numerical simulation of the asymptotically reduced model described by Equation (3.11). The dimensionless adsorption rate constant $\lambda = 2k_d b/\bar{u} = 0.02$, the dimensionless equilibrium constant $K = k_a/(2k_d b) = 1$ and $Pe = \bar{u}(2b)/D = 10$. The variable x on the horizontal axis of the video is the dimensionless axial distance measured in units of $2b$. The area averaged analyte concentration $\bar{c}(x,t)$ measured in moles per unit volume is scaled by $c_0 = 1/(2b)^3 \int c dV$, where V is the volume of the simulation cell of length $L = 100b$, to obtain the dependent variable, which is a dimensionless concentration. Refer to Section IIIB.2 of the main article for an additional discussion.

*E-mail:datta.20@osu.edu

†E-mail:s-ghosal@northwestern.edu