

Abstract Submitted
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Anomalous analyte dispersion at microchannel-nanocapillary membrane interfaces JARROD SCHIFFBAUER, Physics Dept, West Virginia University , KATHLEEN KELLY, Chemistry Dept., West Virginia University, WILL BOOTH, Physics Dept., West Virginia University, JOSH FERNANDEZ, Chemical Engineering. Dept., West Virginia University, AARON TIMPERMAN, Chemistry Dept., West Virginia University, BOYD EDWARDS, Physics Dept. West Virginia University — The dispersion of a plug-like distribution of negatively charged fluorescent dye molecules inside a microchannel is studied by numerical analysis of a time-series of epifluorescence microscope images. The concentration is accomplished using a nanocapillary membrane (NCM) –based concentration device. Dispersion of the analyte after concentration is complete, i.e. after the applied voltage is removed, is of considerable technical interest as a limiting factor in the functionality of lab-on-a-chip concentration devices. Subsequent band-broadening is inconsistent with Taylor dispersion and is shown here to be influenced by the presence of charge-separation between the concentrated analyte and background buffer ions.

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